Fourth annual report of the Wisconsin Agricultural Experiment Association : Madison, Wis., Feb. 8, 9, 1906. Address of president, secretary's report with papers and addresses given by members of the a...

Wisconsin Agricultural Experimental Association
Madison, Wisconsin: Democrat Printing Company, State Printer, 1906

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FOURTH ANNUAL REPORT

OF THE

WISCONSIN

Agricultural Experiment Association

Madison, Wis., Feb. 8, 9, 1906

Address of President, Secretary's Report with Papers and Addresses given by Members of the Association and Others Interested in Progressive Agriculture

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Compiled by

R. A. MOORE, Secretary

MADISON
Democrat Printing Company, State Printer
1906

"Whatsoever a man soweth,
That shall he also reap."

"The sun and rain will ripen fast,
Each seed that thou hast sown,
And every word or act at last,
By its own fruit be known."

LETTER OF TRANSMITTAL.

WISCONSIN AGRICULTURAL EXPERIMENT ASSOCIATION.

Madison, Wis., 1906.

To His Excellency, JAMES O. DAVIDSON,

Governor of the State of Wisconsin:

SIR—I have the honor to submit for publication, as provided by law, the Fourth Annual Report of the Wisconsin Agricultural Experiment Association, showing the receipts and disbursements the past year, also outlines for experiments, and addresses and discussions given at the annual meeting at Madison, February 8–9, 1906.

Respectfully submitted,

R. A. MOORE,

Secretary.

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OFFICERS, 1906.

President—A. L. STONE.....Madison
Vice President—H. A. MAIN.....Ft. Atkinson
Secretary—R. A. MOORE.....Madison
Treasurer—P. A. DUKLETH.....R. D. 40, Mukwonago

COMMITTEES.

Program:	Officers of the association.	
Executive:	L. P. Martiny	Chippewa Falls
	W. W. Bewick	Madison
	Christ. Schroeder	Madison
	W. A. Toole	Baraboo
	Geo. Harrison	Monroe
	H. E. Rosenow	R. D. 25, Oconomowoc
Resolutions:	W. H. Hanchett	Sparta
	Edwin Trowbridge	Madison
	Vernon Taft	Whitewater
Co-operative Experiments:	Farm Crops	R. A. Moore
	Agricultural Physics	A. R. Whitson
	Farm Engineering	C. A. Ocock

CONSTITUTION AND BY-LAWS.

CONSTITUTION.

Article I.—Name.

This organization shall be known as the Wisconsin Agricultural Experiment Association.

Article II.—Object.

The object of this association shall be to promote the agricultural interests of the state.

1st. By carrying on experiments and investigations that shall be beneficial to all parties interested in progressive farming;

2d. To form a more perfect union between the former and present students of the Wisconsin College of Agriculture, so as to enable them to act in unison for the betterment of rural pursuits in carrying on systematic experiments along the various lines of agriculture;

3d. By growing and disseminating among its constituency new varieties of farm seeds and plants;

4th. By sending literature bearing upon agricultural investigations to its membership, and

5th. By holding an annual meeting in order to report and discuss topics and experiments beneficial to the members of the association and those interested in progressive farming.

Article III.—Membership.

Section I. All former, present and future students and instructors of the Wisconsin College of Agriculture shall be entitled to become members of this association.

Section II. Honorary membership may be conferred upon any one interested in progressive agriculture by a majority vote at any annual or special meeting of the association.

Article IV.—Dues.

A fee of fifty cents shall be collected from each member annually.

Article V.—Officers.

The officers of this association shall consist of a president, vice-president, secretary and treasurer, whose terms of office shall be one year or until their successors are elected.

Article VI.—Duties of Officers.

Section I. It shall be the duty of the president to preside at all meetings of the society and enforce the observance of such rules and regulations as will be for the best interest of the organization; to appoint all regular committees as he may deem expedient for the welfare of the association.

Sec. II. In the absence of the president, the vice-president shall preside and perform all duties of the president.

Sec. III. It shall be the duty of the secretary to keep all records of the association; to report the results of all co-operative experiments carried on by its membership and the experiment station; plan the experimental work as far as possible for the members of the association, and labor for the welfare of the society in general.

Sec. IV. The treasurer shall collect fees, keep secure all funds of the association and pay out money on the written order of the secretary signed by the president. He shall furnish bonds in the sum of two thousand dollars with two sureties, for the faithful performance of his duties.

Article VII.—Amendments.

This constitution may be amended at any annual meeting by a two-thirds vote of the members of the association present.

Amendment No. 1.—Adopted Feb. 9, 1906.

Any person residing within the state having completed a course in agriculture in any college equivalent to that given by the Wisconsin University may become a member of this association under the same regulation as students from the Wisconsin College of Agriculture.

BY-LAWS.

Article I. The officers of this association shall be elected by ballot at the annual meeting.

Art. II. The president and secretary shall be ex-officio members of the executive committee.

Art. III. This association shall be governed by Robert's Rules of Order.

Art. IV. All members joining at the organization of this association shall be known as charter members.

Art. V. The time and place of the annual meeting shall be determined by the executive and program committees.

Constitution adopted and organization effected Feb. 22, 1901.

MEMBERSHIP, 1906.

(Those marked with a star are charter members of the Association.)

Aavang, Henry A.....Barneveld
Accola, John H.....Prairie du Sac
Accola, Lawrence....Prairie du Sac
Aderhold, H. F.....Athens
Akins, Clyde E .....Warren, Ill.
Alcalay, Sam J.....Madison
Almon, Perry T.....Weyauwega
Amdall, G. M .....Dallas
Amott, A. L.....Viroqua
Anderson, Alvin M.....Whitewater
Anderson, Henry.....Mt. Horeb
Anderson, Martin... .Morrisonville
Anderson, Thos. E .....Wild Rose
Anderson, W. H.....Elroy
Andrew, W. R.....Livingston
Andrews, A. L.....South Wayne
Arnold, Cliff B.....Greenwood
Arp, Gustav .....Irwin, Iowa
Ashton, Blaine .....Belmont
Ashton, Charles H.....Belmont
Ashton, Lester .....Belmont
*Athearn, L. J.....Oshkosh
Austin, W. B., Janesville, R. F. D. 1
Austin, W. D., Janesville, R. F. D. 6

Babcock, John D.....Fall River
Baker, E. D .....White Hall, Ill.
Baker, F. E.....White Hall, Ill.
Barmore, Trevor J., Monroe, R.F.D.5
*Barron, R. E. .....Platteville
Barnes, William H.....New Lisbon
Bast, Paul J .....Rockfield
Batho, Lester.....Seymour
Baurenfeind, Henry..N. Milwaukee
(R. F. D. 11.)
Bechtolt, J. D...Monroe, R. F. D. 3
Becker, P. V..Plymouth, R. F. D. 29
Behrens, Bernh., Grafton, R. F.D.112
Belda, Wm. F .....De Forest
Bell, Geo. S.....Madison
Bell, Legrand L .....Brooklyn
Bemis, Fred H., Janesville, R. F. D.5
Benedict, A. M .....Mazomanie
Benedict, E. L.....Beloit
*Bennett, Arthur F.....Wawa, Pa.
Bennett, Chas. S....Harlem, Mont.
Bennett, Ora.....Glen Haven
Bennett, Philo .....Rubicon
Bennett, P. T .....Chicago, Ill.
(9720 Prospect Ave.)
Bennett, William...New Richmond
(R. F. D. 4.)
*Benson, Ed. E., Mt. Horeb, R. F.D.5
Best, Frank E.....Brooklyn
Beule, Elmore A.....Fox Lake
*Biggar, T. S.....Walkerville, Ont.
Biglow, L. F .....Brooklyn
Bilderbach, W. F .....Mondovi
Bilkey, J. W.....Rosendale
Bille, J.....Waupaca
Birrenkott, Michael.....Klevenville
Bixby, P. T .....Appleton
Bjerrum, Martin..Ft. Collins, Colo.
Blackmun, Eugene G ...West Bend
Blakeley, Albert J .....Neenah
Blanik, Geo. F...Algoma, R. F. D. 3
Blood, Ike.....Mukwonago
Boggess, C. P.....Catlin, Ill.
Bonzelet, J. P .....Eden
Borden, H. T....Swedesboro, N. J.
*Boss, S. J ....Oshkosh, R. F. D. 7
*Boss, U. C....Oshkosh, R. F. D. 7
Boucsein, Gust .....Detroit Harbor
Boyle, Frank .....Oconomowoc
Brager, Henry A .....Mt. Horeb
Brandt, Louis H..Garnavillo, Iowa
Brewer, Burt F.....Berlin
Brindley, T. H.....La Crosse
Brodt, Clarence.....Bridgeport
(R. F. D. 1.)
Brook, James W.....Salem
Brown, E. D.....West Salem
Brunner, Martin...Cato, R. F. D. 2
Brusewitz, A. G.....Black Creek
Bryson, Donald.....Elizabeth, Ill.
Buck, C. W....Eldorado, R. F. D. 1
Buck, J. B.....Phillips
*Burce, Ruth.....Eau Claire

Burnham, E. F.....Weyauwega
(R. F. D. 2.)
Burr, H. R.....Marshall
*Bussewitz, W. E.....Juneau
Butler, Edward N...No. Milwaukee
(R. F. D. 11.)
Byerly, Edmund.....Antigo

Cairns, Everett A.....Mt. Hope
Calhoun, R. E.....Aledo, Ill.
Call, Henry H.....West Prairie
Cameron, Duncan A.....La Crosse
Campbell, Miss E. P...Stanford, Ct.
(19 Glenbrook Road)
Campbell, Geo.....Augusta
Capener, Howard.....Baraboo
Carey, Clinton H.....Redgranit
Carmichael, Allen.....Waukesha
Carmody, P. J.....Mt. Ida
Cass, Leonard.....Viroqua
Catt, Harry.....Clintonville
Chase, J. P.....Sun Prairie
Chatterton, R. W.....Basco
Chetlain, L. A.....Galena, Ill.
Chipman, W. R.....Morrisonville
Chloupek, Victor.....Mishicot
Chrislaw, Albert M.....Rice Lake
Chrisler, Harvey E.....Lodi
Christensen, Herman.....Milltown
Christensen, J. P.....Oshkosh
(R. F. D. 7.)
Christenson, C. Alfred.....Walsh
Christiansen, W. O.....Chip. Falls
Christoph, Theodore.....Clinton
Chrysler, Harvey.....Osseo
Church, Geo. S.....Allenville
(R. F. D. 18.)
Chynoweth, H. E.....Madison
(R. F. D. 3.)
Clack, John H.....Appleton
Clark, Clarence.....Markesan
Clark, C. F.....Madison
Clark, W. E.....Stevens Point
Clavadatscher, T.....Sauk City
Clemit, Adolph.....Cambridge
Clow, A. D.....Lodi
Clusen, Reinhold.....Manitowoc
Cobb, H. A.....Sun Prairie
Cockerill, H. L.....Berlin
Colenso, James E....Madison, N. J.
Collin, D. W.....Luxembourg
Conant, W. A.....Manchester, Me.
Conger, Theo. H. Jr.....Madison
Coon, Elam P.....Cambridge
Cooney, Martin.....Corliss
Cooper, Arthur A...Elizabeth, Ill.
Crane, V. R.....St. Charles, Ill.
Cross, A. J.....Allenville
Crow, Ray.....Monroe
Curran, William F.....Taylor

Dahlen, M. T., Westby. (R. F. D. 1.)
*Dale, C. H.....Soldiers Grove
Davis, John.....Mineral Point
DeCoster, James.....Deronda
Deleglise, Leo. L.....Antigo
Delsman, Theo.....Manitowoc
(R. F. D. 5.)
Delwiche, E. J.....Iron River
Delwiche, O. J.....Madison
Deneen, Michael.....Blue Mounds
Dennison, Nicholas..N. Milwaukee
*Dettinger, W. F....Hinsdale, Ill.
Dickey, Meldrum.....Green Bay
(R. F. D. 7.)
Dietrich, J. J.....Blk. Riv. Falls
Dittmar, Wm. A.....Elizabeth, Ill.
*Dixon, Darley.....Cuba City
Dodge, J. E.....Lowell, Mass.
Donaldson, H. A.....Eau Claire
Downey, Urso.....Whitewater
Dreger. Emil... Madison, R. F. D. 6
Drolshagen, Anthony....Milwaukee
(873 34th Street.)
*Dukleth, P. A.....Mukwanago
*Dunbar, Harry D.....Elkhorn

Eastman, Frank...Sheboygan Falls
Eastman, Seth A.....Madison
Ebert, Edmund D.....Tomah
*Ebert, Francis.....Tomah
Ehrhardt, Daniel.....Knowles
Einfeldt, Albert.....Greenwood
Eiring, Erwin.....Eagle
Ellickson, A. C.....Arlington
Ellis, Vernie G.....Evansville
Ellison, Chas. J.....Rubicon
Elver, E. C.....Madison
Ely, Scott, Strong's Prairie, R.F.D.1
Emery, Geo. Q.....Stoughton
Engleman, John.....Galesville
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Erickson, Erick.....Soldiers Grove
Erickson, Ole C.....Detroit Harbor
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Fenster, Alvy.....Middleton
Finsnes, Andrew.....Stoughton
Fischer, Lewis H., Haven, R. F. D. 6
Fisher, Clayton E.....Evansville
(R. F. D. 17.)
Fisher, Joseph.....Janesville
Fisher, J. H., Evansville, R. F. D. 17
Fleishauer, Chas.....Arkansaw
Ford, Thos. R.....Milwaukee
(653 Walker Street.)

Forsyth, John N., Baldwin, R. F.D.2
Foster, Carl .....Fall River
Fox, C. L.....Leon
Fox, E. W.....Reedsville
Frauenheim, O. R....Random Lake
Freeman, Geo. A.....Sparta
Freeman, Roy F.....Racine
(1403 W. 6th St.)
Fromm, Walter J .....Cedarburg
Fruit, B. L.....Arthur
Fruit, C. E.....Arthur
Fruit, E. L .....Arthur
Fruit, Jay.....Arthur
Fruit, J. P .....Arthur
Fuller, J. G .....Madison
Fuller, Sidney L .....Milwaukee
(126 26th Street.)

Galloway, Geo.....Alma Center
Gangstad, Edward .....Deerfield
Gangstad, Otis.....Deerfield
Ganschow, W. C.....Bonduel
Gardner, Willis H.....Solon Mills
Garside, Harry.....Cedar Grove
Gassen, Louis.....Glen Haven
Gerking, F. J .....Elk Mound
Germann, Henry .....Fall Creek
Ghastin, William J.....Twin Bluffs
Gibbard, P. J.....Ripon
*Gillette, R. A ..Verona, R. F. D. 1
Gimre, C. H.....Verona
Gintner, Joseph.....Reedsville
(R. F. D. 3.)
Glindinning, H. L .....Shullsburg
Goddard, Mark C.....Ft. Atkinson
Goetsch, Albert A.....Juneau
Goldsmith, R. B.....Weyauwega
Grebe, Fred P.....Fox Lake
Greengo, A. L....Menomonee Falls
Grimstad, A. C .....Barneveld
Grimwood, Ivan J.....Bristol, Ill.
Griswold, Harry W.....West Salem
Gross, Waldo E .....Merrimac
Gruhle, W. H.....Barton
Gueldner, Willie.....Mondovi
*Gullickson, Charles E ....Cushing
Guptill, L. R .....New Auburn
Gustafson, Theo., Stockholm, R.F.D.1

Haass, Otto.....Merton
Haave, Isaac P.....Bonduel
Hackett, Chas. H.....Baraboo
Haevers, Martin.....Luxembourg
(R. F. D. 4.)
*Hager, M. H.....Prairie du Sac
Hagestad, A. C.....Ettrick
Halbert, J. H .....Augusta
Halvorson, Theo.....Whitewater
Hamilton, T. S.....Westfield
Hanchett, W. H.....Sparta
Haner, F. E.....Sun Prairie
Hansen, Harry H.....Fontenoy
Hansen, Geo. M.....Fontenoy
Hanson, N. P..... Amherst Jct.
Hanzlik, David E.....Wonewoc
Hanzlik, Otto.....Acton, California
Hargrave, Robert.....Ripon
Harland, R. E.....Cottage Grove
Harriman, Fred, Jr.....Shawano
Harris, Jesse S .....Delavan
Harris, R. E.....Warrens
Harris, R. T. .....Madison
Harrison, Geo.....Monroe
Haskins, I. O .....Prairie du Sac
Hasselkus, Erwin..... Milwaukee
(Station, Main, care carrier No. 42.)
Hasselquist, William.....Wild Rose
(R. F. D. 2.)
Hatch, L. M..... Chapin, Iowa
Haus, Enoch.....Rice Lake
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Heid, W. J., Ft. Atkinson, R. F. D. 1
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Heldstab, C. O.....Rice Lake
Herdrich, Samuel .....Adell
Hendrichs, L. E.....Cambellsport
Hesselberg, Arthur.....Bangor
Hetts, C. Eugene.....Ft. Atkinson
Hetts, Gary, Ft. Atkinson, R. F. D. 1
Hetts, J. D.....Ft. Atkinson
Heuer, Edward, Wautoma, R. F. D. 3
Heyroth, Louis H., Mishicot, R. F. D. 3
*Hicken, A. B .....Pewaukee
Hicks, Earl L.....Pepin
Hildemann, E. S.....Belleplaine
Hill, Otto C .....Mt. Horeb
Hillier, H. B .....Waunakee
Hinz, A. F .....Ripon
Hitchcock, H. R....Pecatonica, Ill.
Hoague, Charles, Janesville, R. F. D. 7
Hoefner, Alfred, Manitowoc, R. F. D. 2
*Holcomb, W. R.....Elkhorn
Holman, L. A .....Waupaca
Holman, Ray M .....Waupaca
*Houkom, Stephen.....Blair
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Howell, Horace P .....Sparta
Howitt, C. H.....Randolph
Hoyem, Sigmund .....Eau Claire
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Jacobs, A. J.....Coloma Station
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Jahnke, J. F.....Pepin
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Jirtle, Geo. B...Algoma, R. F. D. 4
Johnson, Albert I .....Bloomer
Johnson, Alden O .....Weyauwega
Johnson, Billie.....Strong's Prairie
Johnson, Charles G.... Clintonville
Johnson, Elmer.....Williams' Bay
Johnson, H. W .....Woodford
Johnson, Kasper.....Blair
Johnson, Lawrence G ..Whitewater
Johnson, L. M .....Ashland
Jones, Albert .....Dousman
Jones, E. E....Rockland, R. F. D. 1
Joos, Frank B .....Fountain City
Jordalen, Clarence .....Stoughton
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Kaiser, Ed. C..... Garnavillo, Iowa
Kaltenberg, Anton .....Waunakee
Karchar, Albert F .....Burlington
Keir, S. M.....Viroqua
Kendall. Myron.....Iola
Kendall, V. F.....Iola
*Kent, H. W .....Rusk
Kent, J. S.....Rusk
Keogh, Harry P.....Forestville
Kiefer, Michael, Fredonia, R. F. D. 1
Kimble, Newton ...Milton Junction
Kindschi, L. O .....Prairie du Sac
Kinney, Rolla E..Potosi, R. F. D. 2
Kinney, R. O .....Lancaster
Kinney, V. H.....Lancaster
Kitchen, Joseph H.....Orfordville
Klovdahl, J. J.....Wittenberg
Klovdahl, O. J .....Wittenberg
Kluck, Floyd E.....Lena, Ill.
Kluck, Roy E.....Lena, Ill.
Klussendorf, Fred E.....Jewett
Kneipp, Wm.....Weyawegu
Knudson, H. M .....Merrill
Kohlwey, Otto .....Grafton
Kolar, F. J .....Muscoda
Koll, C. A.....Eau Claire
Koltes, Jos. F .....Dane
Konz, John, Sr.....Fairchild
Korthals, A. C .....Summit Lake
*Kramer, Henry F..... Bloomer
Krase, Henry C.....Two Rivers
Krogstad, Oscar J .....Eau Claire
(R. F. D. 4.)
Krostue, Julius.....Sheridan
Krueger, Alex., Watertown, R.F.D.2
Krueger, Henry E.....Beaver Dam
(R. F. D. 5.)
Kuehn, Charles .....Brandon

Lachmund, Robert .....Sauk City
Lanpheer, Harry .....Glenbeulah
(R. F. D. 3.)
Larson, Elmer J .....Waupaca
Larson, J. M., Wautoma, R. F. D. 1
Larson, Leroy J., Iola ...R. F. D. 1
Larson, Ole E .....Boise, Idaho
(Care U. S. Geol. Survey.)
Larson, W. B ....Ogdensburg
Lawton, A. R .....Viola
Lawrence, Floyd W....West Salem
Lean, Floyd H .....Elkhorn
Lean, R. J ....Elkhorn
Lebeis, Frank J .....Bloomer
Lee, Ernest W .....Granton
Leete, Carroll.....West Salem
*Lehman, William.....Neosho
Leverich, J. W.....Sparta
Lewellin, George C.....Waterloo
Lewis, Geo. C.....Madison
Liebe, J. H .....Grand Rapids
Liebzeit, A. E.....Sheboygan Falls
(R. F. D. 7.)
Lindas, T. A.....Marshall
Lindberg, Emil.....Itasca, Box 15
Linker, William J.....Hartford
Linse, Chas.....La Crosse
Lloyd, Evan B .....Cambria
Logan, R. G .....Junction City
*Longanecker, Elmer, CerroGordo. Ill
Longley, A. E.....Dousman
Longley, H. N.....Dousman
*Longworthy, J. V .....Augusta
Loomis, Charles W.....Wauwatosa
Loomis, George E .....Mondovi
Lovejoy, H. D .....West Salem
Lowell, Lloyd .....Sharon
Lowry, Harry W., Waukesha, R F.D.2
Luening, F. W .....Wauwatosa
Lyon, Wilson B., Merrillan Junction
Lyons, Joseph S .....Basco

Maeder, J. W .....Sun Prairi
Main, A. G.....Hortonvill

Main, Herbert A.....Ft. Atkinson
Malde, O. G.....Grand Rapids
(R. F. D. 8.)
Manoque, M. J.....Whitewater
*Marck, Fred R.....Honey Creek
(R. F. D. 1.)
Marck, L. G.....Honey Creek
(R. F. D. 1.)
Markey, Walter .....Sullivan
(R. F. D. 2.)
Markey, W. E .....Sullivan
Marlow, Melvin .....Lancaster
(R. F. D. 9.)
Marshall, Roy R.....East Troy
Marshall, W. S .....Delton
Martin, H. A..... .....Gotham
Martiny, L. P .....Chippewa Falls
Marty, Matthias .....Monticello
Matheson, M. C..... Sawyer
Mathews, Milton D.....Helenville
Mattison, Thos .....Blair
McCarty, Edward H....Brownsville
McCauley, Rex .....Osseo
McClure, Mark.....Manhattan, Ill.
McConnell, R. E.....Tomah
McIntyre, Ivan M.....Ft. Atkinson
McKichan, F. E .....Patch Grove
McNown, J. H..... Mauston
McRandles, J .....Waukesha
Meekin, H. W .....Fond du Lac
Menne, J. N....Elkhorn, R. F. D. 2
Merkel, Henry..Appleton, R. F. D. 3
Meurer, Paul Jr.....Genoa Jct.
*Meyer, A. J....Oakwood, R. F. D. 18
*Meyer, E. J.....Tomah
Meyer, Louis J..Mishicot, R. F. D. 1
Millar, Will .....Menomonie
Miller, Guy E., Jr.....Markesan
Miller, Henry C.....Allenville
Minnick, Hugh.....Chippewa Falls
Miritz, O. F.....Fond du Lac
Mitchell, J. T .....Cottage Grove
Moen, Geo. O.....Cambridge
Moergeli, Henry.....Washburn
Molley, Mason M .....Ontario
*Moore, R. A.....Madison
Morgan, Charles. .....Albany
Morris, G. C.....Ridgeway
Morse, Walter A....Camden, N. Y.
Muehleisen, Gottlieb .....Alma
Mueller, August .....Manitowoc
Mueller, Ed. O..Appleton, R. F. D. 1
Mulcahy, John W.....Belmont
Murkley, H. D.....Berlin
Murphy, D. E.....Chicago, Ill.
(2552 Prairie Ave.)
Murphy, R. G ....Westtown, Penn.
Myrick, M. O.....Bristol

Nagle, Edward.....Patch Grove
Nelson, A. M .....Spring Valley
Nelson, Elmer B.....Osceola
Nelson, James...Waupaca, R. F. D. 3
Nelson, Peter C.....Milltown
Nelson, Thos. E.....Ferryville
Newhouse, Chas. L.....Clinton
(R. F. D. 32.)
Nicolaus, D. C.....East Troy
Nies, Peter.....Greenleaf, R. F. D. 3
Norsman, Jerome.....Madison
North, Geo.....White Hall, Ill.

Ochsner, Arthur .....Plain
O'Connor, Edward F .....Lodi
(R. F. D. 1.)
Ogle, James L .....Waldo
Oldenburg, G. H...Bailey's Harbor
Oleson, James P.....Ripon
Oliver, Albert.... .....Galesville
Olson, G. C.....Westby, R. F. D. 2
Olson, Harry .....Larsen
*Olson, Herman.....Stoughton
Olson, Otto W .....Walsh
Olson, William .....Browntown
Orell, Leo.....Algoma, R. F. D. 4
Orth, Alfred F.....Muscoda
Orton, F. S.....Lancaster
Orvold, Jens ..... Ashland
Osborne, W. F.....Linden
Osterday, E. G.....Stockton, Ill.

Pabst, Fred.....Oconomowoc
Page, F. W .....Princeton
Palm, Oscar .....Washburn
Palmer, Howard.....Baraboo
Palmer, Levi..... Fitchburg
Parrish, J. O ..... Plymouth
(R. F. D. 24.)
Parsons, W. A.....Ft. Atkinson
Patterson, Roger H.... Durand, Ill
*Paulson, P. A..... Hudson
Pauly, H. J...Milwaukee, 207 14th St
Pearson, Bert O .....Lake Geneva
Peck, H.M..... Marshall
Persons, M. B.....Plum City
Peters, Ezra.....Sharon
Peterson, August.....Amery
(R. F. D. 4.)
Peterson, Conrad T....Grantsburg
(R. F. D. 4.)
Peterson, Henry N....New Holstein
Peterson, Perry O.....Amherst
Pfanku, Ivan.....Arena
Pfeiffer, W. A .....West Bend
Pierner, Fred.....No. Milwaukee
(R. F. D. 11.)
Pierner, John W.....Thiensville

*Phillips, Jesse .....Elizabeth, Ill
Pope, Leon T.....Sun Prairie
Pope, Nat., Jr., Waupaca (R. F. D. 3.)
Portz, Albert .....Pewaukee
Post, Harry L .....Sextonville
*Poston, R. H..... Lake Forest, Ill
Premo, Kenneth L...Prairie du Sac
Pritzl, Edward.... Cato, R. F. D. 1
Purdy, W. N .....Bangor

Raether, L. J., Algoma..(R. F. D. 1.)
Raht, John T.....Waukesha
Raichle, Will .....Frenchville
Raisler, C. L.....Welcome
(R. F. D. 40.)
Rasmussen, Gordon S...Franksville
Ray, Robert L.....Arena
Reinen, Carl.....Sun Prairie
*Renk, H. J.....Sun Prairie
Renk, William F.....Sun Prairie
Rhodes, Louis.....Kansasville
Rice, F.....Whitewater, R. F. D. 1
Rice, C. A..... Milton, R. F. D. 10
Riderer, Blasius..... Cato
Riek, Anthony.....Spring Green
Rietbrock, Fred, Esq....Milwaukee
Risum, Louis .....Brodhead
Roberts, F. W.....Woodworth
Roberts, R. E. ...Corliss, R. F. D. 5
Robertson, R. T..... Tomah
Roeckel, Joseph.....Lark
Roethel, Herman... .....Kiel
Roewert, L. F..... .. Greenwood
Roffers, John H.....Green Bay
(R. F. D. 7.)
*Rood, Minnick.....South Wayne
(R. F. D. 1.)
Rood, O. C., South Wayne, R. F. D. 1
Rorer, Wm. A. Jr., Washingt'n, D.C.
(339 Mt. Pleasant.)
Rosenow, A. F..... Oconomowoc
Rosenow, H. E.....Oconomowoc
Rosenow, H. G.....Montana
Rosenow, L. J.....Montana
Rundell, Dale E.....Livingston
Russell, A. C.....Genesee Depot
Rust, Shirley .....Mukwonago
Rustad, John....R. F. D. 1, Ringle
Ruste, C. O.....Blue Mounds
Ryan, Malachi.....S. Kaukauna
(R. F. D. 15.)

Sager, Herbert B.....Deerfield
Sampson, Allen.....Audubon, Iowa
Sanborn, Eugene.....Madison
*Savage, Albert F....Quincy, Fla.
Saxe, William.. Baraboo, R. F. D. 1
Schaeffer, R. J.....Appleton
Schafer, Chas. H.....Waukesha
(R. F. D. 7.)
Schafer, Christ.. Stillwater, Minn.
(R. F. D. 33.)
Scheid, F. L.....Campbellsport
Schellenger, Roy.....Warren, Ill.
Schoephorster, H. J., Prairie du Sac
Schlotz, Geo.....Turtle Lake
Schmit, Peter..... Granville
Scholze, Theodore.....Sparta
Schomberg, H. W., Sheboygan Falls
Schottler, C. J....So. Germantown
Schrickel, Ed. A.....Green Bay
Schroeder, Christ... ....Kewaunee
Schroeder, Herbert F ...West Bend
Schwandt, Will.....New Richmond
(R. F. D. 4.)
Schwartz, J A.... ....Troy Center
Schwartz, Walter W....Troy Center
Sharpe, Charles E.....Waldo
Sharpee, Carl .....Rio, R. F. D. 1
Sharpee, Endre A....Rio, R. F. D. 1
Sharpee, P. A.....Rio, R. F. D. 1
Shaw, Wayne E.....Evansville
Sheldon, Ben F..... Brandon
Shepard, R. A .....Columbus
*Shultis, A. D.....Waukesha
Siemers, Edward..... Cleveland
Silsdorf, Gust.....Woodworth
Simon, Henry N., Sawyer, R. F. D. 3
Skenandore, E. E.....Oneida
Skolos, Alexander.....Westby
(R. F. D. 2.)
Slaby, E. G.....Kewaunee
Smiley, James B.....Albany
Smith, Delbert C.....Brooklyn
Smith, E. B.....Beaver
Smith, H. Burns.....Brooklyn
Smithwick, Martin .. .. Kewaunee
(R. F. D. 6.)
Snyder, B. F., Wonewoc, R. F. D. 1
*Snyder, H. A., Oxford, R. F. D. 1
Snyder, Wesley .....Ft. Atkinson
Sorenson, Albert E.....Osceola
Sorenson, Hilbert.....Franksville
(R. F. D. 9.)
Southcott, Fred.....Wauwatosa
(R. F. D. 14.)
Speerschneider, Fred, New Franken
Spink, H. L. .....Platteville
Spooner, C. M .....Orange
*Sprague, Geo. D...Greensburg, Pa
(R. F. D. 4.)
Stantorff, W. H .....Barnum
Starker, Charles .....Sun Prairie
*Stauffacher, A. J.....Monroe
Steele, Samuel H .....Lodi
Steiner, Geo. J.....Lomira
Steiner, William .....Brownsville
Steinhoff, Walter.....Platteville
Steuber, J. B.....Prairie du Sac
*Stevens, M. B.....Jefferson

Steward, Chas. A .....Fox, Ill
Stewart, Howard .....Delavan
Steinstra, Samuel .....Galena, Ill
Stivarius, Geo .....Fennimore
Stocker, Albert.....Sauk City
*Stone, A. L .....Madison
Strader, W. E.....Augusta
Straka, Edward E.....Kellnersville
(R. F. D. 2.)
Strand, O. M.....Rice Lake
*Strande, Theo. A .....Taylor
Stratton, J. W., Waupaca, R. F. D. 2
Stroup, Fred G..... Fond du Lac
Suhr, Adolph A .....Ft. Atkinson
Sullivan, James J .....Forestville
Sullivan, Jas. A .....Grimms
*Swan, N. J., Jr.....Wauwatosa
Swan, Laurel W.....Mukwonago
Swenson, O. S ...Amherst Junction
(R. F. D. 1.)

Te Stroete, Jesse A....Cedar Grove
Thackray, Jos., Glenbeulah, R.F.D.30
Thiege, K. J.....Viroqua
Thieleke, Edwin A., Kiel, R. F. D. 2
Thoma, Ernest, New London, R.F.D.3
Thompson, Alfred N.....Richmond
Thompson, Lute, Berlin, R. F. D. 1
Thompson, Melvin .....Mt. Horeb
Thompson, Robt. K.....Madison
Thompson, T., Jr ....Wadena, Iowa
Thompson, Theodore .....Curtiss
Thorstad, N. H.....Deerfield
Tjugum, Charles ... ...Sun Prairie
Toepfer, Otto F., Madison, R. F. D. 6
Tomkins, A. Pearce.....Ashland
Tomkins, O. Scott.....Ashland
Toole, W. A .....Baraboo
Treleven, G. T...Omro, R. F. D. 21
Tretsven, J. O.....Milltown
Trow, Edward J .....Oregon
Trowbridge, E. J.....Mondovi
Truesdale, Thos. S.....Gillingham
Tubbs, George .....Seymour
Tully, Andrew.....Delavan
Turgasen, John H..Richland Center
Turner; Chas. L.....Elkhorn
Tweeten, Theo .....Cottage Grove
(R. F. D. 30.)

Uehling, Otto .....Afton

Van Blaricon, Ed.....Spring Green
Vandercook, R. I ....Linden, Mich.
(R. F. D. 2.)
Vandervort, Rollie.....Tomah
Vinger, Geo.....Argyle
Vinger, Milo, J ....Argyle
Vollmer, Theo. F.....Milwaukee
(R. F. D. 2, Station D.)
Volz, Robert .....Reedsburg
Vonder Ohe, William L..Reedsburg
Von Lanyi, Oscar.....Woodman

Wagner, J. M .....Union Center
Wahler, Adolph.....Woodford
(R. F. D. 1.)
Walker, Ray C.....Plainville
Wall, William .....Weyauwega
Walline, Austin.....Madison
*Walter, Andrew.....Oshkosh
Ward, Wm. Rodell....Ft. Atkinson
(R. F. D. 1.)
Warmington, Prentice..Honey Cr'k
Warner, Ambrose .....Whitewater
Waterstreet, Wm.....Spring Green
Welles, M. L .....Rosendale
Welton, Seth S .....Monroe
Wernich, Wm. H.....De Forest
West, Mark H...Elkhorn, R. F. D. 1
West, Ray N ....Ripon
Weston, A. W.....Audubon, Iowa
Weston, John.....Burnett Jct.
Whelan, J. V.....Mondovi
Whitby, Arthur J.....Chilton
(R. F. D. 5.)
Whitehead, Henry W.....Leon
(R. F. D. 1.)
Whittaker, Horace....Fond du Lac
Wied, Edward.....Waupaca
*Wiegand, O. R.....Cleveland
Wilkowske, R. T.....Mishicot
Williams, D. T.....Waukesha
(R. F. D. 8.)
Williams. J. E .....Lancaster
Williams, J. R .....Lancaster
Williams, Melvin.....Potosi
Williamson, A. B..... .Woodman
(R. F. D. 1.)
Winter, L. H..Eau Claire, R. F. D. 4
Wirkler, Alfred J..Garnavillo, Iowa
Wismer, Herman..Larsen, R.F.D.13
Woodard, F. B.....Bloomer
Woodcock, Edw. R..Hayton, R.F.D.
Wright, Wray C .....Eau Claire
(Box 195)
Wussow, C. A..Seymour, R. F. D. 35
Wyatt, E. E.....Tomah

Zabel, Ed .....Deerfield
Zerbel, Lewis .....Madison
Ziemer, Fred .....New London
Zwicky, John D .....Scandinavia

* Charter members.

HONORARY MEMBERS.

Ames, W. L.....Oregon
Babcock, Dr. S. M .....Madison
Cary, Prof. C. P.....Madison
Emery, Prof. J. Q.....Madison
Harvey, Prof. L. D.....Menomonie
Hays, W. M., Ass't Secretary Agr.. Washington, D. C.
Henry, Dr. W. A.....Madison
Hitt, Hon. H. D.....Oakfield
Hoard, Hon. W. D ....Ft. Atkinson
Karel, Hon. L. A .....Kewaunee
McKerrow, Supt. Geo....Pewaukee
Newman, Geo. N.....Ladysmith
Phillips. A. J.....West Salem
Renk, Katharine.....Sun Prairie
Toole, William .....Baraboo
True, Hon. John M .....Madison
Whitmore, Mary..... Janesville

PROGRAM FOR THE FIFTH ANNUAL MEETING

OF THE

WISCONSIN AGRICULTURAL EXPERIMENT ASSOCIATION.

The officers and members of the Association extend a cordial invitation to all interested in progressive farming to attend its meetings and take part in its discussions.

Thursday, February 8, 9 A. M.– Room 61, Agricultural Hall.

Annual Address of the President.....A. L. Stone
Secretary's Report.....R. A. Moore
Feeding Alfalfa to Dairy Cattle..... L. M. Hatch
Alfalfa in Wisconsin.....Ex-Gov. W. D. Hoard
Elements of Success on the Farm..... Professor P. G. Holden

Thursday, 2 P. M.—Auditorium, Agricultural Hall.

The Grain Dealers' Association and the Wisconsin Farmers.....
M. H. Potter

Co-operative tests, discussions, etc., Growing Alfalfa in Wisconsin

Testing the seed..... Lewis Zerbel
Selecting the ground.....L. J. Athearn
Sowing with and without a Nurse Crop ..... Guy Treleven
Cutting and Curing Alfalfa.....Ernest W. Lee
Feeding Alfalfa..... Arthur Howard
Soil Inoculation .....A. L. Bonnell, A. J. Blakely
Alfalfa in Waukesha County.....A. C. Russell
Experiments with Alfalfa..... R. H. Poston

Emil Dreger, F. E. Best, H. N. Longley, Geo. O. Thompson, E. A. Schrickel, E. A. Thieleke, S. S. Hoyem, O. R. Frauenheim, Fred P. Grebe, S. A. Eastman.

Friday, 8 A. M.—Room 61, Agricultural Hall.

Election of officers, reports of committees, etc.

Plan of Work for the Coming Year:

Division of Farm Crops.....R. A. Moore

Division of Farm Engineering.....C. A. Ocock

Division of Soils.....A. R. Whitson

The Seed Merchant and the Wisconsin Experiment Association....
L. L. Olds

Comparison of Wisconsin Methods of Agriculture and that of Southern and Western States.....F. W. Luening

Wisconsin Experiment Association and County Schools.....
Supt G. F. Snyder

Papers, Discussions and Co-operative Tests with Seed Corn for the Season of 1905.

The Importance of the Corn Crop for Wisconsin Farmers....A. J. Meyer

Preparation of the Ground for Corn and Subsequent Cultivation..
W. A. Pfeiffer

Testing Seed and Planting.....W. A. Toole

Selecting and Curing Seed Corn.....Martin Nelson

Friday, 2 P. M.—Auditorium, Agricultural Hall.

The Jolly Farmer.....W. J. Moyle

Experiments with Seed Barley:

Manshury.....J. D. Clark, Wm. Toepel

Oderbrucker.....J. P. Bonzelet, Alex. Krueger

Growing Sugar Beets.....Thos. Biggar

General Discussion.

Feeding Corn to Pigs and Dairy Cattle for Best Results....L. P. Martiny

Growing Corn for Grain and Fodder.....J. L. Ogle

Feeding the Corn Crop to Beef Cattle.....Christ Schroeder

Co-operative Variety Tests of Corn:

Silver King (*Wisconsin No. 7*).....E. W. Lee

H. W. Griswold. J. Speerschneider, H. A. Main, B. F. Snyder, Arthur Rosenow, J. H. Clack, H. O. Aavang, R. N. West, A. Ochsner, Otto Haass, B. A. Imholt, Mike Gallagher. Arthur Howard, L. C. Ball, Herman Roethel, Otto Heideman, A. F. Hinz, H. L. Spink.

Clark's Yellow Dent (*Wisconsin No. 1*).....H. J. Renk

J. H. McNown, R. E. Harris, J. D. Clark, H. W. Bunker, C. H. Howitt, I. D. Miles.

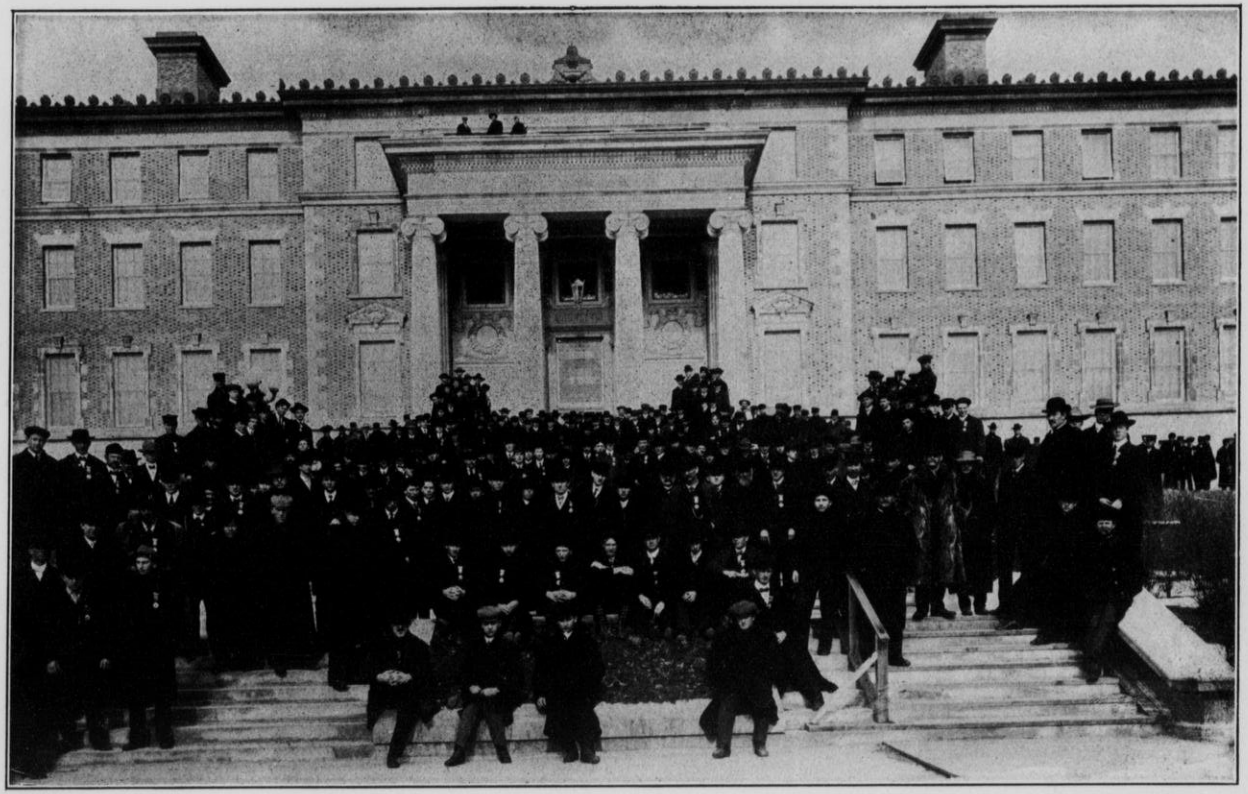
Wisconsin No. 8.....O. R. Frauenheim, H. W. Meekin

General Discussion.

Friday, 7:30 P. M.—Auditorium, Agricultural Hall.

Joint Session of the Experiment Association, Short Course Alumni and Short Course Literary Society. Long Course and Farmer Course Students invited to attend.

Music ..... Short Course Band
Oration ..... Frederick Woodard
Vocal Solo ..... W. J. Moyle
Opportunities Afforded Young Farmers in Northern Wisconsin .... Fred Rietbrock
Selection ..... Miss Ruth Burce
Piano Solo ..... Miss K. Renk
Sugar Beets, Factory Standpoint ..... G. W. McCormick
Address ..... Prof. L. W. Wood
Music ..... Band



Members of the Wisconsin Agricultural Experiment Association in attendance at the Fifth Annual Meeting, Agricultural Hall, Madison.

FOURTH ANNUAL REPORT

OF THE

Wisconsin Agricultural Experiment Association

PRESIDENT'S ANNUAL ADDRESS.

A. L. STONE, MADISON, WIS.

Fellow Members:

It is with a great deal of pride and pleasure that once more I come before you to deliver a president's annual address, and before I am through, I hope to convince you that I have reason for both.

We are very glad to welcome you here today, members of the greatest agricultural association in Wisconsin, gathered in a building which is dedicated to agriculture in its best and highest sense. We wish you to feel free to take part in our discussions, and to give freely of your experience. We want not successes only but failures as well, for we often learn as much from our failures as from our successes. Your experience may help some one else, so give it as best you can.

The officers have endeavored to do their parts by preparing a good program and arranging for the meeting. The success of the meeting now rests with you. We ask your hearty co-operation and from past experience and present indications believe we will receive it and that we are to have the most successful meeting in the history of this association.

There are several phases of our Association's work and plans

that I wish to bring before you today with a hope of arousing your enthusiasm to the same pitch that my own has been aroused as I have thought of the possibilities in store for us.

In the first place I wish to draw your attention to the importance of our Association and its work. The Association is so young in years that many of us have gotten into the habit of thinking of it as of only secondary in importance to the other associations and societies of the state, and that we should be modest. This is an idea that we should at once dismiss from mind. There is no association in the state which incorporates into its membership so large a body of earnest, willing workers. No other association has a membership composed of men who have had a better training for the work in view. Graduates of this College of Agriculture, where the very air contains the germs of experimentation and discovery, we are all infected with the fever and desire to do our share in making this state one of the greatest, agriculturally, in the country. Our training here fits us to carry on this work as no other body of men could do. The work is of vast importance because in reality grain raising is the foundation of agriculture. Many pure breeds of cattle, horses, sheep and swine exist within the borders of the state, and many creameries and cheese factories dot the landscape, but how long could any of them exist without the crops upon which all depend for sustenance? And more and more as the days go by and farming becomes more intensified will attention need to be paid to the increased production of farm crops. To make money on our high-priced lands more animals must be kept to the acre where dairying prevails or where fat stock is produced. But no permanent increase in the production of live stock can take place without a corresponding increase in the production of farm crops. So we bear the burden of a successful agricultural commonwealth on our shoulders. Let us not lose sight of the importance of our task, but work together until the end for which we strive is attained.

The second subject to which I wish to draw your attention follows closely in the wake of the preceding and is this: the importance of advertising our Association and its work. Never hesitate to speak a good word for the Association, no matter where you are. We should be proud to belong to an association with the aims and purposes of this one. Not every one can become a member, but each one must have had the preparation in

the college which fits him for his work, and so should help him to make this the most efficient and powerful agricultural society within our boundaries.

We have cause to be proud of our membership and the work it is doing. The exhibits which are coming in to compete for the premiums are sufficient evidence that the leaven is already working and that great results are to be achieved.

Your president spent two days at the State Fair this fall with the idea of ascertaining whether there was an opening for our Association to advertise itself by an exhibit a year hence. I believe there is an opportunity of which we should avail ourselves, and I recommend this thought for your consideration. There should be one of the finest displays of grains and forage plants ever shown in Wisconsin placed on exhibition at the State Fair by our Association another fall, and it is my hope that before our meeting adjourns some step may be taken looking toward this end.

Another matter that should be considered at this time is the material for our annual report. I believe it is possible for us to put before our members and the people in general, a report which is as notable for the excellence of its material and the general interest of the topics treated as any report issued in this or any other state. I therefor urge each one of you to take especial care in the preparation of every article submitted for publication therein no matter how short. Let us attest by the excellence of the work presented, our ability to cope in brains and energy with the members of any society in this commonwealth. Give your experiences, but do it in a way which will be a credit to yourselves and of value to others who read what you have written.

The future before the Association is a very bright one. Already one of the largest bodies of the kind in the state we look forward to a more rapid increase in numbers as our agricultural college increases the number of its graduates. The time is coming, gentleman, when to be a member of the Wisconsin Agricultural Experiment Association, will be well worth one's while from every standpoint.

As our Secretary has been reminding us since our organization, Wisconsin possesses the situation and capacity for becoming one of the greatest seed grain producing states in the union. There is no reason why it may not become so if each of us will

do his part with the earnest purpose to live up to the ideal we have set before us.

Every new variety of grain produced at the Experiment Station will be distributed largely through the agency of this Association. Members residing in different sections of the state will receive such grains as are best adapted to their conditions. With a membership as large as ours, and scattered so well over the state, there is no reason why we should not be able to control to a great extent the grain production of the state at large. As we will be producing the best quality of grain of the variety raised in each locality, others will desire the seed and it will not be long before the general standard is materially raised. But to the member who is raising and selling these pure-bred seed grains, will come the financial gain which arises from selling grain at high prices for seed, which would otherwise need to be sold at ordinary prices. He would also have the satisfaction of knowing that he was aiding in the grand work of building up an agriculture for the state of Wisconsin to which its every citizen might point with pride. With the standard of seed grains and forage plants raised to such a point, Wisconsin would soon be furnishing both to many states besides our own.

Do I seem to you too optimistic? I have an abiding faith in the future of this organization if we each remain faithful in the strife for a better agriculture. That our Secretary possesses this same view of the future in store for this Association is shown by the hours and days of labor that he is giving to its upbuilding, and I ask you to uphold his hands. Other officers may come and go but an efficient and faithful Secretary should be retained.

Remember this Association, present and future, belongs to you. I leave it to you to make the most of it.

SECRETARY'S REPORT FOR 1905.

R. A. MOORE, MADISON.

Worthy Members of the Wisconsin Experiment Association:

I am pleased to bear evidence of the progress made by our Association during the past year, and now realize as I never did before the great work that has become ours to perpetuate.

The progress we have made in agricultural advancement has attracted attention in the most remote parts of the state, and numerous complimentary letters from farmers and people interested in better agriculture show plainly the appreciation held by others of the work started. The careful manner in which our membership has grown pure-bred seed grains has been the means of putting this line of effort on a firm foundation, and farmers and seedsmen now look forward to purchasing these carefully grown grains. No one factor in my estimation can help the Wisconsin farmer more at the present time, than the fact that within easy reach he is able to secure high yielding grains and forage plants, that have become properly acclimated for his respective locality.

It means the rapid dissemination of choice bred seed grains, which have taken years to produce by careful breeding.

One of the functions of the Experiment Association is as a distributor of up-to-date agricultural thought and methods. With our membership so widely distributed, we are able to present practical examples by every roadside of what can be done by any farmer who seizes the opportunity afforded him.

The chief effort of the Experiment Association during the past year has been to improve the corn crop and determine the value of alfalfa as a forage plant.

Alfalfa.—345 members were given alfalfa seed, sufficient to sow at least one-half acre in accordance with outlines furnished them. 160 were furnished with soil for inoculation purposes taken from an alfalfa field where the plants had developed bacteria-laden nodules. The general success or failure of these experiments will not be fully determined until another year.

The following data will give a general idea of the progress made this season in growing alfalfa.

REPORTS ON ALFALFA, FIRST YEAR'S SEEDING.

Number members experimenting	345
Number members reporting	185
Number of counties from which reports were received	48
Number advocating sowing with nurse crop	86
Number advocating sowing without a nurse crop	40
Number not reporting on nurse crop	59
Number getting good stand	130

Number getting poor stand	44
Number of absolute failures	0
Number reporting larger number of nodules where ground was inoculated	21
Number reporting no difference	12
Number reporting notable difference in the appearance of alfalfa on inoculated and uninoculated plots	34
Number reporting no difference	53
Number not inoculating	98

REPORT ON ALFALFA ONE YEAR AFTER SEEDING.

Number members experimenting	226
Number members reporting	70
Number counties from which reports were received	36
Number counties in the state	71
Number securing crop year of sowing	4
Average per cent of winter killing	11.8
Average number cuttings obtained the second year	2.2
Average number tons of hay obtained per acre	3.72
Number having no difficulty curing the hay	36
Number using hay caps	5
Number reporting abundance of nodules on roots of plants	35
Number reporting no nodules on roots of plants	13
Number failing to report as to nodules	22

We do not propose to stop here but push the work vigorously until this great forage plant can be grown as generally as we now grow red clover. We have met with some failures but this should only make us the more eager to succeed, and I look forward to a great victory. I think one of the chief difficulties we have had to contend with in growing alfalfa, barring poor seed, has been the lack of the proper germs within the soil. The much abused sweet clover (melilotus alba) has been working diligently to supply the soil with the germs which act in a beneficial way on the alfalfa plant, and thus pave the way to successful alfalfa culture. I feel we should aid this plant in its most useful mission.

Where the soil has not been supplied with the proper alfalfa germs through sweet clover, as the distributing agent, or by the

Characteristic field of Silver King Corn.

scattering of soil from old alfalfa fields, only a small portion of the alfalfa plants will develop the nodules, and the remainder of the plants languish and die, thus making the catch too thin. However, the plants that live, develop nodules and will amply supply the soil with the germs for future crops of alfalfa. In every case where a failure to secure a good stand of alfalfa is due to lack of the proper germs, we should plow, prepare the soil and reseed the same plot of ground to alfalfa. If farmers in general would secure a few pounds of alfalfa seed and mix with clover or grass seed which each year is sown quite generally throughout the state, the few plants that would develop nodules would distribute the proper germs to such an extent that when the grass land was broken up for corn or other crops the season following, the ground would be amply supplied with the germs to insure a good growth of alfalfa. If the above plan was followed for a few years, I feel confident that alfalfa could be grown successfully on nearly all farms.

SILVER KING CORN (WISCONSIN NO. 7).

276 members carried on tests with this corn the season of 1904 and 275 the season of 1905. From reports received this season we are able to give the following information:

Number members experimenting	275
Number members reporting	120
Number counties in the state	71
Number counties from which reports were received	51
Average percentage germination of the seed	95.8
Number reporting corn as maturing well	90
Number reporting failure to mature	20
Not reporting	10
Maximum yield per acre (bushels shelled corn)	100
Minimum yield per acre (bushels shelled corn)	31
Average yield per acre (bushels shelled corn)	59.2
Average yield per acre, any other variety	49.2

The Wisconsin No. 7 corn has given general satisfaction throughout a wide range of territory and readily adjusts itself to various conditions and environments. From data received I feel confident that we have in the No. 7 corn a variety superior to any white corn grown in the state. The general yield of corn in Wisconsin for the year 1904 is forty-five million bushels or

29.7 bushels per acre. The same season from the reports of 147 members of the Association living in 49 different counties of the state, we find an average yield of 50.5 bushels. On the station farm for the same year with Wisconsin No. 7 corn, a yield of 73 bushels of shelled corn per acre was secured.

We can readily see that we are dealing with a very important phase of agriculture, which means many million dollars annually to Wisconsin farmers.

Swedish Select Oats (Wisconsin No. 4).—The Swedish oats are now grown so generally that they are past the experimental stage, and are merely grown by members of the association as select seed oats. All members of the Association desiring to be placed in the seed growers' list, who were not listed in the third annual report, are requested to report to the Secretary at their earliest convenience. The names of all members having select seed grains for sale should appear in the next annual report.

Barley.—For six years tests have been carried on at the Experiment Station with select varieties of barley to determine the best feeding and malting barley for Wisconsin growers. One variety known as Oderbrucker (Wisconsin No. 55) has shown superior characteristics throughout the test. This barley has been improved by selection and tested in three different counties of the state. From the tests made we feel quite safe in stating that we think we have the best variety of barley in the state.

Five hundred bushels of this select seed barley have been purchased by the Experiment Association from the Station for the purpose of carrying on an extensive test. Our desire is to place this seed barley into the hands of members of the Experiment Association, giving one sack of two bushels to each member who will agree to carry on the test in a careful manner. The barley has nearly all been subscribed for, and we look forward with a great deal of interest to the outcome of these tests.

Grain Exhibit.—The grain display of last year proved to be a decided success, and the number of entries made this year shows the increased interest taken in the improvement of grains and forage plants. We must not rest contented until Wisconsin is the foremost seed grain raising state in the union.

The high priced lands of our state practically force the majority of our members, who desire to realize on their investments, to grow something besides ordinary crops, for the market.

We must of necessity grow select seed grains and specialized crops. It seems to me that a wonderful opportunity affords itself at the present time for the young men who have been trained in the College of Agriculture to grow choice varieties of seed grains that are especially adapted to Wisconsin conditions. Good seed grains will always find a market at a considerable advance over and above that paid for ordinary grain, and the young men who are improving the grains and forage plants of Wisconsin are the ones entitled to this extra price.

FEEDING ALFALFA TO DAIRY CATTLE.

L. M. HATCH, CHAPIN, IOWA.

About twenty years ago it became my good fortune to take a trip down into Colorado and New Mexico. Among the sights that impressed themselves upon my mind were the little patches of green along the streams where irrigation was practiced. I soon learned that the greater number of these green spots were plots of alfalfa, and continuing my line of investigation I found that little else need be, or was, fed to stock in that region. "Why can it not be grown in Wisconsin" was, of course, one of my first questions, and one I asked many times then and have asked many times since. But all of those of whom I asked this question thought "it would not grow in Wisconsin" or "did not think it would grow without irrigation." I believe that I should have done some experimenting with this very interesting legume at that time had we not left the farm and moved into town.

We find that the problem of growing alfalfa has received no small amount of attention during the past few years, until Wisconsin is producing this valuable plant in considerable quantities. The question of feeding it, however, seems not to have received the attention it deserves and I have experienced no small amount of difficulty in finding material on this subject.

Perhaps the most forcible manner in which I can call attention to its great value as a feed for dairy cattle is to remind you that its composition and feeding value very closely approximates that of wheat bran, with which every dairyman is familiar. A

dairyman of Texas found that he could substitute alfalfa hay for bran in the ration for milch cows. For the bran he had been feeding, he substituted an equal weight of alfalfa hay cut into half inch lengths. The result was that the cows increased in yield of both milk and butter.

As most of our farm crops contain an excess of carbohydrates, it is necessary, in order to secure the best results, to supplement or balance these feeds by the use of some feed or feeds rich in protein. It has heretofore been the custom for farmers and dairymen to purchase by-products of flour mills, starch factories, oil mills, etc., but, by growing alfalfa, a large part, if not all, of this expense can be avoided. The New Jersey Experiment Station compared alfalfa protein with purchased protein for milk and butter production, the results showing a somewhat lower production by use of alfalfa but at a noticeably lower cost. The Kansas Agricultural College found that they could produce butter fat more cheaply with alfalfa in the ration than without it. In one instance butter fat was produced at a feed cost of seven cents per pound and this with what were termed scrub cows. Experiments were carried on by the Tenn. Station in regard to substituting alfalfa for grain in the ration for dairy cows. They conclude that, "The cost of producing milk and butter can be greatly reduced by replacing a part of the concentrates in the daily ration of the cow with some roughness rich in protein, such as alfalfa."

A letter was sent each creamery in the state of Kansas by the Agricultural College during the summer of 1898, requesting the address of the patron who had the highest cash income per cow. In corresponding with these dairymen, the surprising fact was brought out that most of the large yields were from the western part of the state, notwithstanding the fact that the eastern part of the state is better supplied with buildings, feeds more grain and has, as a rule, a better grade of cows. Twenty to thirty dollars was a high return in the eastern part of the state, while 40 to 50 dollars was not unusual in the western part. It was found that, almost without exception, the cows giving high returns were fed alfalfa.

It has been predicted that "the cow that is fed on alfalfa, will set the price of butter for the world." Whether or not this prophecy becomes literally true, I believe the feeding of alfalfa to our dairy cattle is a subject we must investigate most

thoroughly. A yield of four tons of alfalfa per acre—a conservative estimate—would be equivalent in protein to about 220 bushels of corn, in carbohydrates to about 97 bushels of corn, and in fats and oils to 74 bushels. Alfalfa should be grown about as cheaply as other hay crops in Wisconsin and if it can be substituted for so expensive a feed as wheat bran, what a saving it will be to Wisconsin farmers and dairymen!

The assertion has been made that June conditions can be approximated more nearly by the use of alfalfa than by any other feed. That the effect of the alfalfa on the animal system is similar to that of the early summer pasture, and that a better butter resembling in quality, flavor and texture that made on fresh June pastures can be produced, and in larger quantities, than by other dry feeds. If this be true, it is time every dairyman who has a suitable piece of land should be seeding some ground to alfalfa, for it will surely do no harm to try a small plot.

We may say that in the great alfalfa districts the usual practice is to depend on alfalfa entirely, either as pasture or as hay. Animals accustomed to alfalfa seem never to tire of it and have often been known to eat from a stack of alfalfa hay in preference to fresh grass pastures.

During one winter the Kansas Agricultural College was obliged to feed two and three-year old heifers on alfalfa hay alone on account of inability to find other roughage at reasonable cost. These heifers were fed from September second to April fourth—214 days, and their average daily gain was 1.2 pounds. They returned largest gain and were in best condition while being fed twenty-three pounds per day. Weights of these heifers were not given. At the close of this feeding period, feeders visiting from the East were sure that they had been fed oil meal.

As good a feed as alfalfa is, however, it would seem to me that even straw would be a welcome addition to the bill of fare. By the use of other home grown crops, a variety of feeds from which balanced rations can be compounded are at the disposal of the dairyman. These are feeds, too, which possess the essential qualities of a first-class ration, such as palatability, digestibility and the necessary chemical elements.

As a feed for young stock, alfalfa is probably unequaled. It contains very large quantities of mineral matter which, in con-

nection with protein, is so essential for the growth of strong and healthy bones. You are all familiar, no doubt, with the experiments carried on at this station in regard to strength of bones in pigs fed different rations. How the bones of pigs fed on rations rich in protein and mineral matter had far greater strength than of those fed a ration containing a dearth of these essentials. Had Professor Henry experimented on calves instead of pigs would not his results have been similar and will not mineral matter and protein in alfalfa grow as strong bones as the same substances found in other feeds? Being a bulky feed, alfalfa has a tendency to distend and permanently enlarge the digestive organs of the growing animal, thus enabling it, when coming to maturity, to convert large quantities of feed into milk. The more feed a cow is able to eat the greater her capacity as a milk making machine.

A point I have seldom seen mentioned and never as emphatically as it seems to me the subject would warrant, is the laxative effect of alfalfa upon the digestive tract of the animal. This effect, due to its richness and succulence, is very pronounced and to the farmer or dairyman not so fortunate as to own a silo, our alfalfa possesses a double value. In changing, then, from other dry forage to alfalfa, care should be exercised in not feeding too heavily at first. Make the change gradually by substituting alfalfa for but a part of that forage to which they are accustomed. Another reason, and an important one, for making a gradual change is that some cattle do not take kindly to alfalfa for the first few feeds. Later, however, they become very fond of it. Others like it so well at first that, if given the opportunity will gorge themselves and then refuse it for sometime afterwards. But when the feeder exercises ordinary prudence and allows some days in making the change, no ill effects should result.

There are many ways of serving alfalfa to our cattle, such as pasturage, ensilage, fed green as soiling crop, etc., but by far the greatest amount is, and probably always will be, fed in the form of hay. For many this will be the only practical form in which to feed alfalfa. Care must be exercised in curing, however, to prevent the leaves, the most valuable part of the plant, from falling off and being lost. Handle as little as possible while curing. According to the Colorado Station losses in curing on account of leaves and small stems dropping off may be as

high as 66% in rare instances and the minimum loss is about 15% to 20%.

As to the amount of alfalfa hay to feed we should say from ten to twenty pounds per day for each mature cow, depending, of course, upon amounts, kinds and cost of other feeds, cost and quality of the alfalfa, price of dairy products, etc. This may seem very indefinite to some but I think most of those present realize the great difference in cows and conditions. Cows at the Kansas Experiment Station have eaten clean 33 pounds per day each. One of the cows at the St. Louis Cow Demonstration ate almost one and one-half tons of alfalfa in the 120 days or an average of 24.3 pounds per day, one of the competing herds averaging 22 pounds per cow per day for the 120 days.

One acre of alfalfa, yielding four tons of hay, and one acre of corn, yielding forty-five bushels, is sufficient to sustain a dairy cow of 1000 pounds and giving an ordinary flow of milk, for one year.

As examples of cheap balanced rations from home grown feeds in connection with alfalfa for milch cows we have these:

Alfalfa hay 20 pounds, corn silage 40 pounds.

Alfalfa hay 20 pounds, corn stover 18 pounds.

Alfalfa hay 10 pounds, corn silage 40 pounds, ground oats 10 pounds.

We do not submit these as ideal rations by any means nor do we recommend them but merely to show some of the possibilities in feeding alfalfa.

A very satisfactory way of feeding the hay which we have practiced is to run part or all the hay of the ration through a feed cutter and mix with the grain ration. This may be advisable in case of feeding carefully weighed quantities of all feeds as it could be more easily and quickly weighed after having been cut. There is no necessity, however, for going to this trouble and expense under ordinary conditions. The large paunch of the dairy cow serves the purpose of thoroughly mixing her heavy grain feeds with the lighter and more bulky forage, and I should not advise this practice except under special conditions. In experimenting along this line the Kansas Station estimates a saving of 30% by cutting the alfalfa into short lengths. And for this reason it might be well to feed it cut.

The entire dried plant is sometimes finely ground and fed with or without grain, but our experience has been that cows do not relish the ground alfalfa as they do the whole plant or when cut into short lengths. In fact, none of the cows to which we have ever offered the ground alfalfa has even tasted it. The process of grinding, too, is an expensive one, requiring great power and then it is practical only after being kiln dried. Experiments have shown this to be a satisfactory feed, I believe, but I think that a dairy cow can put in a part of her time to good advantage grinding her own alfalfa and she will probably grind it at much less expense to her owner than can be done by machinery. This ground alfalfa mixed with molasses is on the market now but we have never fed it in this form.

It seems to be a settled fact that alfalfa cannot be pastured in Wisconsin, excepting possibly by hogs, as the trampling of cattle is quite sure to destroy the stand. Instead of pasturing, the practice of soiling, or cutting a sufficient quantity each day and feeding it green, is at our disposal. If properly managed a field will furnish green feed through the entire summer. During the summer of 1899 the Kansas Experiment Station soiled ten head of milch cows on alfalfa. A plot of 2.97 acres furnished, during 74 days, 77,145 pounds green alfalfa. They were fed, in addition, 1,623 pounds corn and Kafir-corn meal, worth $10.65. Figuring the butter fat at creamery prices and skim milk at 15 cents per hundred, the gross income was $85.69. Subtracting the $10.65 we have left $75.04 as the yield of the alfalfa plot. This is at the rate of $1.95 per ton or $25.26 per acre. For the sake of comparison we give the returns from other soiling crops during same summer and with same herd.

Oats $1.70 per ton or $6.81 per acre.

Corn $1.44 per ton or $22.79 per acre.

Sorghum $.93 per ton or $15.60 per acre.

During this same period eleven cows, or the other half of the herd were on prairie grass and mixed grass pasture. Cows on pasture gave larger returns of milk and butter fat but at increased cost of grain. The returns from pasture amounted to $4.23 per acre. At the beginning of the test the two lots of cows were, of course, divided as evenly as possible as to amount of milk flow, test, lactation period, etc.

An instance is cited where a Kansas dairyman practiced soiling through one summer. The alfalfa was cut once each day

and hauled to a small lot where the cows were kept. They were fed all they would eat twice daily and gave good returns without other feeds. Ten cows were fed through the entire summer on four square rods less than two acres.

The danger arising from hoven or bloat is eliminated when soiling is resorted to instead of pasturing. Though in case of rank growth, if very green or watery, or where wet with dew or rain, it might be well to allow it to wilt or dry off somewhat as the case might be. This practice of soiling will be practical only under certain conditions and is, of course, not recommended for all, though there are conditions under which it would be feasible and highly remunerative.

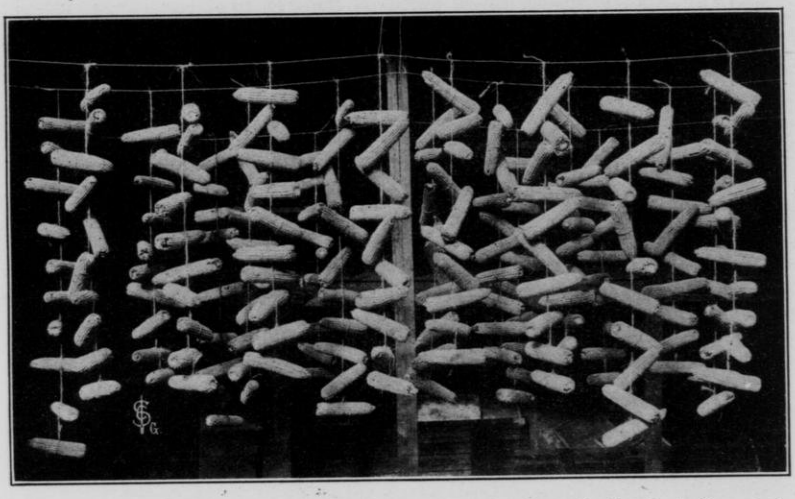
The subject of preserving the alfalfa crop in the silo seems to have been studied but little by our investigators. It would seem, however, that alfalfa would make an excellent crop for the silo. Particularly would this be true of the first cutting, coming as it does at a season when there is liable to be a considerable fall of rain, making it difficult to cure as hay. The first cutting, too, is much more rank in growth and the large, woody stems would not be eaten so closely if made into hay. An interesting and instructive experiment along this line, reported by Prof. Otis, was begun in the spring of 1903 by the Kansas Experiment Station. The heavy rains of that season prevented the cutting of the first crop until June 8th. This was leaving it too long to be at its best; it was coarse, rusted badly, contained many weeds and would have made a very poor quality of hay. The entire first crop of 61 tons, green weight, was put into the silo. Thirty-eight days afterward this silo was opened and found to be in excellent condition, except for a little around the sides which had molded some and two feet badly molded on top. This ensilage was hauled to the pasture and fed to the dairy herd during the dry period the latter part of July and by doing this they were enabled to keep up the flow of milk. This silage was eaten clean by at least 2-3 of the herd and the other 1-3 ate all but the weeds. As it came from the silo it did not seem to be as sour as corn silage, and had a tendency to dry out instead of spoiling on exposure. For this reason it was not necessary to remove as much each day as it would have been in case of corn silage. In summing up Prof. Otis says, "We have had little experience with alfalfa silage, but so far as this experience goes it is certainly a very desir-

able feed." It seems to be a desirable feed in any way it can be served and I hope the members of this association will grow and feed more and more alfalfa and own some of the cows that "set the price of butter for the world."

SELECTING, TESTING AND GRADING SEED CORN.

PROFESSOR P. G. HOLDEN, AMES, IOWA.

When harvesting seed corn close attention should be paid to the selection of the seed ears. In the field, however, the farmer cannot make as careful a selection as he can after the ears have dried out thoroughly. The selecting and grading of the seed in the spring should not be left until the rush of spring

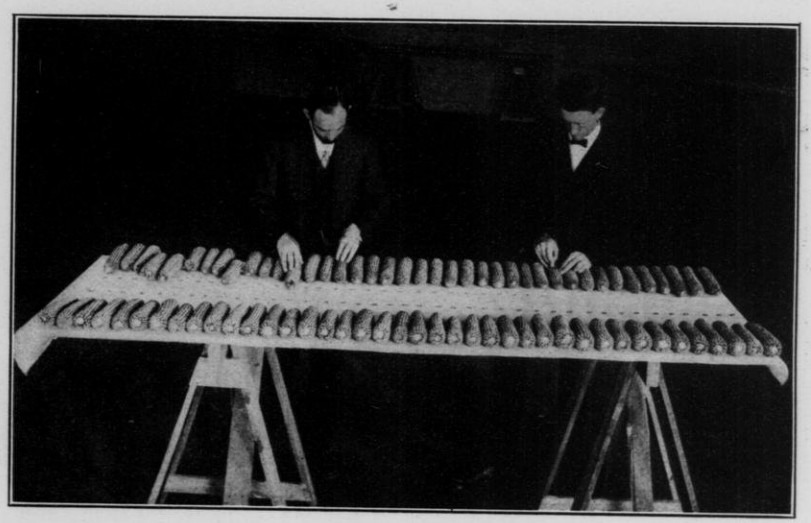


The above cut illustrates one of the best and safest methods of storing seed corn. Ten or twelve ears are tied in a string and hung on some wires supported by other wires from the rafters.

work begins. If left until then there is danger that the work will be hurriedly done. It is best to do the selecting in March. At this time the corn is thoroughly dry and the farmer has more leisure time than at any other period. To select well one should have plenty of room and work slowly and carefully.

GETTING RID OF THE POOR EARS.

The first step is to lay the ears out in rows on planks or tables, or if these are not available they may be laid on the floor. Then the best ear should be selected and with this in hand, or a more perfect ear in mind, the rows of ears should be gone over and all ears discarded that do not conform to the ideal in size, shape, color, uniformity of kernels and quality. When the faulty ears, as judged from outward appearances, have been discarded two or three kernels should be taken out of each remaining ear and laid germ side up in front of the ear from which they were taken. Then with an ideal kernel in mind, or better, with one in hand, the ears should be gone over again and those ears with kernels which do not conform



The first step is to lay the ears out in rows on planks and discard the poor ears.

to the ideal should be discarded. In yellow corn any mixed kernels should be taken out before shelling as they are more easily seen on the ear. In white corn they should be left until the ear is shelled as they are more readily seen then.

This process of selection will greatly reduce the number of ears. For this reason one should gather two or three times as much seed in the fall as he has any intention of using.

TESTING EACH EAR OF SEED CORN.

After the seed ears have been carefully selected for character of both ear and kernel each ear should be tested as to vigor of germination. Testing each ear separately seems at first too big a task to undertake, but experience shows it to be practicable. The following plan has proved very satisfactory. The ears are first laid out side by side on a table or on the floor. By driving nails after each tenth ear it will only be necessary to number the first of each set of ten ears as 1, 11,

Removing 6 kernels from each ear and placing them opposite the ear from which they were taken.

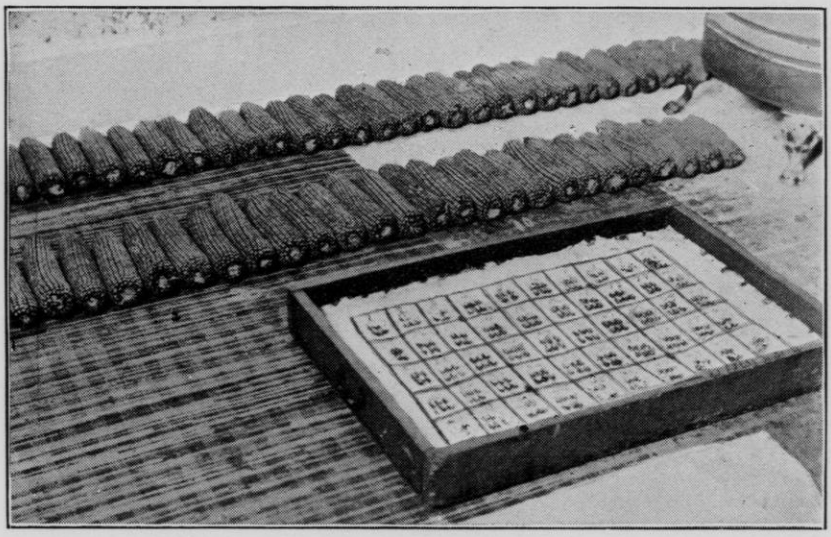
21, 31, etc. When this has been done remove one kernel from near the butt, middle and tip of the ear. Turn the ear over and remove three kernels in like manner from the opposite side, making six kernels in all, thus securing a sample from the entire ear. Place the six kernels at the end of the ear from which they were taken. Be careful that the kernels do not get mixed with the kernels from the ear lying next to it. Take a shallow box about two by three feet in size, put several inches of moist sand, dirt or sawdust in the bottom and pack

down firmly, place over this a cloth which has been ruled off with a pencil into squares one and one-half inches each way, and number one, two, three and so on. Place the kernels from ear No. 1 in square No. 1, from ear No. 2 in square No. 2, and so on with all the ears. Always place the kernels germ side up as this makes it easier to see just how strong the germination of each kernel really is. Now place over this a cloth considerably larger than the box, cover with one and one-half to two inches of sand, earth or sawdust well pressed down, keep in a

Placing six kernels in the Germination Box. Those from ear No. 1 place in square No 1; from ear No. 2 in square No. 2, and so on.

warm place, and the kernels will germinate in from seven to nine days. When sawdust is used (and there is nothing better) it should be placed in a sack and soaked for 20 or 30 minutes in warm water. The excessive water should be drained or pressed out, and it will be ready for the germination box. When sufficient time had been allowed for the kernels to germinate, remove the cover carefully to avoid misplacing the kernels. (A piece of light cheese cloth placed on the kernels before the top covering is put on will prevent the kernels from sticking to the cloth.) Examine the kernels in the first row

of the germinating box. For instance the kernels in squares Nos. 4, 34 and 46 failed, the kernels in squares 7, 12, 36 and 43 sprouted, yet a careful examination shows that the ears from which these kernels were taken are entirely worthless for seed purposes. In squares 3, 33 and 45 the kernels sprouted, but are very weak. A more careful examination will show that one or more kernels in some of the squares have refused to grow or are weak, 31, 38 and 40 are good illustrations of this. All the ears from which these kernels were taken should be rejected. If a single kernel from an ear fails to grow, discard the ear.



Germination box showing kernels placed therein.

THE WEAK ONES LIKELY TO DECEIVE US.

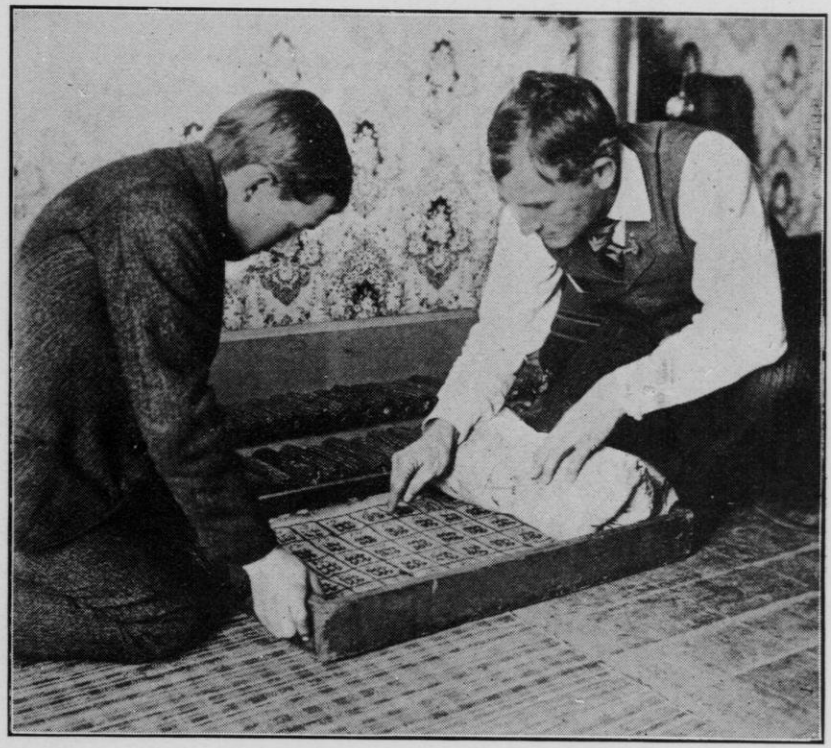
And above all, do not be deceived by the weak ones. It is common to say, "They are a little slow, but coming and will be all right." They are not "all right." If the ground is cold in the spring they will refuse to grow, or if they do grow will produce only weak stalks with small ears or none at all.

The above method is inexpensive and germination boxes can be prepared for testing any amount of corn required. There is no possible risk to run and every chance to gain.

The past year the college tested seed corn for more than four thousand acres by the above method. Each day one man germinated on an average, enough to plant forty acres.

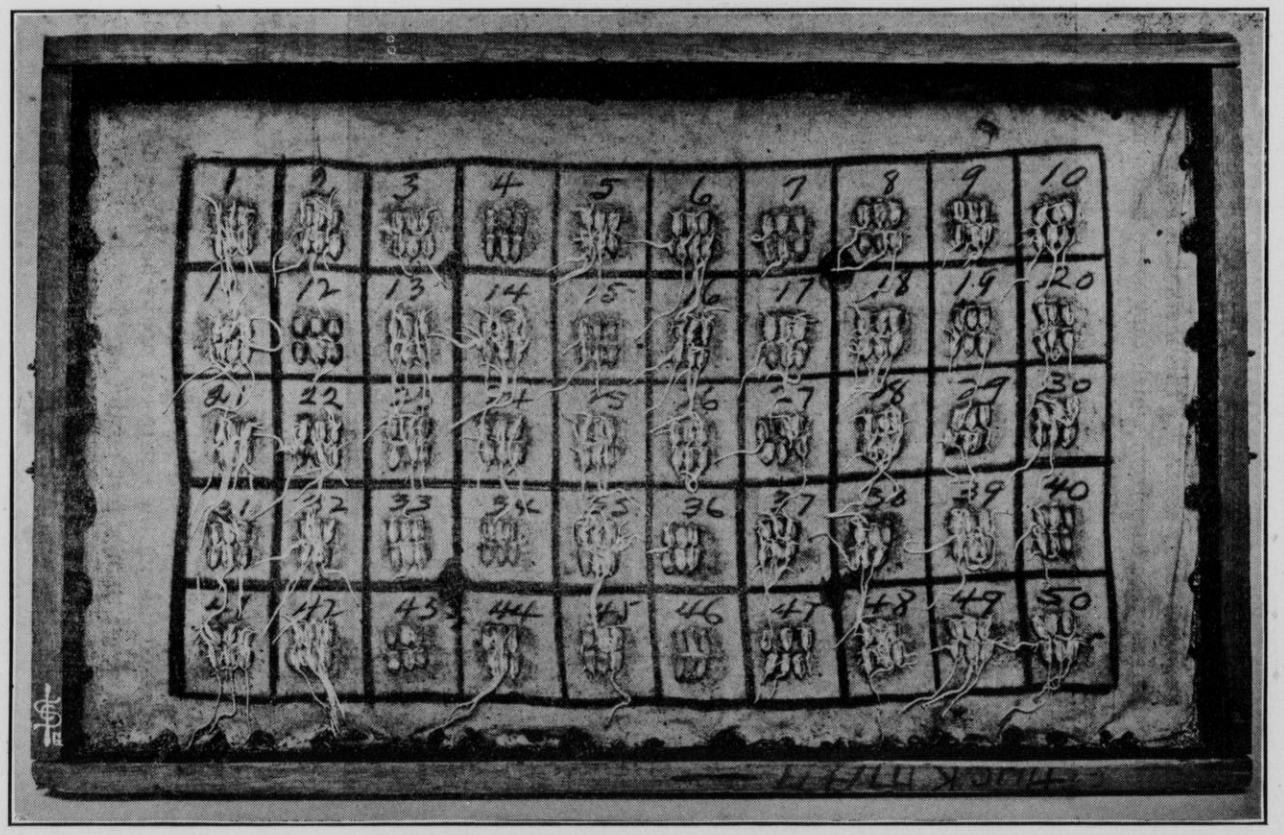
THE OLD METHOD INSUFFICIENT ON $100 LAND.

The advantage of this method of testing over the old method of taking a kernel from each of 100 ears and mixing them up before testing is easily seen. By this method if a few kernels fail to germinate, the ears from which they were taken may be dis-



Six kernels from each ear placed in the germination box, ready for the covering. Spread over the kernels a piece of cloth about the size of the box; then place over this a cloth considerably larger than the box and fill in on top of this about two inches of moist sawdust and pack it down firmly.

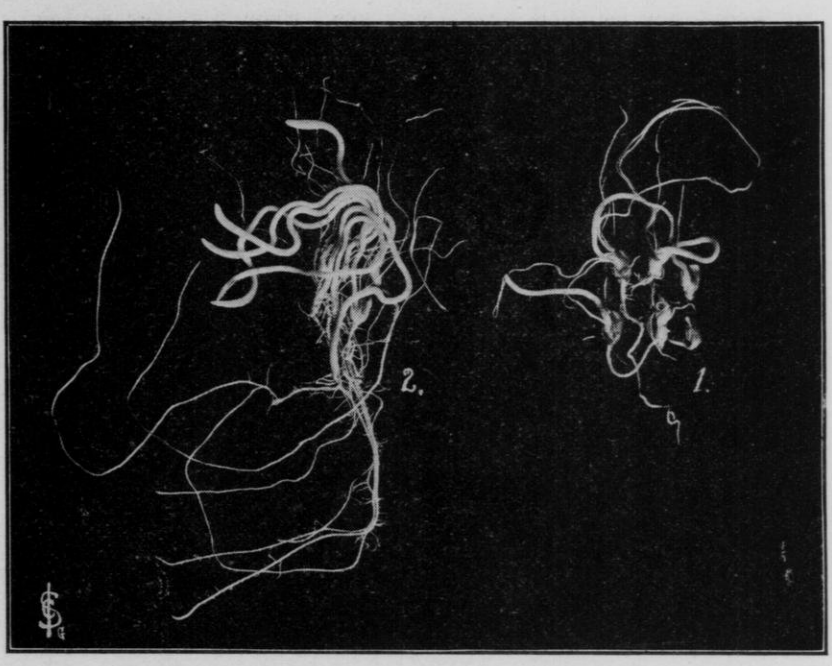
carded, while by the old method they would have to be retained even though the entire ear might be of no use for seed. The value of such a test as the one just described cannot be emphasized too strongly as it enables the farmer to plant seed which he knows will grow if other conditions are favorable.



Germination Box.—The kernels in squares Nos. 4, 34 and 46 failed to grow, while some of the kernels in squares 7, 12, 36, and 43 sprouted, yet a careful examination shows that the ears from which these kernels were taken are entirely worthless for seed purposes. In squares 3, 33 and 45 the kernels sprouted but are very weak.

GRADING THE SEED AND TESTING THE PLANTER.

After the seed ears have been selected from the general appearance of the ear and kernel and for their germinating power they are ready to be graded for the planter. The ears should first be butted and tipped. This is done for two reasons. In the first place butt kernels and tip kernels produce less than middle kernels and in the second place they are so irregular in size and shape that the planter cannot drop them evenly. Each ear should now be shelled by itself as this gives



By testing six kernels from each ear, we are able to discard the weak ones. No. 1 shows weak germination. No. 2 is a good illustration of a strong, vigorous germination. Ear No. 1 should be discarded. An ordinary examination of ear No. 1 would not reveal the weakness of the kernels which is so plainly shown in the germination box. We cannot afford to plant ears with kernels like those in No. 1. It means eight hundred to one thousand weak stalks.

an opportunity to discard ears with broken or injured kernels not discovered in previous examinations. It also gives an opportunity to grade the kernels into large, medium and small sizes. This will make it possible for the planter to drop the required number of kernels in each hill.

In grading a large quantity of corn frequently five or six grades can profitably be made. Even in a few bushels of well

selected corn we are likely to find ears with broad thin kernels, broad thick kernels, long narrow shoe-peg kernels and perhaps one or two other distinct types. In shelling, one man can turn the sheller and put the ears in, a second man can catch each ear by itself in a large shallow pan as it comes through, and, after a little practice can tell at a glance to which grade it belongs. Have a box for each grade. While these kernels differ widely in shape they are all good. They possess strong vitality, as shown by the germination test, and will in all probability produce vigorous ear-producing stalks. Still it would not be good practice to shell them together as the planter could not successfully handle kernels of such widely different types.

TESTING THE PLANTER.

When about 20 or 30 ears have been shelled and graded, the grades should be tested in the planter with the different plates and in this way the grades may be adapted as far as possible to the plates on hand. If this is carefully done very little if any work will be required in rimming out or filing the plates.

HAND PICKING THE SEED PROFITABLE.

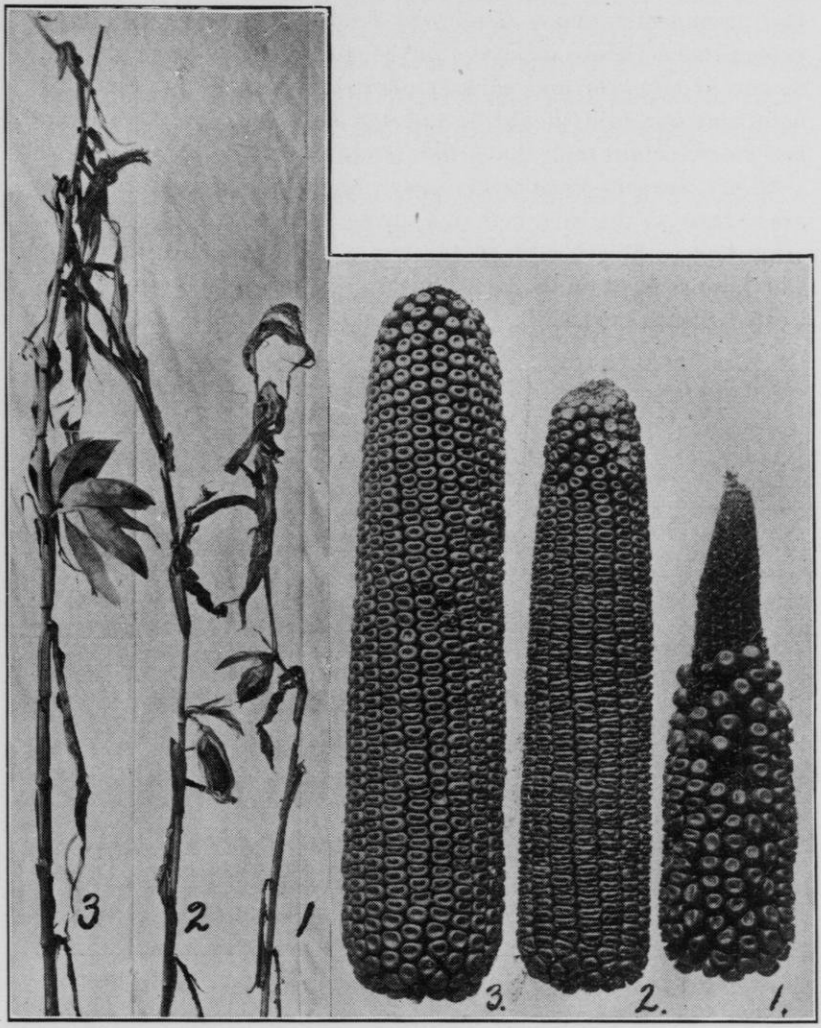
The corn should now be spread out thinly on the table, one or two quarts at a time and hand picked, removing all the black, broken, rotten and inferior kernels of every kind.

This work can generally be done to the best advantage in the evening after supper, when the boys and girls are home from school to help.

When the corn has been properly graded and hand picked, as described above, it should be placed in sacks, not more than one-third of a bushel in each, and hung up in a dry and well ventilated place, such as the attic, until planting time. Do not hang over the laundry room nor over the stable. If the sacks are suspended by short wires hung to other wires stretched through near the ceiling, there will be little danger from mice.

SAVE THE CHOICEST EARS FOR SEED.

When selecting and testing our seed we should save out 100 or more of the choicest ears, those which not only please us in

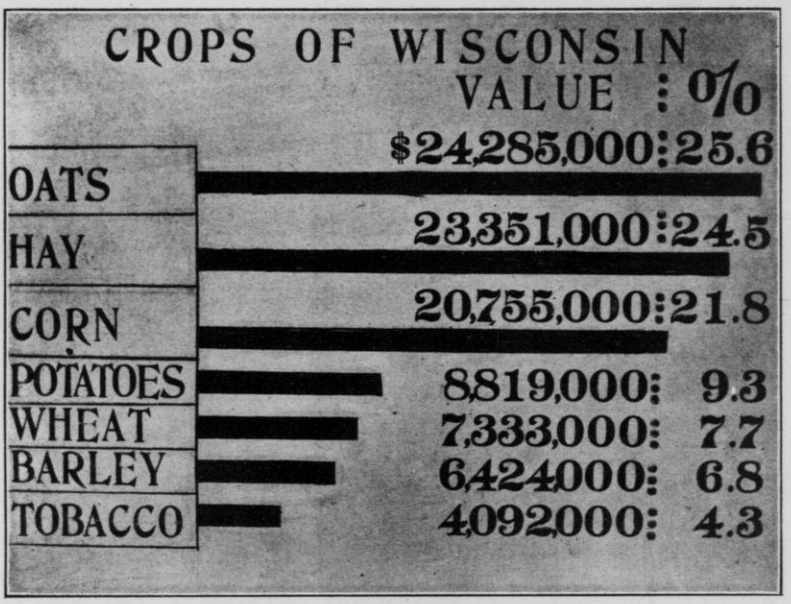


Three stalks in a single hill. The kernels were from different ears; practically the same difference showed when the kernels first germinated. Every weak ear means eight hundred to one thousand stalks like No. 1, in our fields. Stalk No. 1 produced millions of grains of pollen which are drifted over the fields by the wind and fertilize many of the kernels on the good ears. Thus, the evil effects are continuous from generation to generation.

Product of a single hill. These three ears are from the three stalks shown in accompanying figure. It cost just as much to grow ear No. 1 as No. 3, but with very different results. If we discard those ears which have weak kernels, we greatly reduce the number of barren stalks and those producing only nubbins and small ears. It should be remembered that stalk No. 1, which produced the nubbin which was almost worthless, had the same opportunity as stalk No. 3, which produced the large ear, except that one came from an ear whose kernels showed weak germination and the other from an ear the kernels of which were strong and vigorous.

appearance of ear and kernel, but also give a strong test in the germination box. The corn from these ears should be placed in a separate sack, and in the spring it should be planted in one of our best and earliest planted fields. It is from this field that our seed should be selected next fall, for there is no law more certain than that "like tends to produce like."

If six kernels from every ear intended for planting on every farm in the corn belt this spring were tested in a germination box in March and all the weak ones discarded, it would add hundreds of millions of bushels to the corn crop of the United States next fall.



Wisconsin farm crops, 1904

There is no one thing that costs so little and will add so much to the profits of every farmer. There is no good reason why every ear should not be tested. You cannot injure the corn by testing six kernels from each ear before shelling it. It costs nothing but a little time, of which there is plenty at the season when it should be done. One man can put over to test enough for thirty acres in one day. If $1.75 were charged per day for all the work it would cost less than ten cents per acre. Yet because that is "too much bother," we will *guess*

that the 800 kernels on the ear are strong and vigorous. On hundreds of farms in Iowa, last spring, the boys and girls laid out the ears, removed the kernels, prepared the germination box, put the kernels in the squares and later helped in examining the sprouted corn and discarding the ears that showed the weak sprouts.

Weak seed means missing hills, one-stalk hills and weak and barren stalks. It means 32 bushels per acre for the corn belt, instead of 50 bushels. It means not only wasted land, but wasted labor. We have tested and graded and hand picked the seed for thousands of acres each year, and I realize how much it means to every farmer. *Try it and do not put it off until the rush of spring work is upon you or it will be neglected.* It requires a great deal of effort to jog ourselves sufficiently to do even a little better this year than we did last.

WISCONSIN GRAIN DEALERS' ASSOCIATION AND THE WISCONSIN FARMER.

M. H. POTTER, SECRETARY, WISCONSIN GRAIN DEALERS' ASSOCIATION, MILWAUKEE.

Gentlemen: Undoubtedly the Wisconsin Grain Dealers' Association is quite well known to most of the farmers gathered here today as the association in the past two years has been fairly active and quite well represented by membership throughout the state, but it is a regretable fact that in many neighborhoods our aims, objects or purposes are grossly misunderstood. It might, therefore, be well for me to be perfectly plain spoken and inform you just what we stand for, leaving it to your good judgment as to whether or not we are antagonistic to your better interests.

Harmony is our watchword and few can say but that we preach this from January to December. We desire to see harmony between farmer and farmer, farmer and grain dealer, and also a spirit of harmony between grain dealers who are competitors. Good fellowship is as essential to business life to-

day as keenness or alertness, and if harmony and good fellowship prevail, fairness will necessarily follow. This will mean that the farmer shall receive a fair and equitable figure for his product (and our Association stands for this principle), the country dealer or buyer will enjoy a liveable margin upon his purchases, and last, but not least, the terminal dealer will be enabled to market his holdings without either loss or unusual profit.

So far as our Association is concerned the farmer is more directly interested in the country buyer, and this phase is covered by our "Honest margins for country dealers." We condemn the action of buyers when they try to combine interests for the direct purpose of "bleeding" the farmer, and in a number of instances have put ourselves on record as favoring only legitimate and fair margin.

Very unlike some associations we do not pretend to say what prices shall be paid, but we do try and keep our members fairly posted as to values, based on the Milwaukee market, all of which is their due. Ruinous competition among grain buyers may aid the farmer for a short period in securing inflated values, but in nearly all cases of this kind a reaction sooner or later sets in and the farmer oft-times loses a friend only to see an intriguing and foxy outsider step in who hesitates at nothing which will net him a few extra dollars, therefore our desire to see competition free, open and above board, and a friendly feeling existing all around.

Buying on grade we consider another step in the right direction and should prove the best sort of encouragement to the farmer who carefully handles his grain, as he will be paid in accordance with the grade of grain being marketed. Right here it might be well to add that a little care on the part of farmers in seeing that their grain is kept clean and sweet would mean from 3c to 6c additional value per bushel, a point worth considering.

One of the most important departments of our work, I think, is to lend whatever encouragement possible toward the improvement of grain crops. This subject is, or should be, of vital importance to every farmer in the state as it simply resolves itself into a money paying proposition. An increased value of say $10.00 to $20.00 per acre on your crop, whatever product it may be, ought to "listen good" to every farmer. The wide

range of possibilities which lie in the power of the Agricultural Experiment Association bespeaks for Wisconsin a prominent place among the grain growing states. Wisconsin barley is known far and wide for its malting qualities and ordinarily commands a premium over other states' barley. It would therefore seem that the soil and climatic conditions favor the growth of this cereal, and I look for an increased yield from year to year. In certain localities, however, we find certain well known varieties are fast losing their identity, and crops grown show a mixture of two, four and six rowed barley. Such barley is very unsuitable for malting purposes and must necessarily be sold upon its own value, which means a considerable reduction under even berried barley. Hence, the necessity of ascertaining through the assistance of your Experiment Association some particular variety which is hardy and peculiarly adapted to the soil of the state, generally speaking. It may be going out of my province when I state that the Manshury and Oderbrucker barleys seem at the moment the most desirable, all things considered, and there is little question but that they will fill the bill to a nicety. Thorough and careful tests prove them A-1 feeders, and their malting quality is unquestioned. Too much stress cannot be laid upon the importance of whole sections or communities growing a uniform or similar variety of barley or oats. Such a venture will prove a "money maker" to the farmers as you will have established a territorial identity for your grain which will demand recognition from the trade.

I note with considerable satisfaction that the farmers are now using the Swedish Select variety of oats and this is a move in the right direction, only the practice should become more general. The Experiment Stations of our respective western states are certainly doing a grand good work and the importance of their labors is becoming more apparent with each year. Their interest, research and careful experiments are directed toward your welfare and advancement.

Any time that the Grain Dealers' Association can co-operate with you in the promulgation of your meritorious endeavors, please to be assured of our kindly offices and unselfish support.

TESTING ALFALFA SEED.

L. R. ZERBEL, HUMBIRD, CLARK COUNTY.

Members of the Experiment Association:

Testing alfalfa seed is of great importance and should not be neglected. I think that some farmers have been discouraged in growing alfalfa for the reason that they secured seed of a low germinating power. Where seed does not test more than forty to fifty per cent, one cannot expect a good stand. Blue grass, white clover, and weeds are thereby given a chance to crowd the alfalfa out. Then we get discouraged and say that we cannot grow alfalfa in Wisconsin. I wish again to state that the testing of the seed is one of the most important factors in the growing of this most valuable plant. The time to do this testing is before you purchase the seed. Send to your seedsman for a sample of his seed, which he will be glad to submit to you. Then test the seed in a simple seed tester, which is made as follows: Take two tin plates, one a little larger than the other, cut a piece of cotton flannel to fit in the plate, soak the flannel in water, then squeeze out the surplus water and put in the larger of these two plates. Then the one hundred seed or more are put in this plate, cover these seed with a similar pad, which is moistened with the water, and then cover with the smaller tin to retain the moisture. The tester is then placed in some convenient place where the temperature ranges from seventy to eighty degrees Fahrenheit. The tester should be examined every twenty-four hours to see that the pads do not get too dry. If the pads become dry they should be remoistened. It is well to loosen up the lower pad occasionally to let in oxygen, which will help in the germinating of the seed. In about three days' time the seed will begin to germinate and at the end of five days the seed should be all germinated. Good seed should give a germinating test of at least ninety-five per cent, better still, if it tests one hundred. Good, strong, vigorous seed will raise the cover of the tester nearly one-half inch. Seed that is not so vigorous may germinate under favorable conditions, in the tester, but when sown in the field not having such favorable conditions, fail to germinate. Therefore, it is

important to get good, strong, vigorous seed. By testing the seed and getting the seed bed in proper condition, we have made the right start at least in getting a proper stand of alfalfa.

ALFALFA—SELECTION OF THE GROUND.

L. J. ATHEARN, OSHKOSH, WINNEBAGO COUNTY.

The experimenter on the farm meets with many practical problems that do not confront the experimenter at the station. But it is the purpose of this society to test the value of crops under actual farm conditions and a crop that cannot adapt itself to these conditions is of little practical value on the farm.

If, as one might be led to suppose from the directions sometimes given for getting a stand of alfalfa, the plant required a special kind of soil and season neither too wet nor too dry, nor too warm nor too cold, it would be safe to predict that this valuable legume would always be a curiosity in Wisconsin. But from my experience and observation, I believe that alfalfa is as hardy and as adaptable to Wisconsin's soil and climate as any of the crops commonly grown on our farms.

Although I believe alfalfa can withstand roughing it with any of our farm crops, I do not advise sowing it on unproductive or poorly prepared soil. Alfalfa responds readily to favorable conditions, and, as it is a most valuable crop, it deserves these conditions when possible.

Alfalfa may require a special kind of soil, but as a rule, will grow most anywhere that our common clover will and may be sown in the same manner.

In selecting the ground the experimenter should bear in mind that his little trial patch of alfalfa, if it is a success, will be like his orchard or farm buildings, a permanent improvement. It should not be in a large field where it will interfere with his rotation or where it will be trampled upon when young by live stock. There are two good reasons why stock should not be allowed on the young alfalfa: First, because the stock is liable to kill the alfalfa; second, because the alfalfa is liable to kill the stock. If possible get your patch of alfalfa

in a small field near your barns where it will be convenient to use as a soiling crop. I have found alfalfa so valuable as a soiling crop that I have saved very little of it for hay.

The first crop is ready to feed before red clover in early summer, the second crop comes in between the first and second crops of clover, and the third cutting comes after the second crop of clover has been fed out. This gives throughout the season a continuous supply of green feed rich in protein. Alfalfa is relished by all kinds of farm stock, from the spring chicken to the dairy cow.

I first tried alfalfa on a very stubborn piece of red clay soil. I did not get a good catch the first season. The alfalfa came up in patches. The intervening spaces soon grew up to weeds, so I plowed the field up and the following year planted it to corn.

About this time the inoculation theory came into prominence. I reasoned from this theory that the soil on which alfalfa had been previously sown and later plowed up and given a thorough cultivation would contain the nitrogen-fixing bacteria peculiar to the alfalfa plant. In order to test this theory, I sowed the same plot of ground to alfalfa the following spring.

This was the spring of 1904, or rather it was the time of the year when there should have been spring, but there was not. In my section we could not get to work on the land until nearly the first of June and then it was wet, cold and lumpy.

I did not have much hope of getting a stand under these conditions, but the following season being favorable, I had a fine even stand of alfalfa.

In conclusion, I would say, select a field that can be conveniently left seeded down and one that is not far from where your stock is fed.

I would consider the question of convenience of location of more importance than that of the nature of the soil, as I believe alfalfa will grow on any soil if it is properly prepared and inoculated.

Were I selecting the ground solely with reference to its adaptability for alfalfa, I would select a piece of high ground with a sandy or gravelly subsoil. A soil of this kind is easily penetrated by the long roots of the alfalfa plant and it does not hold water on the surface during periods of excessive rainfall.

SOWING ALFALFA WITH AND WITHOUT A NURSE CROP.

GUY TRELEVEN.

The word alfalfa meant very little to me until the winter of 1904, when on hearing the talks and instructions given by Prof. Moore I became much enthused and interested in the subject. I desired to find out more about it, and its real meaning and profit to the stock raiser of Wisconsin. I received seed from the Experiment Association for trial, some of the Turkestan and American varieties. I also purchased seed enough for two acres, sowing it at the rate of twenty (20) pounds per acre. In sowing this seed I selected a piece of land, the most of which is well drained, having a north and south slope at the ends. The center of the strip was lower, gradually rising toward the north and south, then sloping off again at the ends. In this strip there is a variety of soil. Some is a black loam with red clay subsoil, some blue clay with red clay subsoil, and a heavy sandy clay and sand.

I sowed barley with the alfalfa as a nurse crop at the rate of five pecks per acre and waited the result. It was only a few days before the little plants were noticeable. These little alfalfa plants grew very rapidly and appeared to be striving to get ahead of the nurse crop, but as barley is a quick grower and throws out its long, flat leaves the poor little alfalfa plants were compelled to be submissive. As the season advanced and there came the hot dry weather of June this was still more noticeable, it being especially true on the sandy portion of the land. On the black loam and clay portions the barley grew very rank and lodged in places so that the alfalfa plants were partially smothered out by it. I let the barley stand until fairly matured, then cut and shocked it. The shocks also smothered out the alfalfa in places thus securing rather an uneven stand.

In the spring of 1905 I decided to try some more alfalfa, this time sowing about one and one-half acres. I again used barley as a nurse crop, this time sowing the barley at the rate of about three pecks per acre, and the result was much better, for it did not so completely cover the alfalfa. But even at this rate of

sowing the barley lodged considerably in places but not being so thick the alfalfa came up through the lodged grain and fairly smothered it out. The barley was allowed to ripen as before but at the time of cutting the alfalfa stood from ten to twelve inches tall. This caused the bundles to be green and heavy in the bottom, so I had some trouble with smothering under the shocks. After the grain was cut the alfalfa grew very rapidly and by the 10th of September it stood fifteen to eighteen inches high and was in blossom. As I was about to cut the third crop from off my last year's seeding I mowed over a portion of my new seeding. After taking off this crop it came on thicker than ever and by the time it froze up it had reached a height of ten or twelve inches. My whole experience with alfalfa has been with a nurse crop, but I can see no reason why it cannot be grown successfully without a nurse crop. True, the nurse crop is especially beneficial in keeping down weeds, but as alfalfa is a quick grower, when it is sown on land rich in fertility that had a cultivated crop on the previous year, there will be no serious trouble with weeds. If, however, the ground had not a cultivated crop the preceding year, I think it would be best to use a nurse crop. Winter wheat, rye, spring wheat, barley and oats may all be used as a nurse crop but I prefer barley. Barley does not grow as tall as other grains and therefore does not shade the alfalfa so much as the taller grains. It occupies the ground for a short time only, which is favorable as it admits sunlight to the young plants sooner. It does not furnish so dense a shade through stooling as do oats, winter or spring wheat. Barley, however, must not be sown late or the dry weather that sometimes follows may result in failure to make a stand.

CUTTING AND CURING ALFALFA.

E. W. LEE, GRANTON, CLARK COUNTY.

For Wisconsin conditions cutting alfalfa and making it into hay is probably the best way to handle this valuable crop. As the quality of the hay depends a great deal upon the time it is cut too much cannot be said on this point. From experiment

it has been found that the best time to cut is when about one-tenth of the plants are in blossom. Don't wait too long as that is detrimental to the crop that is to follow.

Joseph E. Wing said, "Get down on your knees to the plant and when you find that the buds have started, is is ready for the mower."

Prof. H. M. Cottrel says, "The late cutting of the first crop injures the plant more than at any other time, and we have found it profitable to cut alfalfa the first time as soon as one-tenth was in bloom even though the weather was bad and we knew that the crop would spoil in curing." The cuttings that follow are of the greatest importance. In Wisconsin do not cut too close to the ground. Better leave an inch and a half or two inches. Never cut the last crop much later than September 1st as the roots need a good covering for winter protection.

Pick out a day that appears as if it were going to be fine and cut your alfalfa in the forenoon as soon as the dew is off. Let it lay a while and then ted it out if the crop is very heavy. As soon as it is nicely wilted rake it into small windrows and cock up. Put seventy-five or eighty pounds into a cock. Every farmer that raises alfalfa should have hay caps. These should be placed over the cocks and fastened by running pegs or old pieces of horse shoes, fastened to the caps, into the cocks. After the cocks have set a day or two they should be moved by running a fork into them and moving them to one side to prevent smothering the young alfalfa plants underneath.

After they are pretty well cured open them and leave for a few hours to dry. Haul to the barn while quite tough so that the leaves and small stems will not fall off, as these are the valuable parts of the plant.

FEEDING ALFALFA.

A. E. HOWARD, WHITEWATER, WALWORTH COUNTY.

Alfalfa has come to stay. It is well past the experimental stage in Wisconsin. When we stop a moment and consider that in alfalfa we have a feed nearly equal to bran in feeding value and at the same time one that will under favorable con-

ditions produce from 3½ to 5 or even more tons of feed per acre, we can more easily realize the great value of alfalfa as a roughage for our farm stock. Of course, alfalfa alone as a food is not a balanced ration for stock, and it is better to feed some concentrates in addition. It makes an ideal feed for stock of all kinds, and especially for cows giving a good flow of milk. It has also been proven that for fattening purposes it is also excellent. The finer portions and leaves are excellent for calves and they thrive well on them. It is a good feed for hogs and can be fed to good advantage to brood sows and to growing pigs. Horses also greatly relish alfalfa and it can be profitably fed to them. If alfalfa is to be fed green, it is better to use it as a soiling crop than to pasture it. Pasturing is very hard on the plants and care must be taken or it will cause bloat. In fact, the greatest difficulty seems to be to get enough of this valuable feed. Therefore let us strive to know more about the growing and feeding of this great plant.

SOIL INOCULATION FOR ALFALFA.

A. L. BONNELL, POINT BLUFF, ADAMS COUNTY.

Mr. President, Gentlemen, Ladies and Fellow Members:

This subject is new to me, my experience is limited, and therefore this paper will be brief, and I do not wish you to understand that I profess to be an authority on alfalfa, or its growth or that I have something new to say, but perhaps what little I do say may be of service or value to someone with less experience or enthusiasm than I have for this perhaps, "greatest of forage plants."

But we are ever hearing of its wonderful growth, heavy yields, permanent staying qualities and its perfect feeding properties equaled by few plants, surpassed by none.

Now perhaps this may be a little astray of my subject, "Soil inoculation for alfalfa," so to get back to it I will first tell you of my soil, then the preparation of the same, etc.

The soil is clay loam with a clayey subsoil, nicely surface drained, sloping gently toward the east and also protected on

the west by a grove. I did not have the ground fall plowed so I put on a light coat of green stable manure and turned under early in April, as soon as the soil was in suitable condition. I kept it harrowed until April 19, when I made it a perfect seed bed and sowed the alfalfa, also the "inoculated soil," taken from an old alfalfa field, on one-half the plot, and then lightly harrowed once only, after sowing. That night we had a very heavy rain. Ten days later the plants were all up in fine shape. I might add here that I had previously sown the same day a nurse crop of barley one bushel per acre.

On July first the plants were about one foot tall and I found the first nodules on the plot that was inoculated, but none on the plot which was not inoculated. July 19 I cut the barley, as it had fully ripened, and also clipped some heads off the alfalfa plants, which were in blossom. One week later, July 26, I mowed the plot as high as I could run the mower, and did not rake it up, but even at this time, the alfalfa plants on uninoculated plot had entirely disappeared, as if by magic. August 28 I again mowed the plots, the alfalfa at this time being about fourteen inches tall and showing bloom. This time I also raked it, then I left the plot undisturbed the balance of the fall, and when snow came the alfalfa was about eight (8) inches tall. The season was extremely wet, taken as a whole, but no water could stand on this plot, nor was it sloping enough to wash, so that the excessive rain fall was probably no detriment.

Why there was practically no alfalfa left on the plot not inoculated seems a mystery, but it is nevertheless true, and points very decidedly toward the great necessity of inoculation of soil, in order to save our time, use of ground, and price of seed. A young man, one of my neighbors, also sowed some alfalfa this last year on ground practically the same as mine, and he procured soil from a "sweet clover" lot to inoculate with, and got a very fine stand, but he inoculated his entire plot, so we could not say decidedly as to the difference in inoculating or not inoculating, but feel sure he would have gotten the same results as I did had he left part of the ground sterile.

Now in conclusion I will say, of course one year's experience cannot be held decisive, but it seems to be very much in favor of inoculation, as my plot of barren ground under identical circumstances promises to be an entire failure. Only a few plants lived through the fall, while both my plot and the

other party's inoculated ground bid fair to live and flourish another season.

The experiment is of value in several ways. It shows that the ground should be inoculated. It shows that alfalfa can be grown in this locality, (central Wisconsin), and it also tends to show that the bacteria of "sweet clover" are identical with those of alfalfa and can be used where convenient with the same success as those from alfalfa fields," and lastly we should all try to raise it as its use and value will doubly repay all trouble in getting a good stand, and permanent forage of highest quality.

ALFALFA.

A. C. RUSSELL, GENESEE DEPOT, WAUKESHA COUNTY.

Waukesha County is noted for its great alfalfa lands, because it has wonderful lime stone gravel underneath the clay soil that seems to be adapted for the alfalfa roots, as they shoot down into the mixed gravel and clay loam to a wonderful depth.

These rolling fields and knolls where one would think scarcely anything could be grown, are just the fields that seem to be laid out for alfalfa.

The fields that I am to speak particularly about, are owned by Mr. Howard Greene, of Milwaukee, whose farm is situated twenty-eight miles west of Milwaukee, on the Chicago, Milwaukee & St. Paul R. R., one mile east of Genesee Depot.

In the spring of 1904, I sowed eight acres of Turkestan alfalfa, the latter part of April, on a field that had corn on the year before, and had been cropped and cropped years previous to that, until it was nearly run out. I harrowed the ground until I had a fine seed bed, and then sowed the alfalfa seed twenty pounds per acre, with a nurse crop of barley, at the rate of one bushel per acre on part of the field, and a nurse crop of oats at one bushel per acre on the remainder of the field. The oats I cut for hay and the barley I let ripen, but the alfalfa seemed to do better where the oats were cut. I did not cut the alfalfa on this

New seeding of alfalfa with oats as a nurse crop. Brook Hill Guernsey Farm.

Alfalfa ready for first cutting. Brook Hill Guernsey Farm. Howard Green, proprietor, A. C. Russell, manager, Genesee, Waukesha County.

field after grain was taken off that fall, but left it for winter protection. In the spring of 1905, this field came on fairly well. We had three fair crops, but they were not what they should be on account of the fertility of the land being depleted.

This fall I spread a dressing of manure over this field with a manure spreader. The crop had a good start when it froze up, and with the dressing of manure, we expect to get a good stand of alfalfa in the spring.

This spring I experimented on four different fields:

First field. (Experiment for the association), May 4th, alfalfa seed was sown twenty-five pounds per acre. Part of field was sown with nurse crop of oats, one bushel per acre, and inoculated soil, and was one-third better than the uninoculated piece with nurse crop. I will say here that the soil in most parts of Waukesha County, has sufficient bacteria for getting alfalfa started in fine shape. See Fig. 11 and 12.

Second field I sowed May 8th, with twenty-five pounds of seed per acre, oats one bushel per acre. This piece was sod, plowed in the fall of 1904, and well manured before plowing. This spring the plowing was harrowed until worked into a fine seed bed, then oats were sown and dragged once, alfalfa sown after oats and dragged once.

This field came on in fine shape until just before the oats were ripe, and then the alfalfa turned yellow and stopped growing.

We let the oats ripen, and after they were taken off, the alfalfa came on in fine shape, and this fall had a fine growth for winter protection.

Third field of one and one-half acres was sown May 9th, 1905, with twenty-five pounds of seed per acre. This field was practically level and did not come on very well.

Fourth field was sown May 23rd, 1905, two acres, manured heavily in spring of 1905, and sod plowed. Alfalfa sown twenty-five pounds per acre, oats one bushel per acre, and let ripen. This field seemed to be fully as good as the field sown May 8th. These fields are quite rolling.

Alfalfa does best on land that is rolling, and does better in sowing twenty-five to thirty pounds per acre than a less quantity. When sown twenty pounds per acre, the alfalfa is more stocky and coarser, when sown thicker, it makes finer hay, and the stock eat it up much cleaner.

ALFALFA CUTTING AND CURING.

When alfalfa is about one-fifth in bloom, we begin cutting. We cut in forenoon after dew is off, and the first thing after noon, it should be tedded and raked about one hour and a half after tedding, if weather is fine, and we start cocking up as soon as raking is begun.

When the hay is in cocks, we put on hay caps made of unbleached muslin forty-four inches square.

The plan we have adopted for keeping the caps on is simple. We sew a little piece of muslin across each corner of the cap, forming a little pocket, then drop into each pocket about two stones the size of an egg, or one large one, and sew up the pocket. These can be made very rapidly by turning them over to the farmer's wife who does the work on the sewing machine. This is the most satisfactory plan we have found. We put the caps on as soon as the hay is cocked, to keep off the sun and dew, as well as the rains. The sun and dew reduce the feeding elements in the alfalfa.

Alfalfa is very tender and can be killed out unless the cocks are moved at least once in two days.

If weather is good, the alfalfa hay will go through a good sweating in about four days, and then we open the cocks about an hour before hauling in. When in the barn it will go through another sweating or heating before coming out in fine shape for feeding.

It has been stated that alfalfa has fully as much feeding value as bran if not more. If this be true, the thing to do is to raise alfalfa, and stop buying so much bran mixed with foul seed, and all kinds of dirt from elevators, etc.

Alfalfa and good silage make nearly a balanced ration for the dairy cow. I find that the leaves, that break off, can be used at a profit as feed for poultry. We have been feeding them with grains or mash this winter, and found that chickens eat it well and we find it a good egg producer. We intend to use alfalfa sweepings in this way hereafter.

SOIL INOCULATION FOR ALFALFA.

A. J. BLAKELY, NEENAH, WINNEBAGO COUNTY.

I have had only one season's experience growing alfalfa. Last spring I sowed a piece of Swedish oats on fall plowed stubble ground. The soil was a mellow sandy loam, with gravelly sub-soil, on the crest and slopes of a high ridge. After disking once, and dragging three times, I sowed the oats at the rate of 1½ bushels per acre, then dragged again, then sowed 10 lbs. of alfalfa seed on about half an acre of the ground. Then I spread about a peck of inoculated soil evenly as far as it went, which was on about one-half the area sowed to alfalfa. Then I went over all the ground with the planker. This was about April 16. It was very dry for a time after, but the oats, being covered deeper than the alfalfa, soon came up, and made such a rank growth that I thought the alfalfa would never come up. It was six weeks after sowing that I saw the first alfalfa plants. By July 1st the oats began to head out, and I thought I saw a difference in the alfalfa. On the plot where I spread the inoculated soil, the plants were 6 to 8 inches tall, while on the plot on which no soil was spread, there were but a few scattering plants, and these were short and pale-colored. The roots showed a proportionate development, the number and size of the nodules being especially noticeable where the soil was spread, while on the other plot the nodules were small and few. The season was so wet that by harvest time the oats were badly lodged. After harvest the alfalfa revived, though I had begun to fear that it was smothered. In a month after harvest you could see a striking difference between the two plots. You could see the line between the two as plainly as the line between green sward and plowed land. On the uninoculated soil, what little alfalfa there was was growing on the double furrows and other elevations. On the inoculated soil, the alfalfa was thick all over, even in the dead furrows. I know of only two other men in my town who have tried alfalfa. Neither of them spread soil on the land, but sweet clover is common all around them, while it is rare in my immediate vicinity. My advice to my fellow experimenters is: Don't take any chances on lack of bacteria in the soil. If sweet clover is abundant

around you, well and good; but if not, and if no alfalfa has ever been grown near you, get some inoculated soil. Mine only cost me the freight, twenty-five cents, and it meant the difference between success and failure.

ALFALFA.

R. H. POSTON, LAKE FOREST, ILL.

Members of the Experiment Association: I have had considerable experience with alfalfa for the past five years. Two years ago this coming spring I selected two plots of ground on the farm which I had charge of at that time, which was in Waukesha County. This ground was a clay loam with gravel subsoil.

I was afraid that alfalfa would be a failure as the land was so badly run down that scarcely anything would grow on it, oats giving about 28 bu. per acre, corn 25, and potatoes 50. The proprietor being very anxious for me to try it, I selected a half acre which had been in potatoes the previous year and seven acres of corn ground. Plot No. I was the potato ground. May 27th I put on the half acre about six tons of well rotted manure with a manure spreader. The 28th the ground was plowed and harrowed, it being in fine condition for the seed which was put on broadcast at the rate of 20 lbs. per acre and run over once with a light harrow. The 29th a nice warm rain came and the alfalfa came up finely. June 4th and 6th, the seven acre piece was plowed and fitted with a disk and a light harrow and a good seed bed made. The seed was put in on the 7th at the rate of 25 lbs. per acre. It got no rain for two weeks which caused it to come up unevenly. This field was cut over three times between then and fall. The alfalfa on this field was about six inches tall; the half acre plot was cut over the same way, four times, and was then much the taller.

The following spring I thought I would have to plow up the large piece as the alfalfa looked very thin and pale, not starting to grow until late in the spring, while the other plot No. I on which there was a light dressing of manure before seeding, came on early and looked green and rank. It was cut June 19th.

On the half acre was 2,140 lbs. of well cured hay. It was cut in the morning, put up in the evening and let stand in small cocks with caps on for two days, then spread out about nine o'clock and put in the barn in the evening. The other field was cut the 20th of June and put up in the same way. This field cut 3,200 lbs. to the acre of first class hay. While plot No. I cut 4,300 lbs. per acre, I think this yield was due to the light coat of manure which was applied before seeding. Those two fields were cut again Aug. 10th. Plot No. I yielding 1½ tons to the acre and the other field of seven acres went one ton per acre. Plot No. I in two cuttings yielded over 3½ tons and the other over 2½ tons.

Last spring I seeded two acres more on old hog pasture which had been in potatoes the previous year. I first put on a coat of well rottted manure. All were put in with a seeder.

Inoculated soil was applied to one half acre and a half acre beside it was seeded without. The two plots were seeded with one bu. of oats per acre which lodged quite badly, and were cut when ripe. Prof. Moore and I examined the two plots just as the oats were heading nicely, and could see no difference in the two plots, as both were doing finely with a splendid stand about six inches tall. The other acre was sown with 1½ bu. of wheat and oats. One bu. of oats and ½ of wheat. After the grain was taken off, no difference could be seen in the alfalfa. As for myself, I don't believe in this soil inoculation, I believe if the soil is in a high state of cultivation and prepared in the proper manner, that the nodules will appear on the roots all right. On my seven acre field there were some spots that were thin and of a very light color. I examined the roots of the plant on those places and found plenty of nodules. I believe the whole truth of the matter is, alfalfa must have plenty of nitrates in the soil or it won't grow much. I believe alfalfa has come to Wisconsin to stay and it is a Godsend to the dairy farmer where his soil will permit it to grow.

Prof. Moore and I visited the farm of Mr. Tichenor near Oconomowoc last summer where he keeps a great many horses, mostly light drivers. At that time alfalfa hay was being put up, which had a little timothy mixed with it. His foreman told us that Mr. Tichenor regarded alfalfa hay very highly for horses. This was news to me, as I had heard that alfalfa hay was not good for horses. At the present time I am feeding alfalfa meal to dairy cows and like it very much.

ALFALFA.

EMIL L. DREGER, MADISON, DANE COUNTY.

Ladies and Gentlemen, and Fellow Members of the Experiment Association: My experience with alfalfa dates back to the spring of 1904, when I sowed ½ acre with seed obtained from this association, which consisted of both American and Turkestan alfalfa.

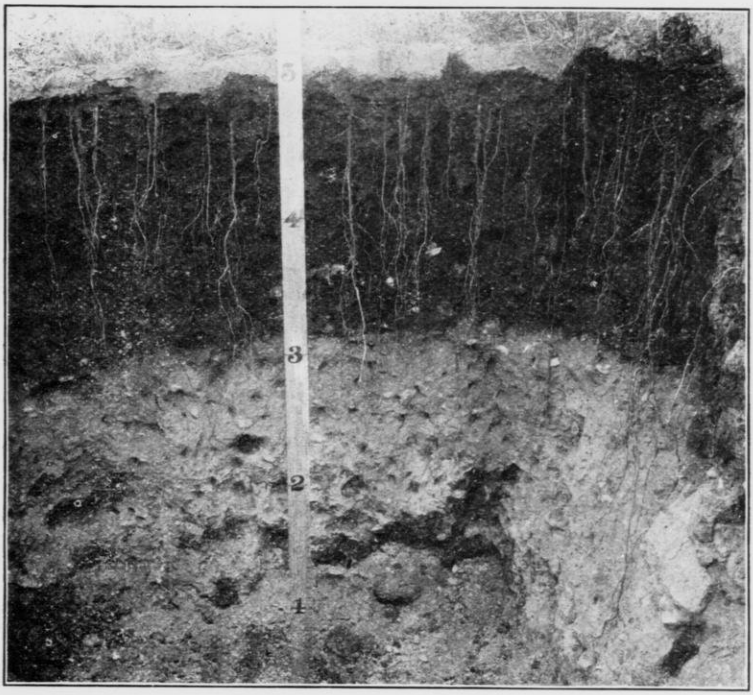
The alfalfa was sown after oats were sown as a nurse crop. The land had raised a crop of potatoes the year previous. It was plowed in the spring, then thoroughly harrowed and planked. There were no lumps left lying on the ground and the land was in what I would call garden condition. The nurse crop was sown at the rate of 1 bu. per acre, and the alfalfa 20 lbs. to the acre.

The oats were cut when in the dough state. At this time the alfalfa was apparently dead but about a week later we got a good rain and the alfalfa came on all right. By fall there was a growth about 18 inches high which was left for winter protection.

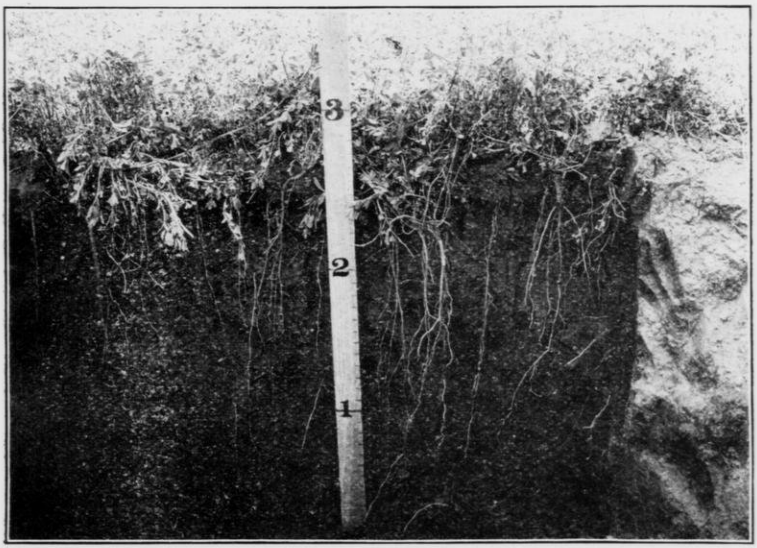
In the spring of 1905 the alfalfa started to grow faster than any other grass, but owing to too much moisture it grew so rankly that it lodged badly, and was not ready to cut before the middle of June. It was cut twice after this and the total amount of hay was estimated at 3½ tons from this ½ acre.

The American proved the better variety. At the last cutting the American variety yielded double as much as the Turkestan. There was a difference at each cutting, but not as marked as at the last cutting. The growth which I left for winter protection was also very much heavier on the American than on the other.

The roots were also examined the first year to see if they had any nodules, and it was found that nodules were present in large numbers, which shows that in our locality it is not necessary to inoculate in order to get the nodules started. To prove this I also carried on a test with government culture this past season, and I found that the seed which was disinfected, the seed which was treated with soil, and seed which was treated



Showing root development of alfalfa plants three years old, Experiment Station Farm, Madison.



Showing root development of yearling alfalfa plants, Experiment Station, Madison.

with government culture all gave the same results, nodules being present in all cases.

In conclusion I will say, try a small piece of alfalfa if you do not already grow it. Cut as soon as a few flowers are noticed. Leave a good growth for winter protection and do not pasture.

ALFALFA.

E. A. THIELEKE, KIEL, MANITOWOC COUNTY.

Fellow Members: I will in a brief way tell about the experience I had with alfalfa in Manitowoc County. In the spring of 1904, I secured two varieties of seed, Turkestan and American, from Prof. Moore. I sowed it on a sandy loam at the rate of 20 lbs. per acre with a nurse crop. Barley was used for the nurse crop. It had been a potato plot the previous year and was plowed in the fall, and cultivated in the spring the same as the other fields. The alfalfa was sown broadcast, then rolled and harrowed.

It did not take long before the tiny plants of the alfalfa were noticed, it grew well, and had a good color. In July we had a heavy rain and the barley lodged badly. I did not cut the nurse crop for hay but left it to ripen.

After the barley had been removed the alfalfa grew well and had about 9 inches growth for winter protection.

It wintered well, the next spring started out with a vigorour growth and was ready for the first cutting, June 23d. At this time there was quite a difference in the two varieties. The American was *over* 5 inches taller than the Turkestan.

I have a plant of alfalfa of the American variety 48 inches long. This was the tallest alfalfa I ever saw.

The American was ahead of the Turkestan all summer in height and color. I had three heavy cuttings of well cured alfalfa hay, estimated at least to be 5.5 tons per acre. This fall I had a good stand for winter protection and think it will again winter well.

As alfalfa can be fed to all animals on the farm, this great forage plant will no doubt within a few years be grown by every progressive farmer of this state.

I had pretty good results with my trial with alfalfa without using inoculated soil so will seed down five acres this spring without a nurse crop, as I would like to have a cutting the first year. I find the growing of alfalfa as a protein feed is the true way for the average farmer to secure this element. No longer should we be slaves to oil meal, cotton seed meal, oil cake, bran, etc.

EXPERIMENTS WITH ALFALFA.

F. E. BEST, BROOKLYN, DANE COUNTY.

Members of the Experiment Association: While I was pursuing my studies in the "Short Course" last winter, I became interested in that great and valuable forage crop "alfalfa." Now and then I devoted some time to the reading of reports from the different Experiment Stations,—and more especially those published at our own station, as it was my aim and desire to become familiar with the conditions under which alfalfa had been successfully grown in Wisconsin. Having gleaned some knowledge from the station reports together with what I was able to obtain from a talk on alfalfa given by Professor Moore, I concluded that I was then sufficiently acquainted with the essential requisites in the successful growing of alfalfa to warrant a trial. Accordingly at the close of the "Short Course" last March I took home with me ten pounds of alfalfa seed of the common American variety.

I had engaged to work away from home during the season, therefore I selected the site upon which I wished to have my experimental plot of alfalfa grown, and then gave my father specific directions as to how I wanted the seed-bed prepared, and how to have the seed sown. Perhaps, before I continue, further, I should say that with all my requests, father complied very kindly. I certainly am grateful for this appreciation. The soil consists of a rich clay loam, underlain by yellow clay at a depth of from fourteen to sixteen inches. The field is well drained, having a gentle slope toward the west. A crop of corn had been grown upon this land the year previous to sowing the alfalfa, and it had been used as a hog pasture about three years before it was planted to corn.

This field upon which the alfalfa was sown was spring plowed and worked until it almost possessed the culture requisites of a garden. The ten pounds of alfalfa seed were sown on half an acre with one half bushel of oats as a nurse crop. On one corner of this plot was sown a small quantity of "bacteria laden" soil, which had been sent to me by the Experiment Station, after which the whole plot was harrowed over once. The oats and alfalfa, both, soon came up and grew nicely, and on the tenth of June while I was up home making the folks a call I went out to investigate the probabilities for success in my little experiment with alfalfa.

I walked around in that alfalfa plot and it seemed to be possessed of more gradeur than I had ever dreamed of. There stood these stately plants in amongst the oats, each possessing that dark green color so characteristic of a plant getting the needed food. After digging up plants both in the portion of the plot which had been inoculated, and on the portion uninoculated, and examining the roots for nodules I found that there was no perceptible difference; but, on the contrary both portions of the plot were identically the same. The oats were cut, when in the milk stage, for hay. After the removal of the nurse crop the alfalfa sprang up and made a good growth so it went into winter quarters with a good shield for protection. The neighbors have been earnestly watching my experiment with alfalfa, and I am confident that after a few more successful trials with alfalfa on my part my neighbors will begin to grow it and after a duration of a comparatively short period of years the alfalfa fields in Green county will be much more numerous than are the cheese factories and creameries at the present time.

ALFALFA.

FRANK B. JOOS, FOUNTAIN CITY, BUFFALO COUNTY.

Mr. President, Fellow Members of the Association: Being favored with a place on the program I am pleased to make you a report of my experiment with alfalfa.

I did not make an inoculation test during the past season as some of the members did. My experiment was with a field sown

on the tenth of May in 1904. Two samples of seed were secured from Prof. Moore; five pounds of Turkestan alfalfa and five pounds of the American variety. More seed was bought of a dealer here so that in all I sowed two and a half acres.

As our experiment during that season was a variety test, I want to state right here that during the first summer no difference was observed between the Turkestan alfalfa and the American variety. In the second season, however, the Turkestan variety did very poorly. Many plants had died and the remainder were weak so that the yield was little more than half of what the other produced and the division line between the plots growing the two varieties was strikingly noticeable when the crop was cut.

When the field was being prepared for seeding the alfalfa, rather coarse but rich manure was used. The stand secured was rather uneven, perhaps for this reason, or because the field was spring plowed. I believe, however, that inoculation would have been beneficial.

The crop for the past season consisted of three cuttings, averaging about a ton per acre each. The second cutting was by far the heaviest and was most easily cured. The first cutting was considerably damaged by rainy weather while being cured as no hay caps were at hand.

It is unnecessary for me to state how the stock relished the alfalfa hay and what its feeding value is, this has long since been satisfactorily demonstrated in favor of the plant. It is our problem to grow the alfalfa in Wisconsin and to properly cure the crop. To succeed in its cultivation we must exercise much patience as the true value of an alfalfa field can not be experienced before it has stood three years. The selection of the location and soil for an alfalfa field is also what requires serious thought. In our community where the land is hilly and varies considerably the favored location seems to be on a sheltered side hill of sandy loam. This is rich soil and washes easily when cultivated crops are raised. The alfalfa sod prevents this washing and eliminates the tedious sidehill plowing after the field is once established, for a long term of years.

Residence of Fred Shumacher & Son, Sunny Side Stock Farm, Carlton, Kewaunee County. Experiments with alfalfa.

Alfalfa ready for second cutting August 12th, 1905, Forest View Farm, Wm. Oestreich & Son, Kewaunee, Kewaunee County.

AN EXPERIMENT WITH ALFALFA.

H. N. LONGLEY, DOUSMAN, WAUKESHA COUNTY.

Members of the Association, Fellow Students: Alfalfa as you know is grown with a considerable degree of success in all of our western states, and is rapidly gaining favor in the middle and eastern sections of our country.

Wisconsin being a great dairy state, our problem is, how shall we feed our dairy cows in the most profitable manner? In trying to solve this problem, Prof. Moore commenced experiments with alfalfa several years ago, and has been assisted in his work, during the past four years, by the members of the Experiment Association. They have established beyond a doubt, that alfalfa may be successfully and profitably grown in Wisconsin, and are rapidly disseminating their knowledge concerning its value as a stock food, and of the best methods of growing it.

My first experience with alfalfa was gained the past season, when I secured two sacks of the seed, from the Experiment Association, with which to carry on an experiment. The ground which I selected for the alfalfa, was a rich, well drained, clay loam, having a deep clay subsoil.

The previous season the land had produced fifty-one bushels of shelled corn to the acre. It was plowed in the fall of 1904. Early in the spring of 1905, as soon as the ground could be worked to good advantage, it was disked three times and harrowed four times, thus placing the seed-bed in good condition. Then the alfalfa was sown, from a grass seeder attachment on the drill, at the rate of twenty-five pounds per acre, and run over with the harrow once.

As a nurse crop we used barley sown at the rate of two bushels to the acre. However, I would not advise using so much barley, for if the season had not been an exceptionally wet one, the barley would have used all the available soil water, and the alfalfa plants would have been starved.

As it was, the little plants soon appeared above ground, and although they did not grow very fast they were of a clean healthy color, and stood very thickly upon the ground. After the barley was harvested, the alfalfa came on rapidly and

looked very promising. The remainder of the field was soon covered with a rank growth of clover on which the stock was turned and by grazing and trampling did serious injury to the alfalfa.

After a time the stock was taken off, and the alfalfa came on better, going into winter in a fair condition.

Although this was my first real experience with alfalfa, I have been much interested for some time in watching the work of a number of neighbors. They seem to obtain the best results from sowing without a nurse crop, for then good results are obtained the first season.

For a number of years previous to 1903, we were unsuccessful in getting a good catch of clover, and much alfalfa was sown for hog pasture. It usually made a good catch, and certainly has no equal for this purpose. As a soiling crop it ranks first, and horses or dairy cows will leave their grain to eat it.

In my opinion alfalfa is the greatest gift the Wisconsin farmer has ever received, and the better each and every one of us get acquainted with it, the more will he appreciate its value.

ALFALFA.

OSCAR R. FRAUENHEIM, RANDOM LAKE, WASHINGTON COUNTY.

Fellow Members: For the past two seasons I have tried alfalfa under varying conditions in a limited way but my experiments have shown me that alfalfa leads in the list of forage plants.

I have found that in order to grow alfalfa successfully the soil must be well drained and the seed bed must be well prepared.

Part of the field sown in 1904 was stony and plowed when the ground was hard, so that the soil could not be turned over well. On this part of the field the alfalfa made a sickly growth the first season while the past summer it was being crowded out by the wild grasses.

I have sown alfalfa at the rate of 10, 15 and 20 lbs. per acre

and find that it does best when sown at the rate of 20 pounds. Have sown alfalfa with and without a nurse crop and find that barley sown at the rate of 4 to 6 pecks per acre makes an excellent nurse crop.

Part of the field sown last spring was inoculated with soil from the experiment station. The alfalfa on this part of the field grew better and was greener all summer, some of the plants were in bloom when the nurse crop was cut. I do not cut alfalfa for hay the first season but let it grow up for a cover during the winter.

I cut the first crop just before it is beginning to bloom, the succeeding crops when from one-tenth to one-fourth in bloom. I handle the crop in the usual way, cutting in the morning of a bright day and raking in the afternoon and piling toward evening. I find the side delivery rake preferable to the common horse rake in raking the crop. I roll over a row and coming back on the other side roll another alongside, then rolling over the two take up all the hay from the ground while with the common rake the hay that stays under the windrow is hard to pick up with the fork. Do not make the piles too large especially when there are grasses in the alfalfa, the grass packs so closely and is apt to mold during wet weather.

I have made four cuttings the past season giving a yield of a little more than five tons per acre. Alfalfa is also a most excellent soiling crop, from the last of May to the time when corn is fit for soiling. Last year during the first part of June our pastures were overflowed by excessive rains so we tried alfalfa and found that the cows ate it with a relish, also giving an increased flow of milk.

In 1904 I, with many other members, carried on tests comparing the common variety with the Turkestan. During the first year I could detect no difference between the two varieties. Both came through the winter well but during the past season the common variety made a much better growth, being several inches taller when ready to be cut. During the latter part of the season the Turkestan variety turned yellow and had to be cut earlier. Having both varieties on the same kind of soil and handled in the same way, I have come to the conclusion the common alfalfa is best suited to my locality.

ALFALFA.

FRED P. GREBE, FOX LAKE, DODGE COUNTY.

Members of the Association and Friends: Alfalfa has attracted more attention on the part of farmers in the United States during the past two years than any other crop, as it is grown with more or less success in every state of the Union. Varieties have been found which withstand the rigorous winters of the northwestern prairie states. Other varieties have been found which are immune to the alfalfa leaf rust. There is still much to be learned concerning the adaptability of alfalfa to various types of soil in the states, and much time is being devoted to the solution of this problem. The cultural methods required for establishing and maintaining alfalfa meadows are also receiving due attention.

The great root development of alfalfa enables it to withstand severe droughts and secure plant food and moisture several feet below the surface of the ground which our clovers will not do. What we are experimenting for at present is to determine the best variety of alfalfa for Wisconsin, the amount of seed to sow per acre, the root development at different stages, the most desirable nurse crop to sow with alfalfa, and the best method of cutting and curing the crop.

One of the first things to consider in getting a good stand of alfalfa is to get good seed, second is to prepare the seed bed in good shape and one that is clean of weeds. This can probably be done best by following a crop that has helped clean the ground of weeds. Corn or some root crop are the best crops to be followed. Third, alfalfa must have a well drained soil because it is quite sure to be killed if water stands on it for any great length of time. To make the best hay of alfalfa, it should be cut when about one-tenth of the blossoms are out, if left until all the blossoms are out you lose more of the leaves when harvesting. The hay is not as good a quality when cut late and also the next crop will make a more rapid growth if cut early than if left until full bloom.

When cutting alfalfa the stubble should be left about 2½ inches high, if cut lower you are liable to injure some of the buds.

The past two seasons I gained my first real knowledge of the plant by carrying on an experiment with the common and Turkestan varieties. I had selected a piece of land that was well drained having a slight slope for the trial. The soil is a dark fine clay loam rather heavy, with a clay subsoil. The seed was sown May 5th at the rate of 20 lbs. to the acre on spring plowed land following a corn crop. Barley was used as a nurse crop sown at the rate of one bushel per acre, the barley was left to ripen and cut July 28th. The alfalfa varied from two to eight inches tall, looked rather yellow and made little or no progress after July 1st. Upon cutting the barley the alfalfa did not stool out and take on a healthy green color or grow very rapidly.

A little later our pasture being short the cattle were turned on the clover seeding adjoining my alfalfa and they took very kindly to the latter. The cattle were taken off and when the ground froze, my alfalfa stood about three inches tall. Later in the fall part of my plot was given a top-dressing of finely rotted manure from the hog yard, the effect of which was plainly noticeable in the spring of 1905. The plants on this section of the field grew more vigorously and had a much more healthy color. About June 15th the plants began to turn yellow and made little or no progress until July 5th. Then it was cut. After the first crop was taken off the plants began to stool out and grow very rapidly, also had a very healthy green color, but, just as with the first crop, when it reached the height of about ten inches or a foot, the leaves began to turn yellow before many of the blossoms were noticeable. I handled the alfalfa hay the same as I did the clover and timothy and found no difficulty in curing it. The plants being stunted the two crops only yielded about three tons per acre, while my mixture of timothy and clover from two crops yielded 4½ tons per acre.

I have also watched my neighbor's field of alfalfa quite closely. This field has an easterly slope part clay and part loam with a clay subsoil. The alfalfa seed was sown twenty lbs. to the acre without a nurse crop, and grew very rapidly until about July 1, then when about one foot tall the plants took on a yellowish color and made no progress. He cut it to destroy the weeds that had started, the alfalfa again grew very vigorously and took on a healthy green color until it was about eight inches tall when it took on a yellowish hue again

and made but little progress. The crop was left for winter protection. Neither of these two plots was inoculated with bacteria laden soil. By this experiment I do not think that alfalfa can be raised successfully as a forage plant on our clay soil without inoculating the soil with the proper bacteria.

While the results are not very satisfactory, yet the success or failure of my trial still remains to be determined.

ALFALFA IN WISCONSIN.

HON. W. D. HOARD, FORT ATKINSON, JEFFERSON COUNTY.

Mr. President, Members of the Experiment Association:

I have no set address; I will have to talk to you colloquially but perhaps you can understand me better.

I want to say that in my estimation, no other question is before the Wisconsin farmer that is of deeper importance to his material welfare than this question of alfalfa. In some respects your humble servant may be said to be a pioneer in this matter.

Thirty years ago a man in my township planted a little alfalfa. I had forgotten the incident, until the man who planted it moved to Iowa, and the man who occupied his farm came to me one day, thirty years after and said that a number of the roots of alfalfa were still living in the fence corners of the field. Well, I thought that was rather a remarkable incident; I had accepted the general concensus of opinion as expressed by farmers, that alfalfa would not grow in Wisconsin. I went up and looked at those roots. Of course in thirty years they had grown to be pretty large. No attention had been paid to them and maybe there were twenty-five or thirty of them, but from what I saw there, I became convinced that if rightly understood, from a climatic standpoint in Wisconsin, a way could be provided whereby alfalfa could be successfully grown.

So I started in, about twelve years ago to experiment with it upon certain city lots in Fort Atkinson, and I had all kinds of success, and I welcomed disaster just as much as I did success, for it taught me just as much.

But finally, to cut it short, I thought that I had worked out a plan whereby alfalfa could be successfully grown, and I then embarked on the farm with it. It has been on the farm about seven years,—commencing cautiously at first, and the result is that last year I placed one hundred and eighty tons of alfalfa hay in my barns, grown on thirty-five acres,—when I say that I have not said half of it—every ton of which is worth in actual feeding value from three to four tons of timothy hay, the best timothy hay that you or I can grow and in passing I want to say that if there is anything on earth that is overestimated in value (unless it be certain politicians) it is timothy hay, which is sold to the market in the cities and villages at a price that cannot be justified if you put it in comparison with either clover or alfalfa. Just a minute, look at these figures, timothy hay standing about three per cent protein (digestible); alfalfa, eleven. Now what does that mean? Alfalfa producing five tons to the acre with me and timothy two. What does that mean?

A Perfect Ration.—Alfalfa and corn silage form an almost absolutely perfect ration with but little grain needed; thirty-five pounds of corn silage and twelve pounds of alfalfa hay, three pounds of bran and two pounds of barley meal, just half the grain ration that I would feed without half the alfalfa, and I would feed from ten to twelve pounds if I feed timothy hay. I want you to get these comparisons, because they are side lines to keep us in the road.

Now, just to show you the feeding value of alfalfa. I maintain my brood sows upon nothing but alfalfa hay. I have not told you all there was in the proposition but since I commenced feeding my cows alfalfa hay, there is a very noticeable increase in the vigor and character of their offspring. It is the finest hay for horses that I ever saw, for work horses on the farm, when administered with that kind of judgment that every farmer ought to be willing to use. Twelve pounds of alfalfa hay a day and nine ears of corn constitute the ration with me for my farm teams of horses weighing three thousand pounds in the pink of condition and action; that is, to each horse three ears of corn at a feed a day. These horses through the whole of the winter have had twelve pounds of alfalfa hay a day, worth say, half a cent a pound; three ears of corn at a feed, and have kept in fine condition. Figure for yourself the economy of maintaining horses through the winter; with the usual kind of timothy

hay they would consume twenty pounds, commanding the same price in the fool market—I call it a "fool" market that will pay the price for timothy which it does. Add to that timothy hay eight to ten quarts of oats per day. Now that is for horses that were simply being maintained for incidental work, you know. Of course next spring when the heavy work starts in they will get a little more grain, no more alfalfa.

I will just hastily sketch to you some of the most salient points in my experience with alfalfa.

It has been difficult for me, with men who have never put themselves in contact with this matter, to talk about it, because I can't expect people to believe the things that I know concerning this plant.

Growing Alfalfa.—I want to say to you that it is my conviction, that it can be grown almost universally all over Wisconsin, wherever sweet clover grows by the side of the road. Hold up your hands, how many of you are located where sweet clover grows? Look at the show of hands. Now, it can be grown anywhere else in Wisconsin if a little care is taken, and I will give you what, in my estimation, I have found to be the rule of procedure from the Wisconsin standpoint. I found myself all at sea in judging the proposition from the Ohio standpoint or from the Kansas standpoint, and so I found that I must work out the problem from the point of the conditions which obtain here. You know yourself that with even two farms, standing together, one farm cannot be farmed as the other farm is, and there has to come in a lot of gumption, which is discernment and judgment, we know that, and so you see that you have to use this gumption which is this good judgment in Wisconsin,—first in the matter of good seed, absolutely good seed.

Testing the Seed.—Seed was sent me last winter of which only twenty per cent or one-fifth sprouted. One thing is certain, you must test your seed. Go to the tinners and get an ordinary tin pie plate, have your wife make a little quilt arrangement, with two pieces of cheese cloth, with a little cotton between and cut it out to suit the bottom circle of the pie plate. Wet it. Count out one hundred or two hundred alfalfa seeds and sprinkle them on that little quilt. Have a smaller pie plate the size of the quilt itself and set that down over it and place where it will keep warm. That is one of the nicest little arrangements for testing seeds that I have ever used. Then the percentage of that seed

that sprouts will be the percentage of vitality in that seed; if ninety out of a hundred sprout, it is ninety per cent good. Now, when I found only twenty out of a hundred would sprout, I said to myself, "What would the farmer who sowed that seed say when he saw the result?" Why, he would say, "The blamed thing won't do with me," because he had bad seed.

Location.—The next point is the locality. We are finding rapidly in Wisconsin that the higher and bolder, you might say the higher portions of the farm, are those upon which alfalfa does the best. If you have a side hill with good soil you will find alfalfa will do exceedingly well there, for one reason that when the sun comes in March and there is thawing and freezing the water runs off, and does not form an ice cap. You know if it collects anywhere in the hollows, it will kill your clover, and it is apt to kill alfalfa. So much for the location or the physical contour of the land.

It will grow upon any kind of soil. In my town are fields of alfalfa that are very sandy. My own farm is very stiff, heavy clay, thirty feet deep, white oak soil, and it grows beautifully. I would rather risk it in the vicissitudes of a Wisconsin winter and summer season than red clover twice over, for red clover will summer kill, that we know. Two years ago I sowed eight acres of red clover as high as twenty pounds of seed to the acre, I sowed twenty-five to thirty pounds of alfalfa in fifteen acres. I sowed them both with a nurse crop, barley and cut off the barley. It came on with a beautiful stand but when the barley was cut the clover all perished, summer killed. The alfalfa stood and looked as though it was having a hard time, but it came out finally, and on that seeding of a year ago I cut this year four and a half tons per acre of alfalfa hay in three cuttings.

Preparation of the Soil.—You cannot be too particular, you cannot possibly expend too much labor, you cannot work that soil over and fine it down too much. Alfalfa seed is a remarkable seed about being particular about its habitat. I wasted sixty dollars worth of seed to sow it down with rye. I harrowed the rye three times and tore it all to pieces and I never saw three forkfuls of alfalfa out of it. The only thing I learned out of that proposition affirmatively was that I got the biggest crop of rye I ever had.

Now, there is the soil. You need to have the soil in good heart, a good heavy coating of manure. Alfalfa seems to take

kindly to manure. A heavy coating of manure, fall plowed, seems to me to be the most favorable, because the ground settles well during the winter, then with a disk and a harrow give repeated workings, over and over; I am coming to think that it maybe would be well to delay the sowing till the first of June, and not sow any nurse crop with it. Go over the ground and constantly harrow it and kill the weeds, kill the weeds and kill the weeds, until say, the first or the tenth of June, then sow it. If it is a good season, it will do all right. If it should come off very dry, it will be apt to delay it some.

Sowing With or Without a Nurse Crop.—Some say yes, but you want to be exceedingly careful not to overseed with your nurse crop. A lot of farmers in this country have the idea the field ought to produce just as good a crop with the clover or alfalfa. Why, it doesn't seem to occur to them that you must cut off your grain if you seed it down with clover, and that is one of the reasons why they fail. It is a fallacy that I may eat my cake, and keep my cake, and sell my cake, and give away my cake,—everything ought to work together for good to them that love—cake. But not to exceed one bushel of barley to the acre has been my rule, and many think that is too much. I wish I hadn't sowed but half a bushel last year, because in some places, owing to the season, it lodged, and wherever the nurse crop lodges, it is apt to kill the alfalfa, so I have got to go on this spring with a disk harrow and work up the bare spots thoroughly and seed them. So much about the seeding.

Second. Do not sow alfalfa upon low ground, peaty soil. Sow it upon just as high, good ground as you can get, and remember, while it will go very deep after moisture, it will not go far after standing water; that is, it will not stand wet feet, the bottom of the root must not be in the water.

Cutting the Crop.—There is some wit to be exercised here. Commence cutting it when you see the very first blossom. Many people clip it the first summer; it is pretty dangerous in Wisconsin to do that. Some have done it safely, but if you clip your alfalfa before the buds form on the root for the other growth, you are quite apt to give it a very serious discouragement. And so, in cutting your first crop, wait until you see the first blossom, but if you wait until it has blossomed too much, you have injured the quality of the hay, and you have set back the second growth.

Invariably you will get a much larger crop the second cutting, if you cut the first early, and that is the law that applies to every subsequent cutting of it.

Cutting and Curing the Crop.—My object is to secure the very finest food that I can get. I have discovered that drying hay is not curing it; I have discovered that a certain process is needed to cure hay rightly so that it comes out fine food for my cows, and that process, with all legumes, clover and all, is to cure it in the shade and not in the sunlight, for something goes out of hay that is dried out in the sun. I don't know what it is. I will tell you how I proved it.

I couldn't tell how much grass a cow would crop in twenty-four hours, nobody could tell me on earth, for nobody has ever attempted to find out. We turn a cow out and let her graze but how many pounds of grass she will eat in a day nobody can tell. I took a Jersey cow that was making a pound and a half of butter a day upon grass, and I said, if I give her enough lawn mower clippings fresh, so that she holds up to the pound and a half a day, I am giving her an equivalent of what she grazed for herself in a day. I put her in the stable and fed her enough so that she held up to her pound and a half of butter a day, and it was eighty pounds of lawn mower clippings—about two and a half inches of blue grass. She stayed right there. Then I dried eighty pounds in the sun, in the bright sun, and it made eighteen pounds. Then after having handled the cow a week, seven days, with the fresh clippings, I put her upon seven days of this dried lawn mower clippings and down went the milk and butter yield. Of course, with the dried clippings she had all the water she could take, and so when a man tells me that the sun does not dry out of hay anything but just water, I refer him to that experiment, and I ask him what it was that went out of that grass.

Therefore, alfalfa should be cured in the shade, and to that end when cut if it is very heavy, I may turn it once or twice, shake it up, but I hasten this wilting of the crop and just as soon as the rake will rake it and handle it fairly well, it is raked into windrows and bunched into about one hundred pound cocks and covered with a forty-inch square piece of "A" sheeting hay cap. I have fifteen hundred of those hay caps and I find them on my farm to be one of the most profitable things I have ever used in hay-making machinery. Last summer they cost me thirteen cents apiece.

Making the Hay Cap.—You take forty-inch wide first-class sheeting, tear off forty inches long and there is your hay cap. Then take a stout, heavy piece of twine—I wish I could teach you all to make a weaver's knot,—tie a ten-inch string to each corner and last summer I got some of these washer nuts, weighing forty pounds to the hundred, and I tied a washer nut to each corner. I have heretofore used old horse shoes to make weight, cut them in two and punched a hole in them at the end near the toe calk. Take your stone boat or your low wagon and lay them on that all one way, with the weights at one side; pile them right up and drive in your field, pick them off, picking them up by the middle, and give them a flirt, and set them over the top of the hay and there you are. Every forty-eight hours after that two men go into the field and stab their forks into each cock and pull it over upon fresh ground; if there is any hay left upon the ground, the hay cap it lifted up and it is tucked under. This is done to prevent smothering of the roots under the hay cock. The ground upon which alfalfa is grown is particularly sensitive to adverse situations, you don't want to spot your field.

To show you how sensitive the crown of alfalfa is, in cutting the first crop and hauling it off the field you can see afterwards exactly where every wagon wheel went, it shows in the second crop and the third crop the same way, and that shows you how sensitive the crown of the alfalfa plant is, therefore the pasturing of it with heavy cattle injures it. Men say, "Won't it make good hog pasture?" Yes, it will, but it is hard on the alfalfa, because the hogs will bite out the crown; they will not only injure it by rooting, but they will nip out the crown, and it is much easier to have your alfalfa by the side of your hog yard and feed it to the hogs green, soil them in that way, and it is cheaper.

Now, I have put this alfalfa up and I want it to go through the first sweat in the cocks. If it goes through the first sweat in the cock, the spontaneous combustion which does occur with alfalfa sometimes and with clover is obviated.

You know it is very catchy weather the first of June, so that just the moment that there comes an opportunity that I think that there will be fair weather enough to get it hauled in, my men run out, spread it out for a couple of hours, not thinly, but thickly, let the oxygen get to it, and that will cure it quickly,

and then it is hauled while it is yet quite tough. We don't want to wait for the leaves to get dry as they break off readily and thus a large portion of the choicest feed is lost. No live stock man can afford to be without this great forage plant.

THE SEED MERCHANT AND THE WISCONSIN EXPERIMENT ASSOCIATION.

L. L. OLDS, CLINTON, ROCK COUNTY.

When Prof. Moore asked me to take up this subject he suggested that I prepare something bearing upon the *co-operation* of seedsmen and members of the association. I am sure we can help each other much. Let us consider how.

First, how can *we* help *you?* I feel like criticising a little the term "Seed Merchant." The seedsman ought to be something more than a mere merchant, one who buys and sells goods. He ought to be a student, a student of conditions and needs, and of new opportunities for supplying those needs. More than that, he should be able to not only *supply* demands but *create* them. By forceful but truthful descriptions and arguments he should be able to gain and hold the confidence of his customers. He must be progressive but at the same time strictly honest and truthful. No shortsighted policy of charging big prices for worthless novelties or of deceiving people with new names for old varieties will be adopted by the *true* seedsman. He must be out and out square in every way.

Do not understand me to imply that he should not introduce novelties. Everything we have of any value was a novelty once. But my point is that the seedsman should *know* as to the real value of what he recommends. What business has a man in a large city who does not know wheat from barley when it is growing, advising farmers what to plant? He may be a good business man, but a seedsman must be more than a business man.

With these things in our minds let me suggest some of the

ways that the real seedsman can help the members of the Experiment Association.

First, by the introduction of new varieties and new plants. I need only refer to this. The members of this association, representing as they do the most progressive and intelligent young farmers of the state, understand very well the value of improved and high yielding varieties. The seedsman, with his carefully prepared illustrated catalogue, is the one to make these introductions. Yet as I have already suggested he should know just what he is talking about. He must be fully posted if he is going to help such men as the members of your association.

Second, *we Wisconsin* seedsmen can help you by furnishing you varieties and strains that are *adapted and acclimated.* There are a lot of tremendous mistakes made right along this line. For instance, I have known farmers in our own town write to the seed corn men of southwestern Iowa to send them corn that would be adapted to Wisconsin. Any Wisconsin farmer is a fool to plant Iowa or Nebraska corn when he can get good seed grown in Wisconsin. He will find it out after he has tried it.

Third, the seedsman, if he is the true kind, the kind we are having in our minds, will help a lot by the individual advice he gives. We receive hundreds of questions in our mails such as, What variety of corn do you recommend for my soil and latitude? What is the earliest potato? Can I raise Beardless barley in my section? Will Swedish oats stand up on rich soil? Some of these questions sound rather foolish and *you* perhaps as graduates of the Agricultural College would not ask them. But there may be other things you *would* like to know about that it is the seedman's business to be posted on. With the knowledge that he *must* have of where every variety and every plant can be grown to best advantage and with the reports he receives from his own customers from every section the seedsman is in position to give advice of great value.

In the second place, how can the *members of the Experiment Association* help the *seedsman.*

First, by having confidence in him. Not, of course, if he deceives you. In that case leave him and try some one else. But do not conclude that all seedsmen are tricky because you know of one that is. Remember, a seedsman has a good deal to con-

tend with. His catalogue is his only salesman. It must show things in an attractive way, and the public demands very much of the seed catalogue. Barnum said, "The American people love to be fooled," and that must be the explanation why some of the most ridiculously exaggerated catalogues seem to always bring orders. I am not justifying such catalogues, *only,* the *honest* and *truthful* seedsman has this *demand for misrepresentation,* we might almost call it, to contend with and overcome. Then practically all of his business must be secured within about three months of the year. This is his harvest for the whole year. But, hardest of all, Uncle Sam himself directly interferes with his business. I read the statement recently in one of our leading farm papers that there are more packages of seeds given away by the U. S. government than are sold by all the seedsmen and all the storekeepers in the country. Do you wonder the seedsman has to hustle, with this sort of competition?

Second, you can help *Wisconsin* seedsmen by patronizing *them* instead of sending your orders away off. *You* are under no obligations to New York and Philadelphia seedsmen, nor are seeds necessarily any better because they call for heavy freight bills. Some of us are so apt to think that the things that come from a distance are superior. In the case of garden seeds the chances are that the seeds are grown by the same men, whether you buy them east or west.

There is another way that you can help the seedsmen and this is the most important of all. You can grow stock for them. There is a great field opening up here to the young and hustling farmers of our state. Wisconsin seeds are more and more in demand. They are wanted in other states. Illinois farmers are finding out that it pays them to buy Wisconsin potatoes for their planting. They will outyield their home seed every time. The same is true of oats, of barley and of many other field seeds. Wisconsin clover seed is wanted in other states. Now alfalfa is coming to the front, not only in Wisconsin and Illinois, but in all the northwestern states. The problem is to get good seed. Most of it now comes from Europe and European seed contains dodder or something worse. A prominent New York importer is authority for the statement that no imported alfalfa is received in this country that is absolutely free of dodder. Why cannot we grow our own alfalfa seed and have it pure?

I know of one seed firm that will buy it quick if any of you have any to offer.

Prof. Moore is trying to get you to raise Soy beans in Wisconsin, but you don't want southern grown seed. It will not mature in the north. Our trade in Soy beans is not large yet, but we have had difficulty in securing enough northern grown seed. We have to go out of the state for our seed wheat, for some varieties of barley and for some of our seed oats. We would much prefer to have them all grown in Wisconsin.

Then, there is corn. What a fine thing it would be if we could get the Wisconsin seedsmen to stop selling Nebraska corn and recommending it to Wisconsin farmers. But if they cannot get you fellows to grow seed for them what else can they do? I admit that you might have difficulty in getting them to pay your price. Wisconsin seed corn must be fire-dried and that makes it expensive. Nebraska seed need not be. We must educate our farmers, however, to demanding a higher grade of seed corn and not being satisfied with cheap stuff. The western seed is risky in Wisconsin anyway, even of the earliest varieties. Illinois and Iowa farmers have taken this corn matter up in good shape. They have the selecting and breeding of choice seed ears down to a science. Wisconsin is just beginning to look into this. In my opinion there is no reason why we cannot have just as perfect seed ears, bred just as uniformly to a fixed type here in Wisconsin as they have in Illinois. The ears will be smaller of course and the varieties will not be the same. A beginning has been made, thanks to Prof. Moore, but there is a lot of work to be done yet. You young men are just the ones to take hold of this. Help the seedsmen to get the right varieties and then help them in the growing of high grade stock. Remember the nearer we can come to home grown seed the better for corn. This corn proposition it seems to me is especially your field for the next few years.

Once more, you can help us by giving us a chance to introduce the new varieties of value that originate with you or that you have knowledge of. You are experimenters. That is the name of your association. Do not forget it. Report to us your progress. Keep us posted. Tell us of good things to recommend to the public, and warn us of the unworthy.

I have been trying thus far to show how we can help each other but now suppose we just go a little farther and see if by

our co-operation there is anything we can do to benefit any one else. What about your neighbors, the farmers who have no use for new varieties or improved ways of doing things. What can we do for that man, for instance, who never saw any thoroughbred corn but insists that he has the best corn in the whole town, the "earliest" and the "biggest." And when you ask him what variety it is he answers "Why, it's the Yellow Dent." You examine it and you find that *most* of it *is* yellow to be sure, and all shades of yellow, too, and as for uniformity, it is the most mixed up mess you ever saw, not only for color but for size of ear and for style of kernel, with hardly two ears alike in the whole field. It may be *early* and some of it may be *big,* but what corn?

I presume you have heard of such farmers. We have a number of them down our way. These same farmers never know what variety of potatoes they are raising. The chances are they have several mixed together but do not realize it. A customer wrote us recently "Do you have the Nameless Potato?" Judging from the mixed stock I have seen offered in market at different points throughout the state this must be a very popular variety.

But thanks to the Wisconsin Experiment Association which has for its object, "the promotion of the agricultural interests of the state," this condition of things is fast changing. You young men, representing as you do nearly every county of the state, have a tremendous influence over your neighbors. Your ideas and new methods will certainly have their effect. I urge you to stand firm in your purpose to seek out the heaviest yielding, the most vigorous and the best improved varieties and to insist on having the purest the cleanest and the most vital seeds. We as seedsmen stand ready to help you in this, not I trust from a selfish motive, but that *our own Wisconsin,* the best state in the Union, may be known as the state with the most progressive, intelligent and truly successful farmers that can be found.

COMPARISON OF WISCONSIN METHODS OF AGRICULTURE AND THOSE OF SOUTHERN AND WESTERN STATES.

F. W. LUENING, WAUWATOSA, MILWAUKEE COUNTY.

To introduce this subject, a preliminary word is necessary, even though it entails the use of a bit of uninteresting personal history. The writer left this university several years ago after completing only one-half of the agricultural course. Probably many of those present have planned, upon completing their course here, to take up at once their future life work. The change from our dependent learning years to those of independent practice, where each result is dependent absolutely upon our own effort and ability, is a great one and is sometimes too sudden for our own good. The writer, even before entering the university had planned his future with some degree of certainty. He felt that for him there was just one occupation —that of the farmer. A time came just after leaving college, when he was absolutely free; the past, like a completed chapter, seemed closed behind him, the future, a new chapter, not yet opened. It was then that certain thoughts, vague longings and strong desires merged and crystallized, the result being that, although he possessed at that moment but $35 and no plans, he boarded a train and started westward.

None of us can hope to find a finer occupation to which to devote our lives than that of farming; probably no line of work is broader in its scope; no line of work presents a more varied and interesting set of problems for study. But because of these things we, to truly succeed in our line, must apply ourselves very closely to our work, and of this the writer thought when he so suddenly started on a trip of unknown ends. Once engaged in active farming and opportunities for travel would be rare indeed; just now he was free, so he left Wisconsin for parts unknown. Before the train had crossed the state line he had come to about the following conclusions: He would drift where he willed; he would see what he could of the cities and country in as many states of the union as possible, and to enable him to do these things, would work on the farms in the various states, thus not only accumulating the necessary wealth, but

also becoming intimately acquainted with the agricultural methods of those states and acquiring a practical working knowledge of general farming for use at a future date. The plan was carried out. The writer managed to see a large part of the country in this way. He did not devote his entire time to farming, but as a general thing the work he did was on the farm.

These preliminary words are necessary in order that you may clearly understand that in what follows the writer does not use the tourist's or mere visitor's viewpoint, but the viewpoint of one who has seen at least a little of what is under the surface.

We, as individuals, measure our relative standing as agriculturists—farmers—by comparing our methods and our successes with the methods and successes of those about us. What applies to us as individuals applies equally well to us as a state. To truly measure the advantages and disadvantages of climate, soil, physical make up, etc., as we find them in our state, we must compare existing conditions here with existing conditions elsewhere. This the writer will endeavor to do. In speaking of Wisconsin, our "New North," the northern half of the state is particularly referred to, and for comparison, states generally considered of about equal economic development are chosen, i. e., Oklahoma, Texas, Utah and Colorado.

Firstly then, Oklahoma: Seventeen years ago the government opened for settlement a part of what is now known as Oklahoma Territory; three years later the remainder. The homesteads were allotted upon the "first come, first served" plan, i. e., a cavalry guarded line was formed, which, upon the firing of a signal gun, broke and ran; ran for a 160 acre prairie. Of the "run" little more need be said here. You have all read of the various "rapid transit" methods used in getting the homeseeker his farm—the cow pony, the thoroughbred, the buckboard, and quite frequently the "Colt's 45" were all instrumental in bringing about the desired results. Could the "sooner" and "claim jumper" have been eliminated, the method would undoubtedly have been a fair one, since, save for these elements, it was a case of "best man wins;" but although fair, it is questionable whether the opening of a section of land by the "run" method is ever for the best from an agricultural viewpoint. It involves too much of the excitement of the race track and solely because of this excitement attracts large numbers of adventure-seeking individuals, whose aim in

life is anything but to own and develop a farm. Naturally the Oklahoma opening attracted large numbers of these men and, because of a reckless nerve, born of the wild life of our western ranges, they got the farms. They, and here and there a true farmer of stubborn grit, rode in and acquired the Territory of Oklahoma. Perched, black specks upon the highest knolls in a land where nothing but eternal grass lay between them and an infinitely distant horizon (save only other black specks on other high knolls), they held down their farms and waited for further excitement. But none came; a burning southern sun, however, shone down upon those knolls with ever-increasing fierceness and an all-consuming thirst came over the men who watched upon them. This did not suit the reckless spirits at all and some of them mounted their horses and rode away; others waiting a little longer, saw the first of the canvas covered wagons coming out of the north and the east, and these wagons brought water. Their thirst appeased, they directed their thoughts toward their farms—how to advantageously dispose of these became the question and most of them realized that this could only be done by retaining them for some time. Careless though they were in most things, these men saw that this rich, grass-covered land, bore, or would bear in the near future, a money value of no mean sort. Truly, a volume of interesting anecdotes could be written on the ludicrous exchanges made, but as a whole the land was retained by the men who had won it, and since they had thrust it upon themselves, they settled down upon it, many of them in a half-hearted way, and went to farming. Such men then populated Oklahoma. Many of them knew nothing about farming; others knew too much, i. e., knew a farm meant work—hard, honest, persistent work—and there was something about that word "work" which jarred upon them. So they cast about for an easy method of farming—they wanted a farm that would bring returns without effort on their part. They did not succeed in finding their "easy method" but they did succeed in practicing the very easiest farming possible—and they are practicing that kind today.

The vast rolling prairies of Oklahoma, grass-covered, unbroken, present to the eye a very beautiful picture from an artistic viewpoint. From the viewpoint of a lazy farmer, it is doubly beautiful. Here truly one can use a riding plow, for never a stone nor a stump is there to protest. A single field, a single

crop, and indolence. The crop wheat. "The fertility of this soil is unbounded, the work we leave to the horse." So thought they then and so think they today. Fourteen years ago therefore (after the second opening) the Oklahoma farmer put in wheat and for fourteen consecutive years since he has put in crop after crop—all wheat. The yields at first were good, naturally, since a virgin soil of great fertility was the medium in which the seed developed and the plant grew. Last year the Oklahoma genius harvested on an average a little over ten bushels per acre. However, this may impress others, to the writer it seemed beyond understanding. The fact is that instead of appreciating their superior advantages and making because of them superior farms, these people actually "kick" because nature has not grown the fences. The writer, in his astonishment and disgust, remarked, "Why don't you apply manure or commercial fertilizers—why don't you practice crop rotation?" "Oh," drawled an enterprising individual, who sat in the shade whittling (this was in mid-June when we are "hustling" here at home) "we don't believe in manure, I don't reckon we need it. As to crop rotation, I tried that, it's no good. I put in wheat for eleven years, then I sowed oats, but the next wheat crop wasn't any better." Wheat for eleven years, to rotate, oats! Fine crop rotation that, truly!

Such is the Oklahoma farmer. A few exceptions exist, of course, but even in those cases the shiftlessness of methods practiced is the first thing a Wisconsin man would notice. These "exceptions" have of recent years planted corn, a little oats, alfalfa and have set out orchards. Probably the following will illustrate the methods practiced in regard to these things. The writer "put in" twenty-five acres of oats on one of the best of Oklahoma farms. This is the way it was done. A field was chosen on which corn had been grown the year before. It was covered with old corn stalks. No effort was made to remove or even break these down. No plowing was done, the work done on the field a year previous being considered sufficient. An ordinary four-tooth cultivator was run across the field between the old corn rows and this was followed by the drill. The cultivator naturally became constantly choked with old stalks, so did the drill. All in all more worry on man and strain on horses was occasioned by the method than could possibly have been brought about in any other way. The work done was

highly unsatisfactory to the writer and fully fifty per cent more oats could have been obtained had the field been properly plowed and harrowed before the planting took place. Even the "exceptions" cannot be made to see things in this way, however.

Here is a territory crossed and recrossed by a variety of railroads which make every hamlet accessible and shipping facilities of the best. A territory where rural free delivery is well established, where no farmer need be without a daily paper and one or more of our agricultural magazines. Climate and conformation and fertility of land are such that no known crop grown anywhere in the United States cannot be made to produce exceptionally well. A territory which has established and hidden somewhere on its fertile plains an "Agricultural Experiment Station" which takes great care to make no noise—fearing that its existence might some day be discovered, probably. A territory that is clamoring today to become a state in spite of the fact that its best farmers (and Oklahoma is strictly an agricultural community) are men who dare to excuse their shortcomings by declaring that their country is "too new." Do you wonder that even nature, who has given them a land eminently suited to become a garden spot, and to make its owners men of wealth and power, should lose patience and turn loose the devastating cyclone? No! Any self-respecting Nature would rise in her wrath and wipe from the landscape the unsightly atrocities which the Oklahoma farmer calls his "improvements," even if she had to use a cyclone to do it.

Everything has Nature provided for, good drainage, soil humus, sufficient rainfall, mild winters, and long summers. Therefore everything will grow and grow well. Alfalfa thrives wonderfully; with good care four crops can be cut every year Fruit, i. e., peaches, apples, plums, pears and all berries, as well as grapes, yield abundantly. Corn and oats do remarkably well when properly planted and cared for; where any kind of shelter from sun is provided, stock thrives, for pastures are good (they tend to become scorched in August and September, however). Beautiful fruit, hay and stock farms could readily be built up by progressive, intelligent men.

An orchard once started and then kept clear of grasses and properly pruned, would be the source of a good income. Such orchards, by the way, do not now exist in Oklahoma—too much

trouble to keep them in good shape to suit our Oklahoma farmer. Strong winds prevailing in spring and early summer, do some slight damage, but it is limited to the shaking off of superfluous fruit rather than anything more serious.

When Oklahoma farmers have reduced the fertility of their soil to such an extent that the wheat yield will no longer pay for the labor involved, they will be starved to raising other things—then perhaps we will see a change of method, even though we cannot hope for much progress. Therefore, so far as Oklahoma is concerned, nothing could be of greater benefit to that benighted Territory, than the settling on its farms of numbers of Wisconsin men, possessing, as they do, a bit of common sense and enough energy to do things; if any of you cannot stay here at home in this great state of ours, go down and re-establish the fertility of and develop along the right lines an Oklahoma farm. You will do the Territory a service and will in time prosper yourself. Better far though to stay right here, even if you must go into the heart of our northern forests, if you must grub stumps for ten years and move innumerable rocks. Remember you will be in the good old state of Wisconsin—at home. Remember that in time you will possess a Wisconsin farm which means a real farm—a farm that will develop not only your muscle, but your brain, and that in the making will give you a deal of satisfaction. And do not forget that no matter where in the state of Wisconsin you may be, you have ever here in Madison an institution waiting only your word to give you of its best. For *our* university is not asleep, *our* Experiment Station does not fear that it may be called upon to do something, east or west, north or south, it is ever watching you and your interests, ever willing to aid and befriend you and you may be sure of its best advice and a friendly word whenever you may call upon it. Comparisons: Oklahoma is a land of fertile farms, free from obstructions of any kind, long summers and mild winters. Wisconsin's summers are a little shorter and her winters more severe, her farms, however, are as fertile, but as a rule boulders and stumps must be removed before successful cultivation can be carried on. To offset, however, the very difficulties which a severe winter and field obstructions bring have made the Wisconsin farmer energetic, progressive, and able to cope with problems presented. The Oklahoman on the other hand is as lax as his climate is mild;

as shiftless as his fields are free from stones. Oklahoma has sufficient rainfall, if careful conservation of moisture is practiced, but small lakes and permanent streams, except for a few large rivers, are almost unknown. Wisconsin is dotted with the most beautiful of lakes and small streams abound—a feature of infinite value from an agricultural viewpoint. Oklahoma's water, that used for drinking purposes, is poor (alkali is present in considerable quantities), and the health of her people is consequently impaired. Wisconsin's waters are the purest in the world and the health of her people superb. Absolute crop failures are unknown in Wisconsin, in Oklahoma entire failures of crops throughout the Territory have occurred.

To conclude, then, a Wisconsin man might make of an Oklahoma quarter-section a beautiful and highly productive farm. A Wisconsin man on a treeless plain, however, is like a fish out of water. Perhaps here at home you see in a tree little of value or interest, but once away, where only a sea of grass and wheat monotonously stretches out before you to become lost only where it merges with the distant horizon—where only far, far to the left stand those dismal, sun-scorched cottonwoods pining, it seems, for the companionship of their northern brothers, then truly, you will feel the aching of your hearts, a longing for just one glimpse of the forest-bounded lakes of old Wisconsin.

Texas. The writer gained but a general impression of this state; it was a case of "Texas through a car window." Still, we crossed the entire state in three directions and as general impressions go, I think we got a fair idea of things. In passing through any section of country, rapidly, farms of exceptional merit impress one but little, but for this very reason the general state of development—the section as a whole—is best judged in this manner. Our minds do not become confused nor do we thus judge a section—a state—by the few exceptionally good farms which we may have seen; and it is certain that "the best" are the farms which are shown us by the natives. The car window picture, therefore, while telling us nothing of possibilities, does show us clearly just what existing conditions as a whole may be.

The car window picture of Texas is anything but a cheerful one, especially in February, when we first crossed the state. The Red River which we cross to enter the state, lined as it is with huge weather beaten cottonwoods, sadly draped in their

sombre colored Spanish moss, presents an almost melancholy aspect. Beyond, the country is low and almost flat and except along the river, practically treeless. Neglected cotton fields, deserted cabins, and most squalid of shacks that ever human beings called homes, dot the way. Vast and dark and drear, the plains roll out on every side—a rotting cabin here, a tumble-down home there; like broken stones over graves of the dead, they stand; from the Red River to the shores of the Mexican Gulf, one vast forgotten grave yard.

From the beautiful city of Galveston via interesting and picturesque San Antonio and Corpus Christi to El Paso, in the extreme western part and on the Mexican line, the second crossing of the state of Texas. This later when the sun had dried the soaking rains and the grasses and early flowers were waking up anew; a little life, a little hope seemed springing into being. From a purely agricultural viewpoint a desolate picture still—so little cultivation, so little life and energy. You may have seen some old marsh dried in the summer's sun, its dying vegetation luxuriant but poisonous, its soils rich, but fever-laden—in its entirety an odd picture, an admixture of life and death, health and disease. Such seems Texas from a car window. Those sections lying about Corpus Christi and San Antonio purport to be nothing but ranch lands—sheep and cattle. As such, we would not expect to find them densely settled; yet, it is not that which so strangely oppresses the traveler; it is the rotting cabin, the broken fence, the dead appearance of the fields in the so-called agricultural sections, where the Texan, vegetating hopelessly, eating somehow, sleeping, it must be feverishly, thrives like the weeds of the marshes, and, like them, dies in the poison-laden atmosphere.

Amid the full glory of the early summer we crossed for the third time the Lone Star State—from El Paso east to Ft. Worth and up through the Panhandle. A spot of beauty here and there—the cotton field in bloom—a bunch of cattle, a tumble-down shack, a shining pickaninny flashing by in the sunlight, and then the plains. Miles after miles of fence, a fleeting glimpse of a modern ranch house and then more fence. High, dry, grass covered and wind-swept, lonely, perhaps, but truly the "cattle country."

On the plains of Texas one feels at once that things are as they should be; the grave yard and the marsh are quite for-

gotten. The ranch house, lonely though it stands, yet impresses one with the fitness of things; only a wire fence, only a bunch of cattle, a miniature cow boy on a miniature pony far away to the east or the west—the land of the cattle and the sun.

At the World's Fair at St. Louis the state of Texas erected in the Palace of Agriculture an exhibit as suggestive of agricultural prosperity as anything shown in the huge building. To one who has passed through this largest of our states, the question must arise, "Where were the materials produced that went into this exhibt?" Evidently exceptions exist in Texas as well as everywhere else, but they must be few and far between or the pictures would be the brighter for them, for each bright spot, though merged with the whole gives to the picture a brighter tone and it must be admitted that of gray and of black are these car window pictures of Texas. We repeat again, that these are impressions all, the impressions of a Wisconsin man who never knew till he saw for himself such pictures in gray and in black how well he loved the forests and hills and the lakes and the streams—and the people—of his native state.

Utah: On the first day of August, 1905, the government opened offices at Grand Junction, Colorado, and at Provo, Price and Vernal, Utah and registration for land in the Uintah Indian Reservation began, continuing for a period of twelve days. In this case of opening the "lottery system" was substituted for the old "run." The lottery system is in itself one of absolute fairness and the "sooner" is eliminated since no one not registered and numbered can hold a claim. The Indian was first given his choice of the lands—which was right and proper. He took the best, which was natural.

In regard to the agricultural value of these lands. The writer crossed and recrossed the reservation both on foot and on horse back. Save for the Indian allotments, located principally on the alleged permanent waterways, he saw nothing which could in any way compare with the very worst of Wisconsin farms. The following, quoted from the writer's diary, will perhaps give you some idea of land conformation and conditions: "Written on the banks of the Colorado River about fifteen miles east of the Utah line—and this morning I washed in an irrigation ditch and then came on to F. I

rested on the banks of the Colorado and wrote this. Before me lies a low range of mountains and beyond a great desert. I rode on after leaving F. along what seemed miles of choking, dust-covered trails, where the sun beat down with awful fierceness. On all sides the sage brush and the cactus, and the water in the irrigation ditches tasted good, even though it was murky and muddy and full of many things. Toward evening I passed the last school house and the last irrigation ditch and before me lay only an unknown desert. Riding wearily I came at last to the top of a ridge and looking down saw, far across the desert, some buildings—the "town" of Mack.

"Written by firelight, in camp, about forty miles beyond the eastern Utah line. Left Mack early this morning. After getting an extra canteen and rations for two days, and learning that twenty-three miles beyond I would find a mud hole, located near the trail, containing water considered fit for a horse, I struck out into the desert. Of the burning sun, the choking dust and the consuming thirst which the canteen could not quench, I need say no more—the dry, bleached bones of steer or horse that lay by the trail spoke more eloquently of the horrors of the desert than ever words could do. We made the mud hole a little after noon. Buck drank large quantities of the warm mixture (H_2O) ($Alkali_6$) which we found in the puddle and seemed refreshed, although it would have killed any but a tough little cow pony like himself. I removed the saddle and bathed his back and dripping face; then, utilizing the tiny patch of shade cast by the horse, I sat and stared stupidly at the glaring ledges and the sickly white of the alkali beds. Not a breath of air stirred nor was there a sign of life, not even a buzzard hanging overhead—the stillness of the tomb hung over all. Great heat waves faintly blue and green, quivered and merged with the red and the dun and the brown of the sandstone ledges and away to the east and the west stretched the thin white line that marked the trail. All natural creations are beautiful. This desert, horrible though it is from the view-point of animate life, is still beautiful.

"For an hour we rested, then, traveling again, over dusty trail and under glaring sun, made at last the steep ascent that took us to the top of B— Pass and into that strange, forest-covered strip of country that crests the Divide. How strange this strip of forest covered pass—a touch of God's country so

like our own state—and the almost unbounded desert on all sides. How inconceivable it seems that any human being should come to a desert like this so long as there is room for a single individual in a state like Wisconsin."

So much for diary quotations. Further writings on how we finally got into the Uintah Reservation, parts of which are located fully one hundred miles from the nearest railroad, would be but a continuation of desert description, such as we have already indulged in. A diary is a record of personal experiences and is therefore uninteresting at best; in this case, however, a description of country is involved and for that reason solely the diary is used.

The Reservation then, or the parts of it left us by the generous corporations, are sections of desert. Sections where the coyote and scorpion and rattlesnake abound and the man who makes his home on such a section will become better acquainted with the melancholy quaver of the coyote's howl than with any other one thing which the writer could name—including farm crops. However, the government is already engaged in digging huge irrigation ditches and in four or five years the reservation farmer may hope to put in his first crop; meanwhile he can live on sage tea and fried rattle snake, or if he be a man of wealth, his menu can readily be figured out by studying the ever-increasing pile of tin cans which he is building up behind his shack.

Bounding the reservation on the north is a timber-covered range, called the Uintah Mountains. In contrast to the desolation all about them, these mountains are of superb beauty; things grow upon their sides and water flows among their rocks. Luckily—or sad to relate, as you will—these forests are not for the homeseeker. The government has made of them a timber reserve. After many days of riding, the writer turned his horse towards these hills and in time camped high up in a glen where the pine trees grew. After resting for a few days, we explored these hills; we never found the fabulously rich veins of gold of the Indian's legend, but we did find —well, this:

Seated on a log, his head resting on his hands, was a young man—probably a more disconsolate and thoroughly dejected young man could not be imagined. His eyes had that far away look that bespeaks home sickness and his listless, half-

hearted greeting confirmed first impressions. Preliminary remarks concerning the weather went unheeded, so we knew we had a case of unusual gravity. Curiosity was aroused and Buck and I stayed to investigate.

"Looking for a farm?"

"No!! Blank-Blankety-Blank; ! – ! !

"Miner, then?" I asked.

"No. Stranger, don't bother me. I'm wondering how I can make money enough to get back home on. I've been frying in yonder Hell hole for the last 250 years. Once, but that was long, long ago, there was a farm. It was green and cool and on it grew Things—clover and grasses and trees—and fools. I was one of them, I came away. I came West and by and by a little farther West—where all things are great, as you know. The potted ham from Chicago is great; the baked beans from Boston are great, and the butter from Illinois is greater. But go 'way, go 'way—I'm going back," and he pointed vaguely toward the Northeast. Our suspicions were aroused and our heart beat wildly, as we breathlessly gasped, "Back where?" and leaned closer to catch the answer. "Wisconsin! Wisconsin! but don't bother." In another moment we were down beside him. Together we wept and together we tore the state of Utah to shreds and ground the reservation to atoms and later lauded our own state to the skies, until, becoming delirious, we praised Mayor Rose and Milwaukee's city administration.

Comparisons: Utah is a sheep state, primarily; these animals alone are able to exist on her arid or semi-arid lands. It would probably be no exaggeration to assert that one acre of our burnt or cut-over districts in the north (which are known as excellent sheep pastures) will support more sheep than twenty-five acres of the average Utah land. Good alfalfa and some fruit is raised in the irrigated districts and garden truck flourishes in these same sections. While parts of this state are well supplied with railroads, large tracts are not touched, consequently we cannot expect the state to compare favorably with ours. A Wisconsin man cannot be contented on a Utah farm.

Colorado: In the extreme northwestern corner of the state of Colorado lies Routt county. This county is as yet new and unsettled, but probably no other part of Colorado is being

boomed as enthusiastically at present. The writer first heard of the county from restless spirits whom he met where the Wyoming, Colorado and Utah lines meet; her fertile valleys, her huge forests and her rich mines—all were being discussed with enthusiasm. Naturally one meets in this strange corner of our country principally men who have lived always in the semi-arid districts of the West—men unacquainted with the eastern or middle states, and such were the men whose enthusiasm ran so high. Just before entering the territory under discussion, we met a young man from Illinois. He spoke less favorably of the famous county than others had before him.

We entered Routt county over mountain passes, and, crossing range after range, came at last to a point situated in the heart of the county. Buck knew at once and the writer soon discovered that Routt county was as yet primarily a cattle range. Consequently Buck's merits as a cattle pony were soon put to the test, for the writer became a "cow puncher." This occupation, involving as it does, long daily rides over many miles of range, affords ample opportunity for study of soil conditions and agricultural methods. In our case almost one-half of the state of Colorado was covered, more or less thoroughly, in our long daily rides after "doddies."

Northwestern Colorado affords good pasturage for range-bred cattle. As to the farms (they are all called ranches out there), they are situated in the small valleys and bounded on all sides by towering peaks. The soil is a kind of clay dust (doby) and to raise a crop, irrigation is absolutely necessary Once irrigated, the peculiar soil yields wonderful crops. The most important of these on the higher elevations, is undoubtedly alfalfa, which not only yields well, but can be cured to perfection in the eternal sunshine. In the lower valleys, good crops of fruit are obtained, peaches, apples and berries doing well, but although this fruit land is considered unequaled by the Colorado farmer, the writer has yet to see the orchard that will produce better apples or berries than are harvested here in our own state every year. Large yields of oats are the rule on irrigated land, and of course, potatoes do more than well.

In regard to methods. It can be safely said, that as a rule, the Colorado farmer knows nothing of progressive agriculture,

i. e., of the more complicated problems involved. At present his soil needs no fertilizer; since he irrigates, he need not conserve his moisture as he would if dependent upon the rains; his cattle are branded and turned out upon the range, so get no care. But the Colorado farmer is neither shiftless nor a fool. As a haymaker, he is a wonder; the best of mowers and rakes are used, not only on those farms situated near the railroads, but on the ranches and valley farms far removed from communication with the outside world. He sends his order east, and, rolling up his blankets, sets out with a team and travels eighty miles to the nearest railway station to call for his goods when they arrive. To see the stacks spring up in the wire-guarded alfalfa fields is to cause expressions of amazement and admiration. While haying the Colorado farmer is tireless. He has no use for the rack or the hay-loader, using in their place the huge scoop-like "bull rake," which gathers and carries large bunches with least loss of time and labor.

Where the farm is located in the heart of the cattle country, the farmers' methods have become curiously merged with those of the ranch owner and cow puncher. Like them he likes to do things on a large scale. A field in oats, a larger one in alfalfa, a patch of potatoes and a few cattle on the range—that suits him best. He does not fear work, but, like the cow boy, wants his strenuous exercise in large doses, after which he is quite willing to mount one of those wonderful cow ponies, and, on this tough animal, annihilate ninety or one hundred miles to call on a "neighbor," or ride to town where he may spend a week, totally forgetting his farm.

The fruit grower, whose farm is generally near the railroad, and in sections where range cattle raising has become practically extinct, differs from the range farmer in that he is not averse to paying strict and constant attention to the details of his farm. He raises good fruit and packs it well. From his methods little is to be learned. They consist of the time-honored methods in vogue throughout the country.

A Colorado product of some importance and which should have been mentioned sooner is the sugar beet. A large number of men engage in this form of farming in certain parts of the state and are evidently fairly successful from a pecuniary viewpoint.

It is hard to compare the farms of Colorado as a whole with the farms of any other state. Owing to her wildly mountainous makeup, she is a state of perpetual winter, of long and intensely hot, or short, cool summers, as well as of all intermediate climatic conditions. One need only go to a greater or a lesser elevation to find a change in temperature and consequently in crops and agricultural methods. As a whole the state presents more attractions for the pleasure or health seeker than for the farmer.

The waters of Colorado are of superior purity—in places. In the northern and western part of the state much of it contains alkali. In fact the water supply is a serious question with the Colorado farmer throughout the state. At times he has it in sufficient quantities for all irrigating purposes, but it is seldom, indeed, that the water supply may be said to be truly abundant. Much of the timber land in Colorado is controlled by the central government, which has made of the tracts forest reserves.

The Colorado farmer then has built him a home in the fertile but sun-scorched valleys of his state; the sage brush and the coyote are ever near neighbors. He manages to live fairly well and to raise good crops, since he possesses energy and is persistent; but his surroundings are such that his home seems ever a bit bleak and dreary; and it seems that with his energy and his persistence, he might live in a better land. Since he is contented, we can but wish him success; since he "has made two blades of grass where but one grew before, he is a public benefactor," as we all know.

Our Rocky Mountains are grand. They are beautiful; but their grandeur is underlaid with a grimness which becomes apparent when we look too long upon them. The range is ever full of interest and of beauty to the tourist; he is fascinated and returns to tell us of the wonders of that range—but he does not know. So when you hear enthusiastic accounts of Colorado, remember that they are the tales of the pleasure seeker who moves about and can enjoy each day—his view is not that of the Colorado farmer. No state in the Union is better worth a visit, nor can any state present a more beautiful lot of pictures, nor a finer variety of climates. We met a young man from Wisconsin in Colorado—this far up on the little Snake River near the Wyoming line. In the words of

the cow puncher with me at the time, he was the "Homesickest man that ever wore chaps."

General conclusions: The states which we have chosen for comparison are not those where agricultural development has become most pronounced. They are, however, important states of our West and South and have been chosen because of the very difference which exists between them and Wisconsin. The history of these states is very fascinating and many are attracted to them because of this history, which gave us a secondary reason for choosing them and for trying to present existing conditions in their true light.

While true that judging by what has been said the states, from an agricultural viewpoint, do not compare very favorably with Wisconsin, the writer has endeavored to look at things in an unprejudiced light and to present only his honest opinion.

Until we have seen the others, we can never realize how truly excellent our own state is in every respect; therefore, I advise every young man who feels in the least inclined to see things (and I am sure many of you are so inclined), to follow those inclinations. After you have finished your course here and before you settle down to your life work on the farm, spend a year or two on the farms and ranches of other states. The process will do you infinite good and you will return to your state and your farm the better equipped for a life of hard, honest work, knowing that after all there is no place like "Old Wisconsin" for you.

WISCONSIN EXPERIMENT ASSOCIATION AND THE COUNTY SCHOOLS.

SUPT. G. F. SNYDER, BARABOO, SAUK COUNTY.

Were this organization to have a motto it would seem that it should be "United we stand, divided we fall."

Away back in 1215 when the English people demanded of King John the Bill of Rights, commonly called the Magna

Charta, farming was carried on by the serfs under the direction of the lords owning the estates. At that time each lord cared only for his own interests, he supported his own army and protected his home and subjects. There was little friendliness among lords and little did one interest himself in the prosperity and progress of his neighbor.

But with the passing of feudalism and the freeing of the serfs there came, by degrees, a time of barter and exchange which broadened and produced a bond of fellowship among men. People settled in villages and hamlets and to a certain extent became helpful to one another.

As time went on farmers exchanged ideas that were helpful and later they exchanged and scattered improved seeds, plants and animals. The exchange of ideas laid the foundation for farm journals, Farmers' Institutes and Agricultural Colleges, all of which have done untold good for improved farm conditions. Because of these and the Dairy Schools we have passed from the sickle to the combined header and thresher, from the wooden mould-board to the gang plow from the straw covered log cow shed to the magnificent barns and stables of today and from wheat mortgages to dairy bank accounts.

Our farmers have worked hand in hand to support the above mentioned institutions and they are reaping a rich reward for their patience and expense. Cooperative butter and cheese factories, better farming, enlarged returns, better markets, better buildings, and comfortable homes are but a few of the visible evidences of better times.

One duty of our Agricultural College is to experiment with and improve grains, grasses, and farm animals and report results to the farmers of the state. As is known that which may prove satisfactory and profitable in one section of a large state may not be at all adapted to the soil and climate of another part and too when experiments are being made by one party in one place it takes years of patient practice working under varying conditions to reach definite and reliable conclusions.

Some five years ago, Prof. R. A. Moore conceived the idea that if the boys who had graduated from the Wisconsin College of Agriculture could but unite and work along directed lines that the work he and his assistants had been attempting to do could be made much broader and more reliable. Accordingly the Wisconsin Experiment Association was

formed and now numbers nearly a thousand members. The progressive members of this society are to be found in every county in the state working hand in hand to improve their chosen profession.

To illustrate the manner in which the association carries on its work let us take alfalfa: Prof. Moore secures enough good seed to supply members in all parts of the state. The ground is prepared and the seed sown according to directions furnished by the secretary. Growth and its conditions or failure and its causes are noted and reports made to the secretary and to the members assembled in their annual meeting. All members then profit by the success or failure of the individuals. The same plan is followed with different varieties of corn, oats, barley and soy beans and a vast amount of information, of value to farmers, is gained.

If a certain plant is a failure in all places under the same and under different conditions we conclude that it is not adapted to our climate and soil—if it is a failure in one place and a success in another we try to discover the why and wherefore of the same. In a short time we know which plants or variety of plants will do well in our neighborhood and what to do and what to avoid in order to secure a profitable yield.

In addition to the experimental phase of the work of this association is its value as a distributor of improved seeds. Does a man raise a fine crop of corn? Soon his neighbors know it and want seed and they are willing to pay a good price for it. The same will hold true of other grains and of animals and the man will be well paid for his careful breeding and selecting. Beside the man's profit he takes a pleasure in knowing that he is a public benefactor helping his neighbors to grow two blades where one once grew. In this day of high priced land we must make our acres yield more abundantly, if we would prosper on a farm.

Each member of the society who earnestly tries to carry out its aims will become a center from which will radiate ever enlarging circles of farm improvement.

We trust that the members will not be so absorbed in this work that they can not give attention to the general education of the children. We must be centers from which will is-

sue sensible school sentiments as well as sensible farm sentiments.

Do you give anything like as much time to the selection of a teacher for your school as you do to the selection of your seed corn? You select seed corn for dollars and cents—you select teachers for the most important work in the world—the teaching of the most valuable product of the farm—the boys and girls. If you make a mistake in selecting seed this year make it right next year but if you make a mistake in selecting teachers it means a year of the children's lives lost or worse than lost. Those young minds may be so warped and distorted in a year that they can never be made to wholly recover.

We want teachers who love children and work for them, who do their best to read child nature, that they help children to improve themselves. We want teachers who are interested in the children, the homes and the school. There are such teachers and many young people who would become such were an inducement offered them to fit themselves for teaching. We must pay as much as our city brothers pay their teachers or as doctors, lawyers and merchants pay their book-keepers and stenographers. Not a few of the young people will need to be trained for the work. They are right at heart, anxious to learn and glad to help their fellow men. A little training will make valuable teachers of them. Better to have school one year in three with such a teacher at the helm than three years of school with one of the cold, indifferent, listless type in charge.

Do you give the same attention to the warming, ventilating, lighting and appearance of your school house that you do to the barns in which you house the horses and cows? Do you give the same attention to the selection of text-books, maps, boards, globes and other school apparatus that you do to the selection of your farm machinery? Do you allow your love of financial improvement to overshadow the love you bear the children, our future citizens and law makers?

Why not make the school grounds and buildings beautiful, healthful and convenient. Let the school house be the pride of the district and then let us do as the people of the cities do, pay enough to get well trained and experienced teachers.

The majority of the children live in the country, the most of

the state money goes to the country and the greatest wealth in our state is in the country. Why should we not there have the best schools in the state?

You as leaders in agriculture should become leaders in educational affairs in your different districts. You should be the center of a sphere of influence that will ever widen until the desire for educated farmers will be as universal as the desire for educated lawyers and doctors.

Parents and teachers must make children realize that there is no nobler, freer or more healthful occupation than farming. On the farm are problems that will exercise the mental faculties to their fullest capacity. There they will be in constant touch with nature.

"Nature, the dear old nurse,
Who sings to them night and day
The rhymes of the universe,
And whenever the way becomes long
Or their hearts begin to fail,
She sings a more wonderful song,
Or tells a more marvellous tale."

We must check this steady drift of the bright young minds to the city and turn them to the improvement of the best place in the world—the farm. The intelligent study of the elements of agriculture is doing much to give children a desire to remain on the farm, it shows them that the field for study, research, inquiry and development here is vast. The old idea that a farmer can not be respected as well as honest members of other professions is receiving its death blow through the right study of farm conditions.

With better country schools, pleasanter home surroundings, rural delivery telephones, good roads, electric lines, agricultural colleges, county schools of agriculture and county training schools a new day is dawning for the farmer when he will not only be the most useful and healthy man but the happiest and most respected. The day is not far distant when our farmers will farm less land and farm it better. We shall raise alfalfa instead of June grass, corn that will yield 120 bushels to the acre instead of 60 and pure bred stock raised for special purposes.

We look forward to the time when the farmer on his broad

rich acres will not long to make lawyers, doctors, etc., of his children but to place them in that cleanest place morally and freest place mentally and physically—the farm.

"Then let us pray that come it may,
As come it will for a' that,
That sense and worth o'er a' the earth,
May be the victor and a' that,
For a' that and a' that
It's coming yet for a' that,
That man to man, the world o'er
Shall brothers be for a' that.

IMPORTANCE OF THE WISCONSIN CORN CROP.

A. J. MEYER, OAKWOOD, MILWAUKEE COUNTY.

Members of the Association, Ladies and Gentlemen:

To us as an association the importance of the corn crop is mainly its relative unimportance. The corn crop does not by any means occupy the place of importance in our list of Wisconsin forage and grain crops which it should, and it is this fact which furnishes the basis for the active work our association is undertaking along the line of corn improvement. We have been too willing to accept the ultimatum with which our neighbors to the south have presented us: namely, that Wisconsin is out of the corn belt. Now, we may be out of the Illinois corn belt, but the Wisconsin corn belt furnishes all the conditions necessary for successful corn culture and if we will do our share of work in the way of selection and care as thoroughly as nature has done her work in providing favorable conditions we need spend no time deploring the fact of our being outside "the corn belt." But while it's a nice thing to prophesy what is likely to occur some time in the not distant future, the great question for us is the present. It's up to us to get busy right now and do something.

The production of corn and of fat stock are two incidents of agriculture which go hand in hand. Wisconsin fat cattle

have anything but an enviable reputation on the Chicago market. Two causes are responsible for this state of affairs. In the first place, Wisconsin is a dairy state and there has been a promiscuous mingling of dairy blood in animals intended for the block. In the second place, corn is too scarce and consequently too high priced to prompt the average feeder to use it as freely as he should. The result is a lot of half fat stuff for which there is very little demand at any time or place. There is nothing like a full corn crib to make a farmer want to feed a bunch of steers to the finish.

We have here in the state ideal conditions for feeding hogs and sheep, but we never can go into the business very heavily until we learn how to raise more corn to the acre than we are doing at the present time. It is not a question of more acres, but of more bushels to the acre. Statistics tell us that we have about a million and a half acres of corn in Wisconsin giving us an annual yield of about forty-five million bushels. Now any one who has taken the trouble to study Wisconsin conditions of soil and climate, will need no argument to convince him that this is a long ways from the actual possibilities of the state.

What we need is more brains and better seed. Our state is made up largely of small farms and the owner of each one has had a system all his own in the matter of selecting seed corn Selection has been made on the basis of size more often than on the basis of type, so that what few varieties of value have found their way into the state through the agency of seedsmen, have soon been lost by the grower not sticking to the original type in the selection of seed and by cross pollenation furnished from neighboring fields.

Our Experiment Association seems at present to be on the track of one or two varieties of corn especially suited to Wisconsin conditions. We who are starting these varieties should see that no outside cross creeps in until they have become well established. If there is a cornfield within eighty rods of the seed field there is liability of cross pollenation. While there are evident drawbacks resulting from this readiness of corn to cross pollenate through long distances, still, as regards the future of the corn crop, even this drawback is an advantage. An honest seed corn grower will run no chances of having his

crop crossed with some mongrel variety, and the only way for him to be absolutely safe is to supply his neighbors with the same variety. This means that for every grower within the association who is raising one of these special varieties of corn there will be one or more farmers outside the association raising the same variety from seed furnished him by the member who is not willing to assume the responsibility of sending out pure bred seed corn as such after having willfully exposed it to the contaminating influence of cross pollenation from an adjacent field.

That this will help materially in getting a wider distribution of the improved variety or varieties is very evident. The great aim of the association will have been accomplished not when its individual members shall have succeeded in making the greatest possible gain through the medium of money furnished by the state, but when they shall have succeeded in doing the greatest good for the greatest number. Our aim, now, should be to get every farmer in the state to growing a variety of corn which will yield him twice the crop he is now harvesting, on the same land and at the same expense for production.

SELECTING AND CURING SEED CORN.

MARTIN NELSON, VIROQUA, VERNON COUNTY.

Selection implies a purpose. In corn growing our purpose should be twofold: first to preserve and fix our ideal type; secondly, to improve this type along desirable lines.

While the power of heredity makes possible the persistence of characteristics throughout successive generations, the plasticity of the plant, at the same time, results in variations that make selection both possible and necessary. Consequently we select because we know that such characters as strength of stock, width of leaves, placement of ear, form and chemical composition of kernels and numerous other features are transmitted to the next generation. Furthermore we select because

we know that none of these characters are transmitted with absolute uniformity from generation to generation.

Selection of seed corn can not be practiced scientifically nor with any marked degree of success in the general crop field. A special seed plot is essential. The advantages are that the plot may have, and ought to have, decided fertility in order that the crop can develop early and well; that the plot can be isolated from other cornfields making crossing by undesirable strains improbable and allowing crossing within the plot itself to be controlled; that special attention may be given to parent plants in the line of planting, cultivation, elimination of undesirable plants, and the marking of exceptional plants or rows of plants as well as the determination of yield.

For the purpose of keeping up and improving our home supply of seed corn a quarter to a half acre will make a convenient sized plot. We will prepare the land well for planting and having a supply of seed on hand we will select the finest ears and plant a row from each ear. Our purpose in doing this is to find the superior strains, and to control pollenation. When the plants begin to tassel we will carefully inspect each row and detassel every plant that shows indication of barrenness or characteristics undesirable in a seed plant in order that no desirable plant may be in any degree pollenated by them. Before the pollen begins to fall we will perform a systematic detasseling. We desire cross pollenation and to that end will detassel every alternate row. But this means that Rows 1, 3, 5, etc. (not detasseled) will be partially self pollenated throughout. It means further that pollen-carrying breezes moving parallel with the direction of the rows tend to prevent cross pollenation. To meet the situation we will adopt the method given by U. S. Department of Agriculture, Farmers' Bulletin 229. Instead of detasseling row 2 entirely we will change at the center of the field to row 3, so that the detasseling will be done in the manner illustrated in the diagram:

Row 1 .....———————————
Row 2 ———————————.....
Row 3 .....———————————
Row 4 ———————————.....

This method will secure more perfect pollenation.

To eliminate chances of injury from freezing we will select our seed ears from this plot as soon as the crop is reasonably well matured. Here we must have in mind a definite ideal type and should be able to make detailed discriminations, for this is the secret of our success in breeding.

For Wisconsin conditions we want moderate sized stalks—say five to six feet tall. We want stalks that are strong at the butt tapering gradually to the top, with perfect, strong brace roots, leaves that are perfect, free from diseased spots so far as possible, broad and not sparse. In short we want such foliage as will elaborate an abundance of plant food and make good fodder.

As regards position of ears we want them placed reasonably low, on moderately strong shanks just long enough to allow the ear to bend over and hang down. We do not want the husks excessively long. Each of those features has a beneficial and practical phase which we will not here take time to discuss.

From such plants we will select the ears that most nearly approach our ideal. The characteristics of the ear will depend largely upon the variety and purpose to which we are breeding. In general we want good sized ears, regular rows of uniform kernels, well filled out at butt and tip, deep and closely fitting on a well shapen, moderate sized cob. We will scrupulously reject all ears having defects and undesirable features, especially if they be intended for the next season's breeding plot.

Having selected our seed corn the next important duty is to cure it properly. Too much importance can not be attached to this part of the work that we have undertaken. We never know and seldom appreciate the full extent of loss that results from seed giving a low per cent of germination, for of the seeds that do germinate and grow, many are so weakened that the plant never possesses normal strength in any stage of its development. We will take no chances with poor seed corn nor will we allow our seed to become poor. The secret in preserving seed corn rests almost wholly with the reduction of its moisture content before cold weather sets in. If the moisture content is low the seed can endure the greatest extreme in low temperature and retain its vitality intact. If, however, it has not been properly dried its vitality is never se-

cure. The old ways of curing corn by hanging it in open sheds, in the granary or in the back kitchen, all take chances with weather conditions and do not put the corn in a safe condition. We wish to eliminate all chances and will resort to the only absolutely safe means of curing and that is the kiln-drying process.

A small out building will serve the purpose or a small building may be quickly and cheaply built. With a small heating stove placed in the center and surrounded by a sheet iron jacket to protect the nearest corn from too intense heat, we will place the corn in light racks built so as to allow free circulation of air. The building should be properly ventilated and corn should not be placed too near the top or bottom of the room, these being the two extremes of temperature. A moderate fire should be built in the stove each day for five or six weeks. At the end of this time the moisture content will be reduced to the extent that the corn may remain in the racks during the winter providing the building keeps out snow and rain.

The practice of shelling the corn and storing it in a dry place for the winter is a good one so far as care of seed is concerned but we desire to have the corn remain on the ear. By this means we are enabled to make germination tests of individual ears, to reject the poorest, select the best and begin right the next season.

PREPARATION OF THE GROUND FOR CORN AND SUBSEQUENT CULTIVATIONS.

W. A. PFEIFFER, WEST BEND, WASHINGTON COUNTY.

While Wisconsin does not rank very high as a corn-growing state, corn is none the less one of our most important crops, and deserves careful study and attention on the part of the farmer. The fact that the average yield for this state is only 30 bu. per acre can only be excused on the ground that farmers generally are are not awake to the possibilities of greatly

increased crops through more careful cultivation and seed selection.

The object of this paper will be to bring out, briefly, methods of tillage and cultivation employed by some of the successful corn-growers of the state, more particularly farmers from Fond du Lac, Washington and Waukesha counties.

To begin with, corn should have a place in a regular system of crop rotation. A plan that has become quite general in the section mentioned is: oats, barley or spring-wheat seeded to clover or clover and timothy for the first year, giving a crop of hay for the second; the third year it is either left for hay again or pastured, manured in the fall and winter and spring-plowed for corn the fourth year, completing a four-year system. According to Gov. Hoard and Mr. Joseph Wing, where alfalfa is one of the farm-crops, corn following alfalfa, without manure, gives an exceptionally good yield. In either case the object is to give the corn the full value of the fertility in the soil, whether it has been introduced by means of manure or by the nitrogen-retaining bacteria on the roots of the legumes.

In passing, a word as to the practice now quite common among dairymen of spreading manure in winter as it comes from the stable. Objection is often made to this plan on the ground that a longer time is required for the elements in the manure to become available to plants than when it is allowed to rot in a pile during the winter. By a little observation one will find that every lump of manure the plow may turn up after taking off a corn crop, has been so thoroughly permeated by the rootlets and root-hairs of the corn plant that practically nothing remains but the fibre of the straw, showing how persistent the plant is in sending forth its roots in search for the food necessary for its growth.

In working up the plowed ground a good harrow is the most important implement. When the sod is not very tough and the soil is light, a good steel drag will do the work without any deeper harrowing. On tough heavy sod a disc or some other style of harrow can be used to good advantage. From practical experience on all kinds of soil and sod, I do not know of anything that will surpass an Acme harrow for this work. We have used it on muck, clay and loam, on meadows

of a few years' standing and on new sod and always with excellent results, not only in cutting up the sod but in smashing lumps as well, while it requires less work on the part of the team than a disc. Going over the field twice with an Acme, lengthwise and across, left it in such shape that very little dragging was necessary to get the seed-bed in an ideal condition; to my mind an ideal condition means that all clods and lumps have been worked up as fine as possible. A rule that every farmer could apply when he drags his corn field is one that I heard a prominent farmer give his men last summer. "When you're certain you've dragged it enough, go over it again."

Next is the question of rolling. When the rain is as plentiful as it has been the past season, there can be little, if any, advantage in using the roller. While a seed-bed should be fairly firm and often requires some artificial means of firming it in order to increase capillarity in a dry season, there is much danger of getting it too firm in a wet season, thereby making the chances for baking much greater. On spring plowing there is of course more necessity for rolling than on fall plowed land. The usual time for rolling is just before marking or just after planting. If done before marking there is the advantage of having the rows more distinct, while if it is left until after planting it does away with the danger of having rain on the ground as the roller left it, since the drag can be put on as soon as the roller is taken off.

Whether rolled or not, the drag should be used as much as possible from the day the seed is in the ground until it shows signs of coming up, both to kill weeds and keep up a dust mulch. If the field has been thoroughly worked up before planting and the drag is kept going until germination is well advanced there will no need of dragging after the corn is up. It is argued that if the drag is not put on until after the heat of the day sets in and the plants have had a chance to toughen, there is no danger of damaging the crop. It may be true that less harm is done after the plants have become less tender, but some harm is always done that might just as well be avoided. A weeder can take the place of the drag to a great extent with far less danger to the plants since the teeth are very fine and spring, but even a weeder should not

be used until the plants are well started; it can be used with best results following the cultivator.

Speaking of cultivators, among the sulkies, I believe the disc can be depended upon for the best work, providing the operator understands his machine and can adjust it properly. It puts the ground in finer shape without the heavy ridges left by a spring-tooth cultivator.

On a small farm, where berries and vegetables are the principal crops we used a walking cultivator entirely. There the practice was to begin with a heavy machine and follow with a drag-tooth cultivator or possibly a weeder to get an even, fine mulch. No sulky ever left a field in such fine condition.

As in dragging, there is no hard and fast rule to be laid down in regard to the amount of cultivating there is to be done. No man can set a definite number of times that a field should be gone over. If the season is dry we want a good mulch to prevent evaporation; if it is wet, we must cultivate to keep the weeds down. If there are no weeds and there is a good mulch, (a happy combination seldom found), cultivate on general principles. So that, if a rule were to be laid down it would be, "Keep cultivating."

PLANTING CORN.

W. A. TOOLE, BARABOO, SAUK COUNTY.

Supposing the ground to be well prepared for the purpose there are three points to be considered in planting, viz.: depth, distance apart and number of kernels to a hill.

The depth of planting depends greatly on the condition and character of the soil. In wet seasons or on heavy soils the planting should be more shallow than in dry seasons or on light land. A certain amount of moisture is necessary in order that the corn may germinate and it may lay for a long time in a dry year without sprouting if not planted deep enough to reach the damp earth. It should not be planted so deep as to exclude air or the heat of the sun or so there would be much difficulty in pushing to the surface. On heavy soils

two inches would seem to be about the proper depth under average conditions.

In considering distance apart and the number of kernels to be planted the question of checking or drilling the corn is presented. The check row system is almost wholly used in the section from which the writer comes. Owing to the difficulty of properly cultivating drilled corn, few farmers plant their corn in this way for three years in succession unless it is intended for fodder or silage. The usual distance apart of the hills of check-rowed corn is three feet eight inches, this may vary somewhat owing to the differences in fertility of the soil and the preferences of the farmer.

Three, and even two kernels to a hill are considered sufficient in some of the more Southern states. Prof. Moore says that owing to the smaller growth of the Wisconsin corn it might be advisable to plant four kernels to a hill. The writer favors from three to four kernels with rather a preference for three, two being more desirable than five. It is here that uniformity in the size of the kernels of seed corn is so desirable in order that the planter plates may be adjusted to plant the desired number every time.

The rows of drilled corn should be about three feet six inches apart and the kernels average from nine to fifteen inches apart in the row if grown for the grain.

On the heavy glacial soils in Sauk county the best results are secured in most seasons if the corn is planted between the tenth and the eighteenth of May. Earlier than this the soil is liable to be so wet and cold that the corn may give a weak germination or else rot in the ground. Later than this the time of ripening is thrown into the season of cool nights unfavorable to the maturing of corn and there is also danger of frost checking the growth completely.

It is neither possible nor desirable to give set rules for the growing of corn owing to variable soil, climate, and general environment and the differing experiences of successful corn growers.

FEEDING CORN TO HOGS AND DAIRY CATTLE.

L. P. MARTINY, CHIPPEWA FALLS, CHIPPEWA COUNTY.

In the successful working out of this subject we are about to discuss, on the Wisconsin farms by the Wisconsin farmer, will to a great degree depend his success not only from a financial standpoint of immediate gains but the building up of his farm in increased production and a consequent increase in value of lands.

While Wisconsin, strictly speaking, is not in the corn belt, it is so near to it that it has a climate and soil that will compare very well with the best sections of the corn belt, and to say that Wisconsin is a corn state is not putting it too strongly; and the work that our association is enthusiastically doing in a systematic line of investigation of the selection, breeding and cultivation of the corn plant will certainly work a great increase in production and improvement in quality. The manner in which the corn crop is made use of upon the farm is what will determine our success as farmers to a great degree.

To enumerate some of the characteristics of our corn plant would say that we have no other plant that approaches the corn plant in the amount of feed produced, ranging all the way from 10 to 30 tons of green material per acre. It is the most palatable of any of our forage crops, all classes of animals relishing both the grain and stover when fed in a palatable condition. Owing to its large percentage of starch, sugar and oil it is a very fattening food, in fact it is so palatable and easily digested by our farm animals that we have come to regard it as the very best of our farm grown feeds for fattening purposes. Its digestible nutrients are about in ratio of 1 to 10 in the grain and 1 to 20 in the stover. Investigations show that about 60 per cent of the nutrients of the corn plant is stored in the ear, while 40 per cent is stored in the stalks. It is self-evident then to any business man that to obtain the best results and greatest profits from our corn crop some means should be provided for saving the stover and feeding it to the best advantage to get all the profit. So often in riding through the state we see large fields of corn stalks, which might have been equal in feeding value to timothy hay or even more, left

to go to waste without a thought of its feeding value. I do not know of a business that would stand a 40 per cent waste. Such a waste would bankrupt the Standard Oil Company, the packing houses or the railroads in a very short time. In fact there is no business in which there are large enough profits to stand such a waste except farming.

Feeding corn to our hogs and dairy cattle for the best results is one of the important problems before the Wisconsin farmer. The problem is to supplement corn with so-called nitrogenous, or protein foods, such as will give us the best results in meat and milk production and thus derive the greatest benefits from our corn. The day is past when even the farmers in the corn belt which produced corn most cheaply can afford to depend solely on corn for feeding purposes. Corn has ruled high in price for the past few years and existing conditions indicate that the present prices are most likely to continue.

We may overcome the present difficulty in several ways and it is no doubt best for us to make some changes along several lines rather than one. First of all, we can better afford to use high priced feeds upon stock of good quality. We should breed hogs with a larger and more economical feeding capacity, that have better killing qualities and dairy cattle with better dairy capacity.

The prevailing high price of corn will force us to look for other feeds that will go well with corn to make up a balanced ration and at the same time do this at a minimum cost. Perhaps the most serious mistake is the fact that we have been inclined to regard one feed as practically equal to another in feeding with corn. Experiment station records show conclusively that there is a great difference in the feeding values of the various feeds. We must grow more clover, alfalfa or other nitrogenous crops to supplement our corn.

In feeding the corn plant to our dairy cows there is no way in which we can have it so palatable, with as small loss of nutrients, and at as long a period of the year as by using the silo and converting the whole corn plant into silage. The corn plant is more digestible when in the form of silage than in any other way. There are certain unavoidable losses in corn from the time it is harvested to feeding time. The least loss comes when the corn is put into a good silo, the loss usu-

ally sustained by fermentation and otherwise is usually less than 10 per cent of the nutrients according to the reports of chemists but some well-known dairymen take the stand that the cow says, by her results, that there is more feeding value in the silage than there was in the corn when it was put into the silo.

Another method of securing corn for the dairy cow would be to plant the corn so thickly that the ears would develop to about one-half the normal size, cut this corn as soon as it is fully matured and place in large shocks, taking pains to stand the corn up as straight as possible and by using a corn horse in setting up the corn, try and leave a space through the shock to admit of a free circulation of air. The losses to the corn by weather, decay, etc., according to experiments will be something over 25 per cent of the nutrients of the stover, but this will make a very palatable feed and is greatly relished when secured in good condition.

Where the main object in growing corn is to secure as large a yield of ears as possible, the stover may still be saved and if properly cured makes a very good roughage.

In feeding corn to swine we will have to confine ourselves almost strictly to the grain part as they will consume but very little of the roughage of corn except when fed in the form of silage or when cut green and fed with the stalk.

During the growing period of pigs at no time should corn constitute more than one-half of the ration fed. Numerous experiments have been performed to compare the feeding value of whole corn with corn meal with very slight results in favor of grinding the corn, but hardly enough to cover the expense of grinding. In the main I believe experience will verify these experiments, but where rapid gains are desired, I think better results can be secured, and the pig induced to eat more feed where a portion of the corn is ground and fed as slop and part whole. When corn becomes dry as it is in the summer it should be soaked to get the best results, especially when the pigs are running on pasture.

In conclusion will say I have not tried in this paper to lay down any plans for the handling of the corn plant or formulate any rations that will give the best results. We are certainly going to make some rapid advances in the way of corn production and if we will at the same time study how to best use

this great plant that I believe is more neglected and wasted than any of our other farm crops, it will go a great way in the upbuilding of agricultural methods in our state.

EXPERIENCE WITH SILVER KING CORN.

(Wis. No. 7.)

E. W. LEE, GRANTON, CLARK COUNTY.

I regret to report that my experience with this valuable breed of corn was not as successful as it might have been.

As I had to plant away from the regular cornfields it was impossible to plant on the best land for corn. Part of this plot was low and wet and here the corn was a failure. A few rows to one side were higher and did fairly well. The stalks grew large and developed very good ears, but they did not ripen as well as they should have done to make good seed. I planted this corn May 22. The plants were seen the first of June. The field was well cultivated several times and hoed once. Although this experiment was not a success, I shall plant Silver King corn again this spring. We will get a nice lot of fodder even if the grain does not mature.

SILVER KING CORN.

FRED A. SPEERSCHNEIDER, NEW FRANKEN, BROWN COUNTY.

I always like to listen to the experiences of others, so I will in a brief way tell about my trial with Silver King corn. So far as I know there are only two members of this association carrying on tests with Silver King corn in Brown county, and I happen to be one of them.

In my locality which is several miles east of the city of Green Bay, most of the farmers are of the opinion that corn cannot be successfully grown there although we have never had much difficulty in growing corn on our farm at home.

Last March when our school closed I took home with me ten ears of the Silver King corn with which this test was carried on. The nature of the soil on which this corn was planted was of a light clay loam with a gravelly sub-soil and good drainage. It was clover sod which was manured and plowed in the spring, and a fine seed bed prepared.

The seed being tested, was found to give a germinating test of 95 per cent, which I considered good.

The corn was planted the 20th day of May, in check rows, 3½ feet apart, and from three to four kernels in a hill. Four days after planting a fine smoothing harrow was run over to kill the weeds and form a mulch. As soon as the rows could be followed the cultivator was set to work, and this was continued once every week until the plants were too tall for cultivation, which was about the sixth day of July. Under these circumstances the corn proved very satisfactory with us, both in yield and maturity. The corn was cut and shocked the 20th day of September. After it was cured, it was husked and the yield estimated to be 75 bushels of shelled corn to the acre. It did not mature quite as early as some of our other varieties, but it outyielded any variety we have ever had, and I desire to highly recommend it as being a big yielder. I believe that after growing the Silver King corn for a few years in my community, it will mature quite satisfactorily and gain a high reputation for it was greatly appreciated by all farmers who passed by this plot.

SILVER KING CORN.

(Wis. No. 7.)

H. A. MAIN, FT. ATKINSON, JEFFERSON COUNTY.

The land which I chose for the Silver King corn was a clay soil with sufficient sand to work well. I plowed early in the spring before seeding. After seeding I double-disked the ground, harrowed corner-wise twice and leveled off.

I planted on May 22d, in check rows three feet eight inches by three feet eight inches. After planting I harrowed it twice. Just before it was big enough to cultivate a heavy rain washed

out some plants on a little slope, which with some other reason which I do not know, caused many hills to have but one or two stalks. My ear test was dropped by hand and a good stand was secured. The corn was well matured by September 20. The six acres averaged 125 baskets of fine hard corn. The stalks are very leafy and of a desirable height. In my ear test the per cent of barren stalks ranged from 2½—5½ per cent which is pretty low. The husks are very heavy and many ears are short, but this gives us hope of finding in Silver King a high grade corn for Wisconsin, for when we can get 125 baskets from a poor stand, and short ears, the chances are good of increasing the crop by breeding to longer ears and trying to get more perfect stands, and with this possibility in view, I shall plant Silver King for the bulk of my crop, if not for entire crop, this year.

SILVER KING CIRN.

(Wis. No. 7.)

B. F. SNYDER, WONEWOC, JUNEAU CO.

On or about May 20, 1905, I planted one and three-fourths acres of Silver King corn from seed procured from the county superintendent of schools of Sauk county. The seed was planted on good soil, plowed in the spring and which had been covered with stable manure the previous winter. The land was well harrowed and the corn planted in checks three feet eight inches each way with from two to four kernels in a hill.

The seed did not germinate as quickly as an early variety of yellow dent corn planted in the same field and at the same time and was from two to three weeks later in maturing and yielded practically the same amount of corn. The fodder of the Silver King corn was better as it had more leaves.

I got about 130 baskets of ears to the acre, and a nice lot of fodder of excellent quality. With a long season like the past, I think it would be a very good variety of corn to raise in our section of the state but for a sure crop every year, I find that it requires too long a growing season. I have saved

seed and expect to plant five or six acres of the Silver King next year, and am in hopes that it may become acclimated and mature early enough to prevent injury from the fall frosts.

SILVER KING CORN.

(Wis. No. 7.)

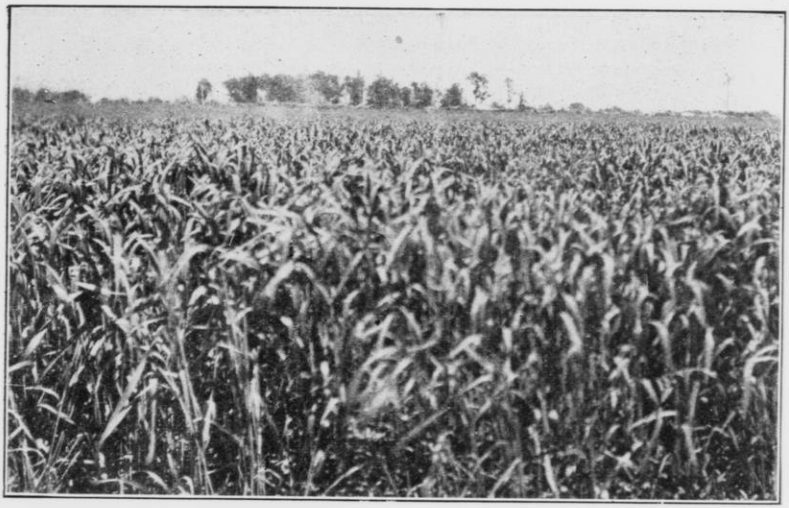
ARTHUR F. ROSENOW, OCONOMOWOC, WAUKESHA COUNTY.

My experience with Silver King corn commenced with the spring of 1904. I planted a small plot of corn from seed which I obtained at the station. The corn was planted in accordance with the system which is customary in our locality. Most of our corn goes into the silos and very little check rowing is practiced. I did not carry out an ear test as I desired to do. This corn looked very promising as the season advanced and especially so for an ensilage corn, as the stalks seemed to have an abundance of leaves and fine ears. I, however, was a little afraid that it would not mature well as it was a week or ten days later than our old variety, but owing to the fact that we did not get a very early frost that season, it matured quite well and I was able to get several bushels of very choice seed corn. This we planted the past season. We also planted about 20 acres of our old variety, thus giving us a good opportunity to compare the two varieties.

The Silver King corn, however, gave us the most even stand as the seed was more uniform and thereby dropped more even. Both varieties received the same care and cultivation.

When corn harvesting time came our Silver King was again several days later than our old variety. We decided to put our old variety into the silo and let the Silver King mature, which it did without getting a frost. In our locality, when filling silos, it is customary to exchange help with our neighbors, and of course when our neighbors saw the Silver King corn with its beautiful leafy stalk and uniform well-filled ear, with a deep kernel and small cob, the question came, "What kind of corn is that? Where did you get it, and we would like some seed."

They, of course, were given the privilege of helping them-



Swedish Select Oats grown on the grain and stock farm of Rosenow Bros., Oconomowoc, Waukesha County.

Silver King Corn (Wis. No. 7), Rosenow Bros.' grain farm.

selves, which they very generously did. As our corn is harvested with a corn harvester, cured in the shock, and then run through a corn shredder, it was necessary for us to pick our seed before the corn was cut. This was done by taking a gunny sack and going up and down the rows ahead of the harvester, breaking off the largest and ripest ears. I hope, however, that in the future we will be able to have a breeding plot in the center of our corn field for the selection of seed corn.

This coming season we will plant nothing but Silver King corn. Our yield the past year was estimated at approximately sixty to seventy bushels of shelled corn per acre, and this by good selection can be greatly increased.

Judging from the large number of samples now on exhibition as compared with all other varieties, it seems to be the coming corn for us.

SILVER KING CORN.

(Wis. No. 7.)

H. O. AAVANG, BARNEVELD, IOWA COUNTY.

Last spring I received ten pounds shelled corn of the Silver King variety, from the Wisconsin Agricultural Experiment Association, to carry on an experiment in my community. The ground used for this experiment was pastured in previous years. The character of the soil was of a black loam, with clay sub-soil. The ground was plowed May 24th, then thoroughly disked and harrowed before seed was planted. The corn was planted May 27th with a hand planter in hills three feet eight inches apart each way, about three or four kernels to the hill. After planting the ground was rolled and followed by a light harrow. The piece of ground for this corn was only three-quarters of an acre, on which I planted seven and one-half pounds of the corn that was sent me. The plants were first noticeable above ground five days after planting. The corn was cultivated the first time when plants were about three or four inches tall. We had a bad hail storm on June 18th that knocked the plants down very badly, and stripped off most

of the leaves and even killed some of the plants, but we had nice weather afterwards with plenty of rain and warm weather, so that it soon made very rapid growth again. It was cultivated four times lengthwise and crosswise with a walking cultivator. The corn matured about a week earlier than the other variety we had although it was planted a few days later in the spring. The stalks averaged nine feet in height and were very leafy. The corn was cut by hand and shocked. After curing in the shock it was husked and the yield estimated to be fully sixty bushels of shelled corn from the three-quarters of an acre. The ears were good-sized and very uniform. We intend to grow about fifteen acres of this variety this year. Judging from this experiment and from the observations of others, I believe that this is a very good variety of corn for Wisconsin, especially for the southern part of the state.

SILVER KING CORN.

(Wis. No. 7.)

R. N. WEST, RIPON, FOND DU LAC COUNTY.

I received twenty-five ears of this corn, last spring, from the Experiment Association. This seed was planted in a black clay loam soil with a clay sub-soil underlaid with limestone.

The year before oats had been grown on this land and after they were harvested a coat of manure was applied to the ground and plowed under in the fall. The ground was disked and harrowed early in the spring and again just before the seed was sown, thus having a compact, fine, warm seed bed. May 25th the corn was planted with a check-row corn planter, three kernels to the hill and the hills were three feet two inches apart. Just as the corn was up enough so that the rows could be distinguished we had a very severe rain storm which caused the ground to wash some, thus destroying some hills and not leaving as perfect a stand as it otherwise would have been.

I cultivated the corn six times but could not cultivate at the time I wished on account of the excessive rains early in the

season. About September 20th, I went into the field and selected my seed corn, taking the ripest and best ears as I wished to get corn that would mature earlier than the bulk of the crop did.

October 3d the corn was cut and shocked, standing in the shock for a month before it was husked. This corn yielded 55 bushels of shelled corn to the acre, all of which was good, sound corn, there being very few small ears.

SILVER KING CORN.

(Wis. No. 7.)

OTTO HAASS, MERTON, WAUKESHA COUNTY.

Mr. President, Members of the Experiment Association and Friends:

Last spring, after the close of the short course, I took a few select ears of the Silver King corn home with me to make an ear test of the corn. All of the kernels germinated perfectly excepting those from one ear. After discarding this ear, I made a second test, which showed a perfect germination for the remaining ears.

I decided on a patch of deep, black, clay loam soil, which was isolated from any other corn field, as the most desirable place to plant this corn. It was a clover sod that had been manured and plowed the previous fall. Last spring it was manured and plowed again.

On May 23d, after preparing the seed bed thoroughly, I planted an acre in rows 3 ft. 4 in. apart with hills three feet apart in the row, and two or three kernels in a hill. The ground was cultivated four times, and the weeds were hoed out twice during the season. On account of the large amount of rainfall in our locality the stalks and leaves grew to be enormous during the early part of the season. The ears did not develop until late in the fall. The corn was cut Sept. 30th after a growing period of 129 days, and when husked it yielded 123 baskets of well matured ears to the acre.

This is by far the largest yield of dent corn we ever raised. It was the finest patch of corn in this locality, and I think that when acclimated it will be one of the standard varieties for the southeastern and lake shore counties of our state. It produces a large amount of corn and fodder, and makes a splendid silage corn. Although the Silver King corn was not so very early, it was earlier than our common varieties. This was a good corn year, and I expect better results next year.

I am well pleased with the Silver King and shall plant more of it the coming season.

SILVER KING CORN.

(Wis. No. 7.)

B. A. IMHOLT, HOULTON, ST. CROIX COUNTY.

My experience with Silver King corn the past two seasons was very encouraging from a grain and forage stand point, the yield being good compared with our native yellow dent.

Our seasons are somewhat late up in St. Croix Co., but the Silver King corn matured fairly well. The per cent of barren stalks were about the same in each case. The Silver King yielded more good corn and less nubbins than the native yellow dent. This corn was all planted in drills 3½ feet apart between rows, the rows running north and south and being given the same cultivation.

The soil was a heavy clay loam with a clay subsoil. This corn seemed a little weak at the time it was about three inches tall, but it took hold and made a very vigorous growth, growing a leafy stalk and a large ear. I consider it a very desirable corn for our northern counties.

I filled my silo with this variety of corn last fall and it made good silage. I don't want it understood that all of this corn matured, it did not; but it will in time, after I remove the cause. I am sure I will have the best of success next season with this corn, as the knowledge I have gathered at the College

the few days I have spent here this year will help me to get rid of the barren stalks, feed the weak grains to the stock and plant nothing but good vigorous seed.

We have grown good corn up in St. Croix County in the years past, but will grow much better corn hereafter.

SILVER KING CORN.

(Wis. No. 7.)

M. GALLAGHER, ELROY, JUNEAU COUNTY.

Members of the Wisconsin Agricultural Experiment Association:

Last Spring when I finished the short Course, Prof. Moore gave me several ears of the Wisconsin No. 7 corn, which I planted on about the 15th day of May. The ground was spring plowed clover sod that was in very good shape. I planted it in check rows 3′ 8″ apart with a hand planter which planted three and four kernels to a hill. This was dragged shortly after planting and dragged when corn was first noticed, which killed many weeds and brought moisture to the corn. The ground was cultivated six times both ways, and the corn grew much faster than the home variety. There was a very small per cent of barren stalks. I cut the corn about the 12th of September. This was a little early, but there were some reports of frosts so I cut the corn. When it was dried in the shock I started to husk it and was surprised at the yield and how well the ears were filled out at the tips and butts. As to the yield, compared with the home variety there was in my estimation about one-third more fodder. The yield was ninety-five bushels to the acre, which was nearly twice as much as the home variety. It was a very great success with me. I will raise it in the future and believe larger returns may be had with more experience in growing it.

SILVER KING CORN.

(Wis. No. 7.)

L. C. BALL, MONROE, GREEN COUNTY.

Fellow Members of the Association:

While at school last winter I selected 10 ears of Wis. No. 7 corn and shelled them at once, rejecting the butts and tips. Now my sample was not a very good one, owing to the fact that the seed was not well matured, and also under size. I made four thorough tests of the seed and got good results, three tests averaging 100% and the ordinary corn from 90 to 94%. This corn was planted June 2 on newly broken brush land, the soil being a black loam. It was planted late because the ground could not be prepared earlier. The ground was disked twice, then harrowed thoroughly and was in fairly good shape. On account of the unevenness of the ground, I was unable to use a check row planter so the corn was planted in drills 18 inches apart in the row. Our ordinary corn was planted in the same field in the same way. They both sprouted about the same time but the Wis. No. 7 made the best gains, grew the fastest and withstood the dry weather better than the other. It was cultivated twice with a 2 shovel plow, twice with a double cultivator, and was also hoed. The fodder was very good, and was larger than the ordinary corn. This was cut about Oct. 1st and all was well matured; the ears were larger than the seed, and were all well filled and of a very good color. There were very few barren stalks. The yield was estimated by careful examination to be at least 100 bu. per acre, almost double the yield of the ordinary corn. We are so well pleased that all No 7 corn will be planted this spring.

SILVER KING CORN.

(Wis. No. 7.)

HERMAN ROETHEL, KIEL, MANITOWOC COUNTY.

Fellow Members of the Association:

We have gathered here this afternoon to discuss the great corn question. In starting will say that my experience has proven to be a great success. While attending the Short Course last winter I got interested in corn breeding. In March when school closed I took home with me twenty-three ears of Wis. No. 7 corn to carry on an experiment. An acre was selected a half mile north of the field where I planted my home corn. Ten ears conforming to the standard were selected and ten rows were planted letting each ear represent a row. The corn was planted with a hand planter in hills three and a half feet apart and three kernels to the hill. In ten days the first sprouts were noticeable. A heavy rain came on which continued for several days and thus kept back the cultivation for about a week. The corn was cultivated once a week until it had reached about three feet in height. Then I watched with great interest the outcome of my experiment as my corn was growing very vigorously. No frost occurred until the second week in October, and the corn was harvested just previous.

I received 160 baskets of ear corn from the acre which would be 80 bu. of shelled corn, but I believe that under better conditions of the weather and with proper care and management the amount could be increased.

SILVER KING CORN.

(Wis. No. 7.)

O. C. HEIDEMANN, KIEL, MANITOWOC COUNTY.

Mr. President and Fellow Members of the Experiment Association:

My experience with Silver King corn was somewhat limited, but I will try and explain the same to you as briefly as possible.

The lot that I designed for my corn was about one-fourth of an acre, and about eighty rods from the nearest cornfield to prevent cross-pollenation; the land was sod, spring plowed and worked up thoroughly with a spring tooth harrow so as to make it fine, afterwards smoothed over with a common harrow to make it even.

After planting the corn I harrowed it again and had intended to keep up that way for some time, but two days after planting we had a heavy rain which made the soil compact again. It was so wet we could not work it up for about ten days, during which time the corn suffered immensely. Instead of having green and vigorous plants, they were feeble and had a yellowish color which showed that the soil had lacked the necessary oxygen. After the land permitted working with a cultivator, I cultivated it every two days until it was too large to cultivate.

We had a favorable fall here so that the corn could mature quite well even though it was kept back in the spring.

I think that Wis. No. 7 corn will make an excellent corn for silage if planted in drills. I planted mine in hills about three feet apart each way and three to four stalks to a hill, and almost every stalk bore as many as two ears, at least 4-5 of them did.

SILVER KING CORN.

(Wis. No. 7.)

A. F. HINZ, RIPON, FOND DU LAC COUNTY.

Members of Wisconsin Argicultural Experiment Association, Fellow Students, Ladies and Gentlemen:

My experience with corn for this last season proved very satisfactory. If all the farmers in this state could raise corn equal to my crop, it would give Wisconsin the name of producing the largest yield per acre in the whole United States for the year 1905.

In raising corn the first thing to be considered is the seed, which must be carefully tested as to germination and uniformity of kernel, so as to get a uniform stand. This is very necessary in case of machine planting, a fact which most farmers don't realize as yet. The source of the seed should also be considered. Ears should be selected from very thrifty stalks of average size.

Now as to soil—I prefer fall plowing for my part of the country. Where I am located it seems to give somewhat better results, but if it proves different with you in different localities, there is no objection, providing the corn does well to plant on well prepared spring plowed land. The soil should be well drained as we all know farm crops will not grow in water, and corn when in its young growing stage is very easily killed by an excess in the water supply. Good drainage also provides for better air circulation in the soil, which helps to warm the soil more readily and makes plant food in the soil more available for corn.

To produce a good crop of corn, the land must be rich in certain elements in an available form as plant food, as a crop of fifty bushels per acre of corn removes

	Nitrogen.	Phos. acid	Potash.
	Lbs.	Lbs.	Lbs.
50 bushels corn	96.2	32.6	68

The nitrogen is removed mainly with the grain and the potash with the stover. Now as to planting and yield.

Experience shows that thickly planted corn does not yield as much grain per acre though producing more fodder. Some may ask the question as to how would you plant your corn so as to get the largest yield? Drill or hill? This depends greatly on the soil and the manner of culture. If you have a field where you are perfectly sure that you can keep the weeds down in good shape, "drilling" is preferable to hill planting. In all other cases hill planting is preferable as the corn can be easily kept clean, in cases where drilled corn could not be kept clean, without the use of extra help.

I have seen cases where corn was planted in hills, that the yield was not over five to ten bushels per acre and if it had been drilled I know it would not have produced enough to pay for the seed which was planted.

Now as to figures in regard to planting. These are the results of three years' experience at the Illinois Station.

Distance between plants in the rows.	Yield grain.	Stover.	Yield per acre. Total digestible feed.
	Bushels.	Lbs.	Lbs.
3 inches	59	3,968	6,218
6 inches	76	3,058	5,980
9 inches	77	2,562	5,539
12 inches	89	2,480	5,593
15 inches	74	2,398	5,180

Where a perfect stand of corn is obtained the rows being three ft. 8 inches apart, kernels in row one foot, each stalk bearing one ear weighing one pound, we find that we can get 175 bushels shelled corn per acre. By planting in hills three feet eight inches, three stalks to a hill and bearing the same as by drill, 150 bushels can be obtained.

Now if the farmers would only realize the profit they would gain by taking better care in securing seed and planting and raising corn, it would mean an increase of from one to one hundred per cent.

I planted my corn about May 15th, in hills 3 feet six inches by 3 feet six inches, and three to four kernels to a hill, cultivating it five times at different periods. It grew well and was ripe and cut and shocked before the first of October. It was thoroughly mature and yielded seventy-five bushels on the shelled corn basis per acre, which was about twenty-five bushels

more than our old variety. Our old variety matured a few days earlier but did not compare favorably in yield per acre. I have found that Silver King Wisconsin No. 7, corn, can be profitably grown in central Wisconsin and give better returns than other varieties.

SILVER KING CORN.

(Wis. No. 7.)

H. L. SPINK, PLATTEVILLE, GRANT COUNTY.

My experience with Silver King corn began last Spring. I got twenty-five rather small ears from the experiment association for seed. I tested this seed, and it gave a germinating test of 96% which I considered good.

This corn was planted on a clay loam soil, on which corn had been growing the preceding year. It first received a dressing of well rotted manure, then it was plowed to a depth of about six inches. We planted it about the fifth of May in hills three feet six inches apart each way, and three kernels per hill.

It was held back by a week of cold wet weather, which came on about nine days after it was planted. It soon rallied, however, and made a very rapid growth as soon as the weather conditions were more favorable. We cultivated it six times, giving it the last cultivation about the 20th of July, leaving a nice mulch to prevent moisture evaporation.

The corn eared well and everything bade fair for a big crop. But my highest hopes were suddenly lowered, when one day I saw our herd of cattle taking their fill out of my acre of Silver King corn. They damaged it so badly that I can give no definite results as to the yield per acre. The remainder of the crop was well matured by the second week in September.

Compared with any other variety grown in our community, I know that it is at least two weeks earlier, but I believe that the Bemis Reliance corn will yield more bushels of shelled corn per acre, although I have not as yet definitely proved this.

One thing I noticed while growing this corn was the large amount of leaves per stalk, while the stalk was rather small. This leads me to believe that it would be a good corn for fodder or silage purposes.

Another thing I noticed was the large number of stalks bearing two ears. I am confident that for early corn that it is well adapted to the conditions of southwestern Wisconsin.

We will continue our test the coming year on a larger scale.

CLARK'S YELLOW DENT CORN.

(Wis. No. 1.)

H. J. RENK, SUN PRAIRIE, DANE COUNTY.

We have grown Clark's Yellow dent corn the past two seasons, and are very well pleased with it. Have grown no other dent corn the past season. Formerly we had grown Pride of the North but have found Clark's much superior to the Pride of the North. Clark's Yellow dent corn matures about as early and is a much heavier yielder. It is well filled at the tips and butts, with a firm solid ear of medium length. The kernel in its self is wide, thick, of good length with a strong germ, making it a good sheller with lots of vitality. This last fall we husked out forty-two wagon loads of bundles with a corn husker, that yielded forty-four double boxes of ear corn, making over a double box of ear corn to the wagon load of bundles, which we considered very satisfactory.

CLARK'S YELLOW DENT CORN.

(Wis. No. 1.)

J. H. MCNOWN, MAUSTON, JUNEAU COUNTY.

My experience with Clark's Yellow dent corn is limited to one season. Last spring I purchased several bushels of this variety of corn from Dane county parties, and divided the lot with three neighbors.

On the 25th of May, 1905, I planted ten acres of this corn on sandy-loam soil, which had been in red clover the previous year, manured in April, and plowed the first week of May. The corn germinated and came up very nicely.

We then had a period of excessively wet weather and I was unable to cultivate the corn until the last week of June, and then had to abandon about two acres which was drowned out on one side of the field and had to be sown to later crops.

The balance of the field, however, made a fine luxuriant growth and eared out finely. I noticed then that the crop was bound to be late and such proved to be the case. I did not cut the corn on account of late maturity until the first week in October. Luckily we had no frost previous to this time or the corn would have been badly damaged.

The corn at maturity and husking was a pleasure to look at and handle, as it was of a very fine uniform type and color, with large well shaped ears, a medium small cob and altogether very true to the parent seed. It invariably produced one good ear to each stalk with scarcely any barren stalks and no suckers.

As I had not expected to make any experiments on this corn, I took no weights, neither did I keep any particular account of the crop but my three neighbors for whom I obtained seed, and myself, were much pleased with the corn, barring the feature of its being very late. This was a surprise to me as I had understood that the corn was reasonably early. This fact has raised the question in my mind whether the change from Dane to Juneau county, a distance of about seventy-five miles, was in any way responsible climatically or otherwise.

CLARK'S YELLOW DENT CORN.

(Wis. No. 1.)

R. E. HARRIS, WARRENS, MONROE COUNTY.

Mr. President, Members of the Association: I have but little to say in regard to Clark's Yellow dent corn, having had but very limited experience in growing this variety. My brother secured two ears from Mr. Clark a year ago. This seed was planted on a rich sandy loam soil the 27th of May. It came up quickly and made a vigorous growth all summer. In fact too large a growth of stalks for our seasons, being so large and coarse that they did not cure well in the shock. As we had no killing frost until comparatively late last fall, the ears (of which there was a goodly yield) matured fairly well. With this small trial and with one season's trial of the Silver King, I think the latter is much better for our conditions, especially as regards the stover.

CLARK'S YELLOW DENT CORN.

(Wis. No. 1.)

CHAS. H. HOWITT, WAUPUN, DODGE COUNTY.

Fellow Students and Members of the Association: It is with pleasure that I relate to you my experience with Clark's Yellow dent corn, not that I have anything great to say but that I am pleased with the results of the experiment.

I secured my sample of seed from the association two years ago but did not plant it then because there was not a suitable place separate from our common variety to plant it. This last spring having a small plot of ground a suitable distance from our common corn I planted it the 8th of May. This plot of ground was selected in regard to its locality and not to its adaptability to raising corn. The soil was of a heavy red clay, the kind that remains wet and sticky for several days after a

rain and that bakes when dry. The ground was fall plowed. A part was manured in the fall, and a part was given a top dressing of farm manure in the spring. Corn was raised on the ground the year before. I used a hand planter planting two or three kernels to the hill. The hills were a short step and the rows the usual distance apart.

The plot was in the form of a square. The corn germinated very unevenly and some of it did not grow at all. This I think was due to cold, wet weather. It was the first of June before the corn could be seen in rows. After the weather became more favorable it grew rapidly. I used a one horse cultivator, going over the plot eight times. The last time was in barley harvest, the corn at that time being above my head and showing both silk and tassel. At no time did the ground become hard or packed. The weeds in the row were removed with a hoe. The corn matured fairly well and was harvested by hand the first week of October. I did not notice any barren stalks, but it was a little affected with smut. I got forty baskets from 1-3 of an acre and this was from a very thin stand. It is far ahead of the common variety, not only in the yield of number of baskets per acre but in the way it shells, thirty-five pounds of ears shelling thirty pounds of shell corn.

Several people that saw the corn thought that it was a very large yielding variety but that it would not mature except under the most favorable conditions. It is several days later than the common variety, but if we can grow a larger variety by planting a little earlier in the spring and giving it the best of care through the growing season is it not for our interest to do so? Those that are not willing to do this must be contented with the earlier varieties and this means a smaller yield.

CORN.

(Wis. No. 8).

O. R. FRAUENHEIM, RANDOM LAKE, WASHINGTON COUNTY.

Fellow Members: During the past four years we have tried to secure an early maturing dent corn, but nearly all trials were

failures. Most of the corn was obtained from seedsmen, who obtained their seed from sections where the season is more favorable for the production of corn than the lake shore counties of this state, consequently the corn would not mature with us.

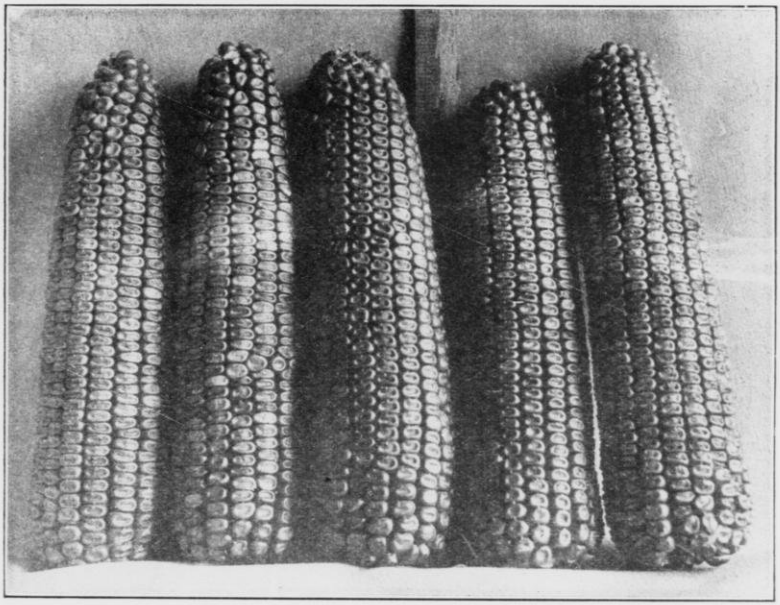
Last winter while taking the Short Course, I became interested in an early yellow dent corn known as the Wisconsin No. 8.

Last season I carried on an ear test of this corn, along with the Silver King. After discarding the tips and butts, the corn was planted in hills, three kernels to a hill. The corn from each ear was planted in a separate row, the rows being three and one half feet apart.

The corn from the smallest ear was planted first, and the remaining rows were the same length. The surplus corn I planted in two rows around the field. The corn was planted May 27th on a clay soil, fall plowed, and appeared above ground June 2d. It was well cultivated during the growing period, to keep up a soil mulch and to keep the weeds in check. A careful study was made of the stalk, leaf and ear development, also noticing the per cent of the barren stalks which was less than one half per cent.

The corn was fully ripe September 20th, when it was cut and put in shocks. In husking, the seed and marketable corn, and stalks were weighed. Some rows gave surprising results, one row gave seventy-two pounds of select seed corn, while another only gave seven pounds. The amount of fodder also varied considerably. Each row had its own characteristics in ear development, such as size, and color of ear, indentation, and size of kernels, and the filling in of the tips and butts.

The corn gave a very satisfactory yield of sixty-eight and one-half bushels of shelled corn per acre. The results of last year's test have shown that it is an excellent corn for my locality, and I will plant a large acreage next year of this variety. Will also plant a breeding plot of ten ears from the best yielding row.



Wisconsin No. 8 Corn. Yield season of 1905, sixty-eight bushels per acre. Grown by O. R. Frauenheim, Random Lake, Sheboygan County.

MANSHURY BARLEY.

J. D. CLARK, WHITEWATER, WALWORTH COUNTY.

In the first report of the Wisconsin Experiment Station, on the five best varieties of barley grown on the Experiment Farm for the ten year period ending in 1880, we find that the Manshury leads with an average yield of 52.9 bushels of 48 lbs. each per acre, its nearest competitor having 45 bushels to its credit.

This report also contains a letter written Prof. Henry by Dr. Herman Grunow of Mifflin, Iowa Co., Wis. Dr. Grunow was the introducer of this barley to America and his letter is very interesting, hence I quote it in full.

Mifflin, Iowa County, Wis., January 15, 1884.

Dear Sir: In answer to your request of January 3d, about Mandschurey Barley I can state that while in Germany, in the spring of 1861, Ferdinand Duehlke, of Erfurt, at present director of the Agricultural School at Potsdam and gardener to the Emperor at Sans Souci, advised me to try a variety of barley which a scientific traveler had found in the mountainous parts of Eastern Asia (Mandschurey), about 1859, and which had proved on trial to exceed the crop of any other variety, and to be No. 1 for brewing purposes. In the first year of my experiment with about two pounds of the seed it excelled all varieties I had before seen in formation of roots, stems, leaves and ears, but the cattle from a neighbor's broke through the fence and destroyed the crop. The next year I found not a few of the plants that had been trampled, growing vigorously among grass and weeds as a proof of its hardiness, and concluded to send for seed again, to compare it with other kinds recommended for soil similar to ours, the two-rowed and six-rowed varieties from Peru, the Berbery, from Nepaul, Australia, Spain, Denmark, England, the Chevalier, etc., more than a dozen sorts, of which only the Mandschurey and Victoria proved worthy of cultivation. From one pound of seed of each I raised one and one-half bushels of Mandschurey, one bushel of Victoria (both six rowed) and a peck or less of the rest. The Victoria was more white with a silvery shine, the Mandschurey darker, with olive or walnut green pigment. Two

years later I sent a sample to your University. I advertised the merits in one or two papers and farmers from neighboring towns and counties commenced to sow it exclusively. Malsters declared it superior for malt, but merchants and brewers found it in their interest, at the expense of the farmers to depreciate it for stained color, which induced farmers to cut it before the natural color is developed and causes loss in weight and price, and may be degeneration: This is the history of Mandschurey barley so far as my experience goes.

I am sir, with due respect, your obedient servant,

HERMAN GRUNOW.

Thus the Manshury barley has been grown in Wisconsin for over 40 years, sometimes the yield has declined but on an average it has kept steadily in the lead under all sorts of conditions.

It is only in the last few years that a formidable rival has appeared in the Oderbrucker variety. This has an advantage over the Manshury for a feeder's barley from the fact that it has a larger protein content; the brewers in this country, however, prefer the low protein barleys. The U. S. Department of Agriculture is conducting at the present time some comparative brewing tests with these varieties of barley. They are not as yet completed so that it is impossible to say which will prove the better.

While it is always best for farmers to be on the lookout for newer and better varieties it is also unwise for us to discard for another, a sort that has proven so well adapted to our conditions as the Manshury until by experiment with it on our own farms we are satisfied it is better. The Manshury has suffered in the southeast part of the state from too thick seeding and from improperly cleaned seed.

It should never be sown more thickly than 1 bushel, 3 pecks per acre. From our own experience I am certain that thicker sowing has a tendency to degenerate the plant.

Oats are probably the most difficult to remove from barley of foreign seed, this can be easily done by the use of what are called angle screens, in these the seed is forced to turn a right angle between two V shaped pieces of metal, the oats being longer than the barley are unable to turn the corner and work off the screen to the rear while the shorter barley kernels pass through.

Oderbrucker barley (Wis. No. 55), Experiment Station Farm, 1905.

SEED BARLEY.

J. P. BONZELET, EDEN, FOND DU LAC COUNTY.

Fellow Members, Ladies and Gentlemen:

It is a great pleasure for me to have the opportunity to meet so many of you here to-day. The topic which I have been given a place on the program for, is seed barley.

Two years ago it was my good fortune to secure from the Wisconsin Experiment Station about one bushel of a very valuable variety of barley, known as Oderbrucker (Wis. No. 55). This barley was imported from Germany by the Ontario Agricultural College. Oderbrucker barley is a six rowed variety growing to a medium height and having a very stiff straw which prevents lodging readily. On account of its plump heavy kernels and long heads it is a very heavy yielder.

It has been proven by chemical analysis that the barley contains a very high per cent of protein, making it a valuable feeding barley on that account.

There has been a brewing test carried out to determine whether or not a barley of high protein content would make a better grade of malt for the malster and brewer of beer and other malt extracts than barley of a lower protein content. The results have been very favorable to the high protein barley. The last of the brewing test is now being carried on to determine the keeping qualities of beer made from Oderbrucker barley. I believe that in this barley the farmers of Wisconsin have an excellent grain for the feeding value is considerable higher than that of some varieties, and it has also stood the test as to yield on the experiment plots, in comparison with nineteen different varieties. On our home farm, last year, the average yield was fifty bushels per acre. At our next meeting there will be a more definite average yield per acre obtainable, as there will be a large number of growers. I thank you for your attention.

TESTS WITH ODERBRUCKER BARLEY.

WIS. NO. 55.

ALEXANDER KRUEGER, WATERTOWN, DODGE COUNTY.

Mr. President and Fellow Members:

In the spring of 1904, I received one bushel of Oderbrucker barley from Prof. Moore. I sowed it on one-half acre of heavy clay ground, broadcast. It was sown on one side of a field of my common barley, leaving a space of two feet between the two varieties so as not to get them mixed. The Oderbrucker ripened at the same time with my other barley and it stood up better. I cut it all the same day. From this one bushel of seed I threshed twenty-three bushels which brought the yield to forty-six bushels per acre.

In the spring of 1905 I sowed broadcast, seven acres to Oderbrucker barley. Three acres were a heavy red clay on a side hill, while the other four acres were quite low ground. I sowed seven pecks of seed to the acre. It all came up well. We had a very wet season last year and my two acres on low ground partly drowned out. On the hills I had a fine looking crop, but when it was headed out we had a very heavy rain and storm, and it lodged in all directions. With all these unfavorable conditions it yielded 35 bushels per acre. I am sure had the weather been more favorable, the yield would have been from forty-five to fifty bushels per acre. Prof. Moore told me at the station it yielded fifty-six bushels per acre. The Oderbrucker barley has a stiffer straw than my other variety. The main point in this barley is that it weighs heavier per bushel than any other variety I ever raised. My barley last year weighed forty-nine pounds to the bushel. In 1904 it weighed fifty pounds. My common barley weighed forty-eight pounds to the measured bushel.

GROWING SUGAR BEETS.

T. S. BIGGAR, WALKERSVILLE, ONTARIO, CANADA.

Ladies and Gentlemen:

The 1906 spring campaign for sugar beets in southern Wisconsin opens up with two factories near at hand. Now this means, we hope, competition for acreage and for fair and square dealing for the grower. There is no blood in the sugar beet, so when two factories get to competing for acreage they won't shed much blood. However I know from four years' experience in sugar beets that the farmer has got to sweat some, and I hope my few remarks will help him to get something in return.

A few of the requisites for a successful crop of sugar beets are: a good seed bed; early fitting and seeding; and proper cultivation, of course, granted you have fertile land, good seed, and a favorable season.

My experience in heavy soils has shown that fall plowing and disking up in the spring gives better results than does spring plowing. In the spring plowing, the ground is apt to be left so loose that the beet will spread out and not grow down deep and give the desired long shaped beet. The only way to overcome the spring plowing is by frequent rolling if the ground is dry.

Begin seeding about April 25th and do not plant later than the 25th of May. If you cannot get them in by that time wait and get a good start another year. Beets sown in the month of June are almost always a fizzle. If the land is very rich drill eighteen inches apart. If in good condition twenty inches. If poor do not plant at all. Plant the seed about one inch deep and if the ground is dry roll immediately after planting. Now do not wait till the beets are up before you commence killing weeds. Take the teeth out of a weeder so as to miss the drill rows and go over the field the same way it was planted. Never cross the drills.

As soon as there is a sufficient number of plants with two leaves start blocking and thinning. Block six, eight, or ten inches. One man can usually do this for two boys to thin. If the ground is dry and lumpy during thinning do not be afraid to roll it even if the plants are a good size. Bear in mind that the yield and test will depend mainly on how well you thin your

beets. A poor stand means a small tonnage and a low test. Again let me say do not let the beets get the start of you before you begin thinning, for there is no time you can do this as well as when they have but two leaves. More money is lost from getting behind at this period than from any other one cause. Hoe the beets often enough to keep the weeds down and cultivate frequently so as to insure a good mulch.

The harvest of the sugar beet up to date is a laborious piece of work. Many devices have been brought out to save labor along this line. But as yet nothing has been found that will automatically lift and top the beets. The great trouble is that some beets grow higher out of the ground than others, consequently it is difficult to cut the top off just below the lowest leaf scar. If they are cut too high there is too great a tare at the factory, and if too low there is a positive loss in tonnage. Until something better shows up we will have to be content with the side lifters and the beet knives for our harvest tools. Harvest should not begin until the beets are thoroughly ripe, for not until then can you get the maximum amount of sugar. If possible do not lift any beets for a few days after a warm wet growing time as there will be a loss of sugar. Bright sunshiny days with cool, crisp nights make sugar.

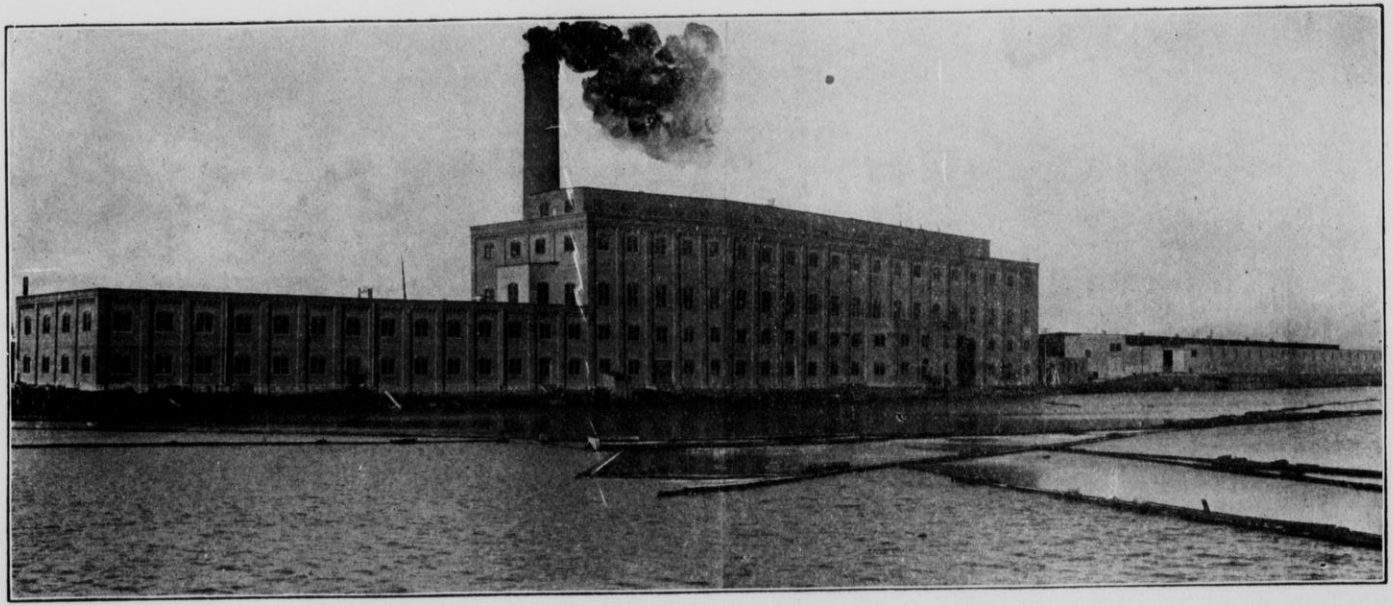
After the beets are lifted the next step is to throw six rows into one windrow with the tops all one way. Then rake off spots twenty-five feet or such a matter apart to throw the topped beets on.

If shipment cannot be made at once the pile should be covered with the tops to prevent shrinkage by evaporation. It is claimed that the loss in weight is made up in the gain in sugar per cent. But experience has always shown me that it is well to keep the tonnage in mind.

Well, the battle is about over. All that is left now is to haul the beets to the point of delivery, draw your money and wonder how it all happened.

The weighing, taring, and testing of beets causes much discussion and confusion. It, like every other question has its two sides. It is entirely impossible to weigh, tare, and test each beet separately, and so some way has to be devised to get at a nominal average of the amount of sugar and dirt in a load of beets. The estimate is called tare and is deducted from the total weight.

The soil of Wisconsin is well adapted to the growing of sugar



Beet Sugar Factory, owned by the Menominee River Sugar Co., Menominee, Michigan. Erected in 1903 at a cost of one million dollars. Capacity, one thousand tons of beets per day. Sugar manufactured in 1904, five and one-half million pounds; season of 1905, thirteen and one-half million pounds. G. W. McCormick, manager.

beets. In Michigan, Ohio, Indiana, and Ontario heavy rains drown out the crop. Here there is little danger of it. If proper care is taken not to grow too often on the same ground, to use good seed, plant and thin early, keep the crop clean, and not have too long a haul, there ought to be something in it for the grower here if there is in any place, and there is.

SUGAR BEETS FROM THE FACTORY STANDPOINT.

G. W. M'CORMICK, MENOMINEE, MICHIGAN.

Mr. Chairman, Ladies and Gentlemen of the Wisconsin Agricultural Experiment Association: When I received a letter from your energetic Secretary, extending an invitation to give a talk at your annual meeting on the subject "Sugar Beets" from the factory standpoint, I felt very much flattered, for two reasons: first, because of the intelligent membership of your association; and secondly, because of my being entirely an outsider, as I am neither a member of the association nor a resident of Wisconsin, but to the latter statement I may add that while I am not a resident of Wisconsin the factory I manage is located on an island in the river which marks the boundary line between the states of Michigan and Wisconsin, (so I am not unlike the Irishman who said, "He voted for Jim Blaine—almost"). There are so many features to this great and growing beet sugar industry and they are so inter-woven and interdependent that it would be quite impossible to single out any one feature for discussion without in a measure, at least, touching on some of the others, so therefore a talk on sugar beets from the factory standpoint would be very incomplete if nothing was said of the field work; for a sugar factory without beets would be like some of our abandoned saw mills that are without logs, while on the other hand the farmers' crop of sugar beets without a factory would become only stock fodder of a comparatively low value.

Since it is only so few years ago that the manufacture of sugar from beets in Michigan and Wisconsin was successfully

begun I will hastily recount a few of the facts concerning the growth of the industry during that time.

I was living in Bay City, Michigan in 1897 when the first beet sugar factory in that state was erected, it was a small one as compared with those built since, but the building of that factory aroused an interest in this work in every agricultural community in the state and capitalists from all over Michigan and from other states came there to inspect this plant and get information with the object of building factories at other points. It was with considerable difficulty that a sufficient amount of capital was subscribed for the first factory, but eventually enough was secured, the company was organized and the construction work begun. As soon as that part of the work was started the next step which demanded the attention of the company was the securing of contracts for a sufficient acreage to supply the factory with beets the next fall when it would be completed. It was naturally a new proposition to the farmers in that locality as they knew nothing about sugar beets and they had never been accustomed to signing a contract for the growing of a crop, nor had they been accustomed to being guaranteed a certain price for any crop they had raised heretofore. The farmers were rather sceptical as to what their results would be and for that reason the progress of the work was rather slow, and after a careful canvass of fourteen counties they finished their contracting season with a total of 2,500 acres. The results of that year's crop proved to the farmers that they had a splendid future in growing sugar beets. During the year 1898 there were erected in Bay City two more sugar factories and that season there were secured 14,000 acres in four counties. In the years following new factories were erected in more or less favorable localities all through the southern part of Michigan until in 1905 there were 15 modern beet sugar factories in operation in that state which had cost over ten millions of dollars and for which there were contracted 115,000 acres last season, and during the last year these same factories paid out to the farmers, who grew their beets over $2,500,000.00 in cash. Michigan's seven year record with sugar beets.

Since 1900 Wisconsin has had erected three factories at a cost of over $2,000,000.00 and is now having a fourth established here in your capital. The farmers of Wisconsin are rapidly taking up this new crop having raised 20,000 acres of sugar

beets in 1905 and receiving for them practically $750,000.00; this all in five years in Wisconsin.

To the men who have had the energy and thrift to earn and accumulate, and the courage and faith to invest, such large sums of money in this new industry belongs much greater credit than is ever given them by those who are most benefited by the establishing of these institutions.

The building of the sugar factory has been practically the first step in the development of the sugar beet industry in each district where such factory exists, and upon the sugar company falls the work, not only of manufacturing the sugar from the beets, but also the burden of carrying on, at a very large expense, for several years, a thorough campaign of education and instruction among the farmers as to how to properly prepare the soil and cultivate the crop in the most successful and economical manner.

To illustrate how the factories conduct this educational work among the farmers I can best explain by telling you the methods we pursue ourselves. We employ by the year twelve men who are skilled in the practical knowledge of sugar beet growing and they devote their entire time to working among our growers. As soon as the Spring opens each field man in his own district calls on every farmer who has contracted to grow beets and instructs him in the preparation of the seed bed, the adjustment of his drills and cultivators, the depth to plant the seed, distance rows should be apart, etc. In the meantime the company has shipped the growers their seed and the planting begins and by the time the last fields are planted the first sown seed is up. The field man, or agent, hastens to call again on each grower and advises him as to the best methods of blocking out and thinning his beets, at the same time making a detailed written report of each beet field he visits. This report he mails to the company. When he has finished the second trip he makes a third visit to each grower to urge the necessity of keeping the beets cleaned of weeds and again makes a careful report of each field, which he sends to the company. This trip is usually completed by the last of July, by that time we consider the crop is laid by and able to look after its own needs from then until harvest time. Then the field men start out again and this time call on all farmers in their districts taking up with them carefully such subjects as the fall preparation of

the soil for the next year's crop of beets, the selection of the best adapted field, the manuring or feltilization of such field and depth of plowing, discussing at the same time the proper rotation of crops and such other matters as will tend to produce the best results in the future.

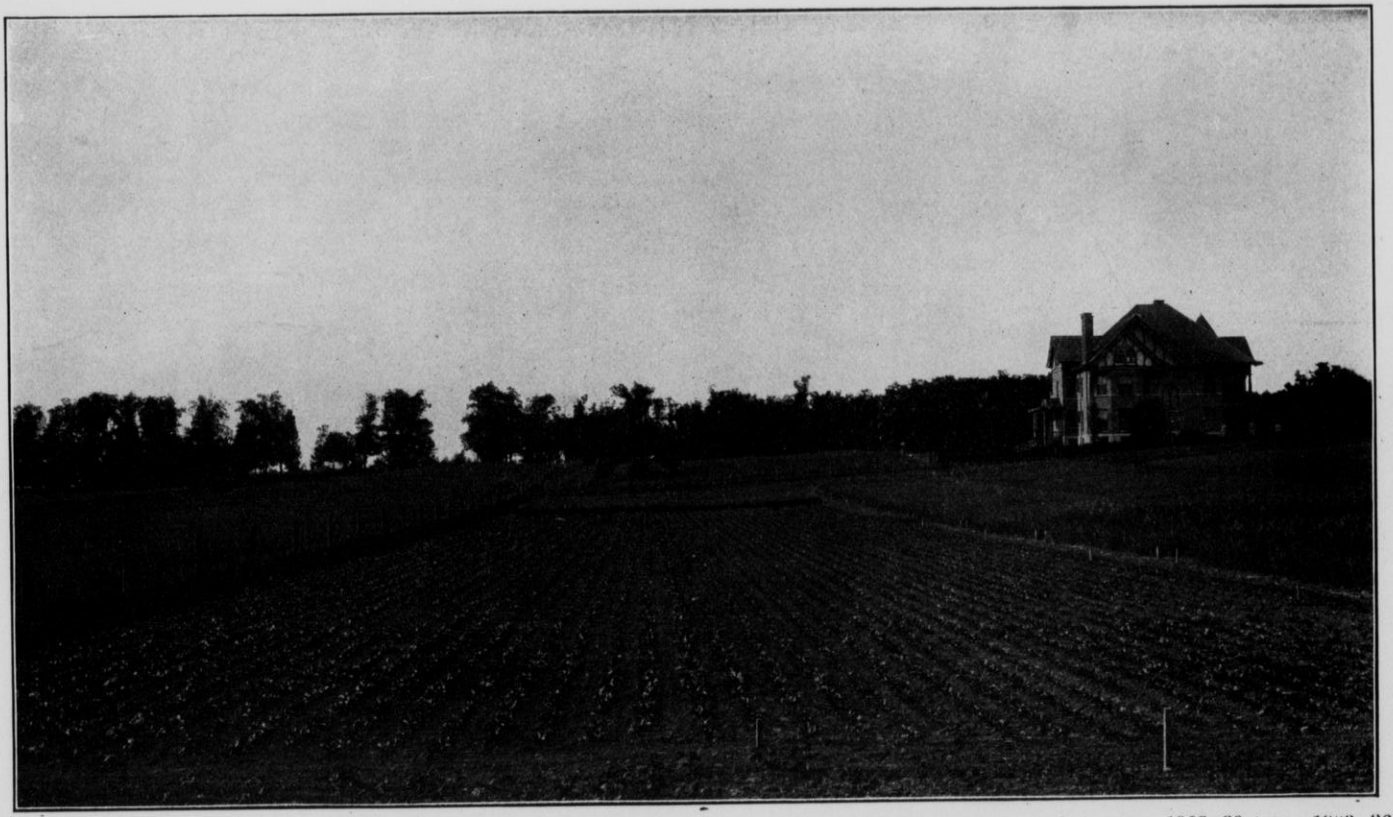
When harvest time arrives our men work among our growers, showing them the easiest methods of getting out their beets and shipping them, and after the crop is delivered and paid for, these men spend their time until Spring taking contracts for the next year's crop. Besides this work of our field men we mail each grower a book of complete instructions on sugar beet growing which he can refer to at will and besides all this we offer a series of prizes to the growers in each county to stimulate better cultivation. Now all this persistent field work has by no means been in vain and it is most gratifying as well as interesting, to observe the changes brought about. Probably one of the most marked results has been the increase of 1¼ tons of beets per acre in 1905 over 1904.

The question of seed is a very important one, and we are careful to buy only the best we can procure in the world's market. Practically all the seed used in the United States is imported from Germany. When this reaches us we carefully screen it all, taking out the small and weak seeds, then we make a germination test of a sample from each sack and only such as is up to a certain standard is sent out to our growers. Thus we are sure of them obtaining a reasonably uniform stand of healthy plants. In our contract with our farmers we agree to furnish them free of charge 18 pounds of seed to the acre. We found where the farmers had to pay for their seed they seldom used enough, and the result was an uneven, poor stand of plants.

In taking the crop in the fall we weigh and tare their beets right at the shipping station and pay a flat rate per ton, we paying the freight to the factory, thus everything pertaining to the value of the growers' beets is ascertained right before their eyes so there may be no opportunity to complain of unfairness.

Now what have been the results of the establishing of this great agricultural industry, which as yet is only in its infancy? For by the results we must judge it.

First; what has it meant to the farmer?



Sugar Beet Field, Experiment Station Farm, Madison. Yield per acre on the same land for three successive years: 1902, 29 tons; 1903, 26 tons; 1904, 25 tons.

It has introduced a new crop which every farmer can grow; a hardy crop; one less injured by frost, extreme wet or extreme dry weather or plant enemies than any other which the speaker is familiar with. One which has an open market and which involves no peddling but is sold at a guaranteed price before the seed is planted; a most profitable crop as I can readily prove the fact that over 1000 of our growers in 1905 received checks of from 50 to $95.00 per acre for their sugar beets; a crop the price of which is not governed by the quantity produced by his neighbors, nor in which he must compete with the farmers of the mighty Northwest, as with wheat and other grain. It has shown him the value of the intense cultivation of the soil and leaves his land in a high state of cultivation and much cleaner from weeds.

It enhances the value of farm lands as evidenced by the fact that farms near our factory have risen in value nearly 50 per cent in three years, and "Cut Over" lands in Marinette and Menominee counties have gone up to three times their value before we erected our plant. The sales of those lands have trebled in that period. As a matter of necessity the farmers of Wisconsin who own land to-day worth from $75 to $150 per acre with correspondingly high taxes must learn to grow for a "money crop" something besides wheat, oats, barley and hay which yield them from $15 to $20 an acre gross on an average, and turn their attention to crops that will give them larger returns from their soil. I know of no better crop than sugar beets.

To the laborers it has meant about $75,000 per year per factory for factory labor alone and these men all buy farm products. To the merchant in the beet growing district it means increased business with the assurance that his farmer customers will have cash to settle their accounts in the fall. To the railroads it has meant an average of $75,000 in freights per year paid by each factory.

These in short are a few of the beneficial results, but there are many others which my time will not permit me to take up just now.

Do you think the results so far justify the establishing of these sugar factories? If so, then let us consider for a moment what it would mean for this great state of Wisconsin

which uses each year about 175,000,000 pounds of sugar to produce its own sugar from beets. To supply that would require the building of 11 more sugar factories than Wisconsin now has, the permanent investment of $7,000,000 in these plants all paying taxes. It would require the planting of 80,000 acres to beets, thus removing this amount of land from competition with other crops. It would mean the producing of 800,000 tons of beets which at an average price of $5 per ton would be $4,000,000 paid annually into the pockets of Wisconsin farmers, the payment of $1,125,000 to factory laborers and an equal amount to the railways for freight besides fully $750,000 yearly for factory supplies, most of which could be obtained right here in your state. Valuing the sugar at 4½ cents per pound, it amounts to $7,875,000, three-fourths of which sum is now each year going outside your state, and outside the United States, largely to the blacks of the West Indies and Pacific Island in whom we have no interest. This enormous sum is drained from your state each year for this one staple article of food which you can produce right here at home at a profit. Think of it, $20,000 a day. Do we want to develop this industry right here in this state and keep these eight million in Wisconsin to enrich your citizens and build up this commonwealth? This is the question that rests largely with the intelligent farmers of Wisconsin.

I thank you Mr. Chairman, Ladies, and Gentlmen for your courtesy and patience and this opportunity to meet you.

ADDRESS.

PROFESSOR L. W. WOOD, WISCONSIN RURAL SCHOOL INSPECTOR.

It is indeed a pleasure to meet so many of you young men who have decided to make agriculture your business and who have been wise enough to expend money, time and energy in making special preparation for the work, thus materially increasing your chances of success. In deciding to cast your lot with the great agricultural interests of our state, you have,

I believe, done well both from a standpoint of your own personal interests and also from the standpoint of the welfare of the state.

Statistics show that there is room for less than 4 per cent of our population in the so-called "learned professions," and yet of the making of lawyers, doctors and preachers there seems to be no end. Each year our great schools of law, medicine and theology are graduating more people into these professions than there is a demand for, thus making success in these lines of effort extremely difficult and uncertain. If I am correctly informed, the same is not true of our agricultural colleges. The demand for intelligent, progressive young men who have thoroughly mastered the details of some particular branch of agriculture is far in excess of the supply, and this condition seems likely to continue for many years to come, thereby insuring lucrative employment to such as desire to work for a salary. But a large majority of those who prepare themselves for agricultural work will and should engage in business for themselves. The state has need of more progressive young men to put into practice the modern methods of agriculture now known and to discover by experiment and careful observation still other methods and facts that will make for the advancement of this the most important of all industries. The Wisconsin Agricultural Experiment Association, of which many of you are members and of which others will doubtless become members in the near future, will undoubtedly play an important part in the future development of the agricultural interests of the state.

Life is too short and the opportunities too limited for one man working alone to accomplish much in the line of producing pure bred plants, studying the adaptability of certain plants to as wide an area as Wisconsin or carrying on needed investigations in other important lines. But with several hundred men located in different portions of the state, banded together for a common purpose and working under the direction of competent central authority, much may be accomplished in a comparatively short time. However, you should bear in mind the fact that if your association becomes the power in the state that it should become, you, its members, must take on the true spirit of the scientific investigator, the spirit that desires above all things else to know the truth, the whole truth, and nothing

but the truth; the spirit that causes a man to hold in abeyance for the time being all preconceived notions and prejudices, thus enabling him not only to see aright but to judge aright. Experimental work in agriculture carried on in the absence of this spirit has cost the farmers of our country thousands of dollars. It is to be hoped therefore, that your work will be carried on with such care and with such honesty of purpose that your conclusions will always command the respect and confidence of the farmers of our state.

It needs no argument on my part to convince this intelligent audience of the intimate relation that exists between agriculture and country schools. This intimate relation is being recognized more and more throughout the entire country. Recently the agricultural college of our sister state, Illionis, sent a member of the faculty of that college into a neighboring state to study some phases of the country school problem as exhibited there; and in our own state this relation has been recognized repeatedly by those having charge of our agricultural college and of our farmers' institutes. For a large majority of those who attend them, the country schools are both preparatory schools and finishing schools and any substantial improvement in them will be followed by a corresponding improvement in conditions on the farm. I therefore desire to invite your attention for a short time to some phases of the rural school problem and to appeal especially to you progressive young men to lend your assistance to its speedy and proper solution.

It is very generally conceded that during the last 25 or 30 years the city schools of our state have made rapid progress. To-day we have a goodly number of high schools whose equipment, courses of study and teaching force are fully equal, if not superior, to those of many of the old time colleges and state normal schools. It is also conceded that in general progress and efficiency of work our rural schools have not kept pace with the city schools. It has even been charged in the public press and from the public platform, that the rural schools of to-day are no better than those of 30 or 35 years ago. I was a student in one of the best of those old time country schools and later taught a number of terms in country schools. As a high school principal I was for about twenty years dealing each year with boys and girls who came to the

high schools from the rural schools. This experience, with what I have observed of the work of these schools during the past few months in several different counties of the state, makes me feel that those who make the charge that they are no better than they were 25 or 30 years ago, are decidedly wrong.

I have in my possession samples of language work done by common school pupils during the present school year that I do not believe could have been duplicated in the old time district schools of the state.

The graduates of the country schools of to-day have a better balanced education than the pupils of the old time country schools received. Of course it is true that we do not find in the country schools now as many pupils who are 17 years of age or upwards as were found in the old time district schools; but why should we? The course of study of the country schools of to-day contemplates nine years of systematic, well balanced work. If then a child commences school at the age of six years, is possessed of good health, average ability, and attends school regularly, he should complete the course at the age of 15 or 16. After his graduation we should and we do find him either at work on the farm or attending some high school. Statistics show that last year there was an army of between five and six thousand pupils in the high schools of the state recruited from the rural schools.

As before stated, however, it is generally conceded that the rural schools have not kept pace with the city schools. This being the case, the causes that have made the rural schools lag behind those of the city have become matters of much importance in the consideration of the rural school problem. One reason frequently urged in this connection is that while the state has done very much for the city schools, it has done practically nothing for the rural schools and the conclusion usually drawn is that if these schools are to be made substantially better, the state must come to the rescue. I believe the reason assigned is entirely unwarranted by the facts, is an injustice to the state, to the urban communities, and that the urging of it results in undue prejudice on the part of rural communities that works detrimentally to the interests of the country schools. As a matter of fact, the state has given no aid whatever to the city schools below the high school that it has not given to the country schools and the only financial aid

that the state has given to the city schools including the high schools, is special state aid to high schools. This special aid given to the cities maintaining free high schools is, as every one knows who has given the matter due consideration, a mere bagatelle in comparison to the local tax levied by the people of our cities for the education of their children. It is a well-known fact that the public schools of the following cities are among the very best in the state, and it is also a fact that none of these schools receive special high school aid. They are as follows:

Madison, Manitowoc—North side, Manitowoc—West side, Menomonie, Milwaukee, Racine and Superior.

No one acquainted with the facts will deny that the cities just mentioned maintain schools that rank among the very best in the state. The schools in these cities have made as rapid progress as those of the other cities of the state and they have made this progress without special state aid. This being the case, it would be absurd to suppose that the small amount of special state aid received by a majority of our cities has enabled them to outstrip the rural schools. If we would find the true cause we must search farther. And in this connection I desire to submit a few facts for your consideration.

The assessed valuation of a certain city is approximately 1,000,000. The assessed valuation of two towns in the immediate vicinity of this city is approximately 1¾ millions of dollars. Therefore, in proportion to valuation the local school tax of these two towns would be 1¾ times that of the city tax. During the present school year the people of the city will pay as a local school tax for the support of the grades below the high school, something over $4,000. If the town paid in the same proportion, their tax would amount to $6,000, but they will pay the modest sum of $1,350, or less than one-fourth as much in proportion to valuation as the people of the city pay. If we include the amount of local tax that the people of the city will pay for the support of their high school, the total local tax paid by the city would be about six times the local tax paid by the towns.

The conditions to which I have just called your attention are not exceptional. They can be duplicated in practically every county in the state. Statistics in my possession seem to indicate very conclusively that in proportion to valuation the

average country school district levies only from one-third to one-half as much local tax for school purposes as the average city levies for the support of the grades below the high school. Reports from county superintendents in different portions of the state indicate that there were probably from five to seven hundred districts in the state that levied no local tax whatever at the last annual meeting. One superintendent reports that of 102 schools in his county 24 levied no local tax. Another superintendent reports as follows:

Whole number of districts	90
Number that raised no local tax	13
Number that raised only fifty dollars	6
Number that raised less than fifty dollars	12
Total	31

Thus, it will be seen that about one-third of the school districts in this county raised either no tax at all or else raised the sum not to exceed fifty dollars. Many of the rural schools of our state have for some years maintained their schools entirely by the money received from the county school tax, and the 7-10 of a mill tax. In some cases, at least, they have done this by maintaining only 7 or 8 months of school, letting to the lowest bidder the job of teaching the school, neglecting to keep their buildings in repair, and also neglecting to furnish their teachers with the necessary working tools of a school. What do these facts mean? They mean that the educational ideals of our rural school communities have not kept pace with the educational ideals of the people of our cities.

The sort of a school that any community maintains depends more upon the educational ideals that prevail in that community than upon all other forces combined. If the educational ideals of a community be raised to a higher plane the result is soon manifested in better school buildings, better sanitary conditions, better equipment, better teachers and better relations existing between the people and the teachers. If the educational ideals of a community fall to a lower plane, the result is soon manifested in dilapidated buildings, unsanitary conditions, scanty equipment and poor teachers; in other words, the result is a poor school.

Some time ago in company with a county superintendent, I inspected two rural school buildings. One of these was a neat modern structure. It was well lighted and special provision had been made for ventilation. It was seated with modern single seats. It was provided with slate black board, good recitation seats, a good desk and chair for the teacher. There was a well equipped library, well housed in a good book case. In fact practically all of the necessary working tools of a school were there. The county superintendent informed me that only the best of teachers are employed in that school. As I left the door of this building, I said to myself, here is a little red schoolhouse of which any community might justly be proud, for it is a credit to the district, to the county, and to the state. Four or five miles farther on we inspected another rural school building that was a disgrace to the district, to the county and the state. It was an old, dilapidated building, the outhouses were in an unmentionable condition, and the entire premises looked as if the people had not expended a dollar for repairs in the last five years. The children were required to sit in dirty double seats. Not more than half of the essential working tools of a school were there. In looking about the room I found an American flag and as I looked upon it I thought to myself that it would be a disgrace to the flag to hoist it within a mile of this proposition. Why the striking contrast between these two schools? Both were located in one of the most prosperous portions of one of the most prosperous counties of the state. I could not see but that the shocks of grain stood as thickly in the field in the one district as in the other. I could not see but that the corn in the one district looked as favorable for a good crop as it did in the other. The material evidences of prosperity in the two districts were practically the same. Both of these schools were under the jurisdiction of the same state superintendent and of the same county superintendent. Both of them were receiving practically the same rights and benefits from wise educational laws, and yet the contrast between them was as marked as that between noonday and midnight. When the people in the one district meet at the annual school meeting the question that is asked is what amount of money must we appropriate in order that we may have a good school, a school to which we can send our children in confidence believing that they will receive such instruction as every American boy and

girl should receive in the common schools? In the other district the question that is asked at the annual meeting is how much money must we appropriate in order that we may keep a breath of life in the school? The spirit that dominates the action of the people in the one district is the spirit of progress, the spirit that has moved the world along from the hand sickle to the self-binder, from the plow made of a forked stick to the one that is made of the finest steel. The future welfare of our country schools depends upon which of these two spirits shall prevail.

DIVISION OF FARM CROPS.

Plan of Work for the Coming Year.

R. A. MOORE.

Students can get outlines of experiments with farm crops at the office of the Association. They can also secure seeds by dropping a line to the secretary at the proper time. We have different lines of experiments that we desire to carry out the coming year.

Experiments with Alfalfa.—Those who sowed alfalfa last year will complete the test and report results the coming season, as to yield, etc. I would be pleased to test the value of soil inoculation, and sowing with and without a nurse crop, this year. No less than four hundred dollars of the state appropriation will be used for the purchasing of alfalfa seed. We should fully understand the feeding value of this great forage plant. There is more protein in one acre of alfalfa hay than in nine acres of timothy. The time has come when clover is not a reliable crop in the southern part of the state and we are looking about for something to take its place with more certainty. You can get full information concerning the test to be made with alfalfa, on the instruction sheets. You will also be supplied with a bulletin which will give general information concerning alfalfa. I wish all the young men present who belong to the association would come to the office and indicate what lines of experiments they desired to carry on. When I get a list I will know how much seed to purchase.

For the inoculation tests in connection with the alfalfa experiment, we will ship bacteria-laden soil to all members making the test. Several tons of this earth were saved for this special purpose. If bacteria is not in the ground, the plants will not develop nodules on their roots and will soon languish and die.

Tests to Determine if Bacteria-Laden Nodules were Present.—The past year several hundred tests were made to find if the plants developed the nodules naturally in all parts of the state. Most of the examinations showed the proper nodules on the roots of the alfalfa plants, but in some instances to only a limited extent. There are portions of the state where the plants will not develop the nodules at all and it is this that we wish to determine, and the effect the lack of nodules has upon the plant. There is an advantage in inoculating the seed or soil so that every plant will develop nodules at the early stages of its growth.

Corn.—I have two varieties of seed corn that I can give out this year to part of the members of the association living in the state. One a medium early white dent known as Wis. No. 7, and the other an early yellow dent known as Wis. No. 8. The No. 7 corn has given exceptional yields in the Southern half of the state as previously reported, and the No. 8 is noted for its early maturity as well as good yield. Corn has more money value than all other cereal crops grown in the United States. It represents in cash value 55 per cent of the cereal crop.

Barley.—I would like to have about one hundred members grow the Manshury barley, as I think they would find it a profitable crop to grow. The station has a barley known as the Oderbrucker, Wis. 55, a strong, six-rowed, bearded variety, which is giving excellent returns, 250 sacks of this barley will be given to a like number of members of the association for trial purposes. We will look forward with a great deal of interest to the reports of the 250 members who carry on the barley test with this variety.

Tests with Swedish Select oats (Wisconsin No. 4) and soy beans should be continued. We have a limited amount of soy beans with soil for inoculation purposes that will be given to the members of the association for further trials. We desire in particular to experiment on how to harvest soy beans to best advantage. Outlines, seed and inoculated soil will be given to those who will carry on the test.

WISCONSIN AGRICULTURAL EXPERIMENT ASSOCIATION.

EXPERIMENT 1.

Trials with Alfalfa to Determine if It Can be Grown in Wisconsin Successfully as a Forage Plant and the Relative Value of Soil-Inoculation and Sowing with and without a Nurse Crop.

The value of alfalfa as a forage plant in the west is becoming more and more apparent and the area grown, which was very small a few years ago, has gradually widened until at the present time most of the stock producing states west of the Mississippi grow it in abundance. In Wisconsin alfalfa is yet in the experimental stage and until it has been further tried at the Experiment Station and by members of the Experiment Association, it will be well for the farmers of the state to refrain from sowing large areas.

Alfalfa or lucerne is a perennial plant and belongs to the clover family. If not killed by frost, water or some other element, it can be cut the second year after sowing three or four times per season for hay, for many years without re-seeding.

It should be sown in the spring on land that is well drained, with oats or barley as a nurse crop, or alone if the land is not weedy, at the rate of twenty pounds of seed per acre.

Having procured good alfalfa seed, proceed as follows: Select land that never overflows and that which is well drained and had grown a cultivated crop the previous season; the richer the soil the better will be the growth of the alfalfa. Fall plowing is preferable to spring plowing, therefore, we should select a piece that has been fall plowed if possible. Prepare the seed bed thoroughly and sow oats on half of the plot and cover as usual; then sow alfalfa broadcast at the rate of twenty pounds of seed per acre and drag once. It is well to leave a fair growth as a cover crop for the winter, as like the clover, there is danger of its winter killing.

Do not pasture at all the first season and only sparingly thereafter as it injures the alfalfa plants.

By sowing the oats at the rate of one bushel per acre you will give the alfalfa a better chance to grow as the young al-

falfa plants will not be crowded as they would be if the ordinary amount of oats was sown per acre. Barley sown three pecks to the acre is preferable to oats as a nurse crop.

After carefully preparing the seed bed, scatter bacteria-laden soil on a portion of the plot before sowing the seed. Mark distinctly that portion on which the soil is sown so as to determine the difference, if any, on that portion of the field where the soil is scattered and that which was not treated. Sow the bacteria-laden soil across one end of the plot so that it will cover ground where alfalfa is sown with and without a nurse crop.

Report Blank, Experiment 1.

Getting a Stand of Alfalfa and Testing the Relative Value of Soil Inoculation and Sowing with and without a Nurse Crop.

Name of experimenter.....

P. O.....; County.....; State.....

1. Date of sowing oats or barley and alfalfa.....
2. What variety of alfalfa used?.....
3. Nature of soil?.....
4. How prepared?.....
5. When were the alfalfa plants first noticeable?.....
6. Was the grain crop left to ripen?.....
7. Did you secure a good thick stand of alfalfa?.....
8. At what rate did you sow the alfalfa seed per acre?.....
9. At what rate did you sow the oats or barley per acre?.....
10. Which seems preferable sowing with or without a nurse crop?.....
11. Did you examine the roots of the plants on both sections of the field for bacteria-laden nodules?.....
12. Were any nodules found?.....
13. Were the nodules as plentiful on the roots of the plants growing on that portion of the field that was not inoculated as where the ground was scattered?.....

14. Could you detect any difference in the growth of the alfalfa? .....
15. Date of making this report? .....
16. Give in a brief way your opinion on growing alfalfa in Wisconsin, and the benefit, if any, from the inoculation of the soil.

Experiment 1. A

Alfalfa after First Year's Seeding.

Through the encouragement of the Experiment Association many of its membership sowed from one to two acres of alfalfa. the past two years. The Association is desirous to learn the success of those who have sown alfalfa previous to this year and will send blanks and return envelope to any one who will agree to send in report.

Report of Alfalfa after First Year's Seeding.

Report Blank, Experiment 1. A.

To be sent to the Secretary, by October 1, 1906.

Name of experimenter .....
Post Office .....; County .....; State .....

1. Year and season alfalfa was sown .....
2. Was the alfalfa sown with or without a nurse crop?
3. Variety of alfalfa seed used .....
4. Amount of seed per acre .....
5. Was crop cut for hay the year of sowing?
6. If so, the amount obtained per acre .....
7. Nature of the soil .....
   (Clay, muck, highland, lowland, etc.)
8. Was good stand noticeable before the fall frosts? .....
9. What per cent, if any, winter killed? .....per cent.
10. How many cuttings did you get the year after seeding?..
11. Weight of hay from all cuttings for the season—
    (actual) ..... (estimated) .....

12. Did you experience any difficulty in curing the crop for hay? .....
13. Did you use hay caps? .....
14. Did the plants develop the proper nodules on their roots? ....
15. Was the ground on which the alfalfa was sown inoculated with alfalfa or sweet clover soil?
16. Date of making this report .....

Please give in a brief way your method of growing alfalfa and your views as to its value as a forage plant for Wisconsin.

EXPERIMENT NO. 2.

Wisconsin Seed Corn—Ten Ear Test.

Little has been done in Wisconsin up to the present time in the way of breeding good seed corn or taking care of the season's crop.

We feel that by judicious selection of seed, farmers of the state can increase the yield from ten to twenty-five bushels per acre. We know that members of the Experiment Association can do much good for the communities in which they reside by breeding a choice variety of corn. Due care must be exercised in planting, cultivating the soil, harvesting and curing the crop as well as rigid selection of the seed. No matter how good the seed if planted on weedy or poor worn-out soil and not properly cared for we could not expect a good crop.

We expect to see great strides made in the improvement of corn within the next few years and may not the Wisconsin Experiment Association be the factor to bring this improvement about?

Twenty-five ears of corn are given to each member who desires to assist in corn improvement only 10 ears of which will be used in the experiment proper. The corn from each ear is to be planted in a separate row.

Use the ear with the least number of kernels first. Plant in hills three and one-half feet apart in the row and the same distance between the rows. The corn left from the different ears after planting individual rows can be mixed with the corn

shelled from the remaining 15 ears and planted in close proximity.

Plant at least forty rods from any other corn, a greater distance if convenient. Avoid having a field of corn near the west or south of the plot as the prevailing wind during the pollenizing season is from that direction and the corn is liable to cross.

REPORT BLANK, EXPERIMENT NO. 2.

Wisconsin Seed Corn—Ten Ear Test.

Name of experimenter .....
P. O. .....; County .....; State.....

1. Variety of corn planted .....
2. Where was seed secured? .....
3. Germinating test, per cent. .....
4. Date of planting .....
5. Nature of soil .....
6. Fall or spring plowed .....
7. Following what crop? .....
8. How planted? .....
   ....
9. When first noticeable above ground?.....
10. Did corn germinate evenly?
11. Give number of times and method of cultivation?.....
    ....
12. Did corn mature well?.....
13. Total number of stalks in each row.....
14. Number of barren stalks in each row.....
15. How harvested?.....
16. Yield per acre, actual.....; estimated.....
17. Yield per acre any other variety, actual.....,
    estimated ....
18. Compare yield with home variety of corn if possible.
19. The yield should be determined on the shelled corn basis, two bushels of ears being considered one bushel of shelled corn.

Experiment No. 3.

Treating Potatoes with Formaldehyd Solution for the Prevention of Potato Scab.

The potato crop of Wisconsin in 1904 is estimated at 31,500,000 bushels, valued at approximately $9,000,000. Only a portion of the yield is retained, the remainder shipped to market, for which the farmers of Wisconsin receive a sum one-third as great as the value of the dairy products of the state. The potato industry has become so important that it needs our immediate attention.

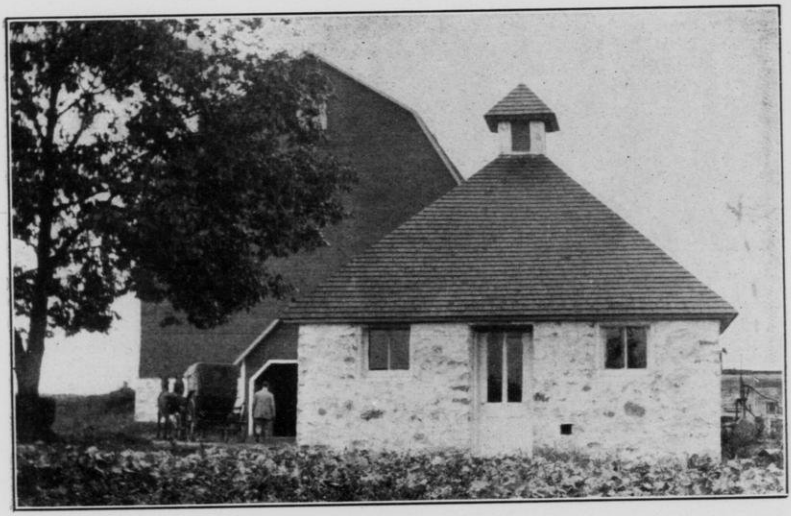
One of the evils the grower has to contend with is the potato scab which often renders the crop of potatoes unfit for market, or nearly so. The market demands a smooth, even grade of potatoes; consequently, where the potatoes have been made rough by the scab fungus they sell at a reduced price. The scab fungus attaches itself to the tuber where it makes the ugly looking scars so often found on the potato, or remains in the soil where it is able to survive varying conditions for several years.

The scab fungus on the seed potato can be killed readily by the formaldehyd treatment here recommended, and if the seed is then planted on land that has not before grown scabby potatoes or has not become contaminated with the scab fungus in any other way, the crop should be entirely free from scab.

Method of Treatment.—Put in a cask twenty gallons of water and pour in one pint of formaldehyd, and after stirring the solution, distribute in several barrels or tubs. Put in the uncut seed potatoes and submerge for two hours. If desired, the potatoes can be left in gunny sacks or bags while being treated.

After removing the potatoes from the solution they can be cut and planted as desired. In this test the experimenter will select a bushel of very scabby potatoes and treat half and retain the other half without treatment. Plant on ground that has never before grown potatoes, and note the result.

Do not let the treated seed come in contact with the untreated seed or any sack which has held untreated potatoes. The seed potatoes for the general crop should all be treated if scabby.



Dairy Building on the Riverside Farm. Grain and stock barn in the rear.
Dr. T. J. Redelings, owner, Marinette, Marinette Co.

REPORT BLANK, EXPERIMENT NO. 3.

Treating Potatoes for the Prevention of Scab.

Name of experimenter.....
Post Office....., County.....; State.....

1. How much seed treated for the experiment?.....
2. How much seed untreated for the experiment?.....
3. Date of planting.....
4. Did you notice any characteristic difference in the growth of the potato vines during the growing period?.....
.....
.....
5. Date of digging potatoes.....
6. Yield from the seed treated.....
7. Yield from the seed not treated.....
8. No. of scabby potatoes found from the treated seed.....
9. No. of scabby potatoes found from the untreated seed....

EXPERIMENT NO. 4.

Treating Seed Oats to Prevent Smut.

Smut affecting oats is prevalent in all parts of this and adjoining states. The great loss sustained by farmers and the rapid increase of the smut area suggests that a remedy be found to stop this loss.

The accompanying sheets will give method of treatment to prevent oat smut.

It is the desire of the Association to know the effectiveness of this treatment by many observers, and to publish determinations in the next annual report.

Where smut has been noticeable in the oats the previous year, all seed should be treated to prevent a re-occurrence.

For the following experiment it will be necessary to treat about three bushels, sufficient to sow an acre, in accordance with plan outlined in instructions.

Experiment.—1. Take three bushels, or the usual allowance for seeding one acre, that were threshed from a field that was

worst affected with smut the past season, and treat as stated in directions.

If the experimenter has no oats, he probably can obtain some from a neighbor whose grain has been afflicted with oat smut.

2. Take the same quantity from the same lot of oats and do not treat.

3. Sow both quantities on adjoining plots of one acre each. Be sure to have a distinct separation from the plot sown with the oats treated and that on which the oats are not treated.

4. After the oats are headed take an ordinary barrel hoop and make several counts on the plot where oats were treated and on the plot where oats were not treated. This can be done by placing a hoop over the oats and counting all the heads within the circle and then note the number affected with smut, thus getting data to determine the percentage.

REPORT BLANK, EXPERIMENT NO. 4.

Treating Seed Oats to Prevent Smut.

Name of experimenter.....
P. O.....; County.....; State.....

1. Did you treat oats according to directions?.....
2. How much treated for the experiment?.....
   Size of plot.....
3. How much was sown on experiment that was not treated?..
   Size of plot.....
4. Did you treat your seed that was sown for general purposes? .....
   1. Date of sowing seed not treated.....
   2. Date when smut was first noticeable.....
   3. When were oats cut?.....
   1. Date of sowing seed treated.....
   2. Date when smut was first noticeable.....
   3. When were oats cut?.....
5. Did you make several counts after the oats were headed using the hoop in the manner suggested?.....
6. What per cent. of oats were affected with smut on plot where seed was treated to prevent smut?.....

7. What per cent. of oats were affected on plot where seed was not treated?.....
8. Per cent. saved by treatment.....

The data obtained by counting the heads within the circle of a hoop that are affected and those not affected is a fairly accurate method of arriving at the percentage of oats affected with smut.

Send in this report as soon as the experiment is completed.

Experiment No. 5.

Tests With Swedish Select Oats.

The Swedish Select oats (Wis. No. 4) through several years' tests have proved to be satisfactory and especially adapted for Wisconsin conditions. The desire is now to have them grown as extensively as possible by members of the Association so that the variety will be in reach of all farmers.

In order to be placed on the list of seed growers it will be necessary to comply with certain conditions:

1. All seed oats must be treated for the prevention of smut previous to sowing.
2. Must be sown on land that is free from Canada thistles, mustard, quack grass or any obnoxious weeds.
3. If possible a comparison with another variety of oats should be made.
4. A report must be sent to the Secretary immediately after threshing.

Report Blank, Experiment No. 5.

Swedish Select Oats.

Name of experimenter.....
P. O.....; County.....; State.....

1. Date of sowing.....
2. Amount of seed sown.....

3. Amount of land covered (approximately).....
4. Nature of soil?.....
5. Fall or spring plowed?.....
6. Sown with seeder or drill?.....
7. Were heads of any other grain noticeable within the plot on which oats were sown?.....
8. Were they removed?.....
9. Did the oats stand up well?.....
10. Did you treat the seed for the prevention of smut?.....
11. Did you notice any smut?.....
12. How much?.....
13. Was the ground on which oats were sown free from Canada thistles, mustard and quack grass?
14. Did oats rust?.....
15. When were oats cut?.....
16. Yield per acre of Swedish Select oats.....
17. Yield per acre of any other variety of oats grown.....
18. How many of the Swedish oats on hand do you intend to sell for seed oats?.....
19. Please give a brief description of what you think of the Swedish Select oats.

Experiment No. 6.

Test with Oderbrucker Barley.

(Wis. No. 55.)

In 1898 the Wisconsin Experiment Station received from the Ontario Agricultural College five pounds of barley known as Oderbrucker. This barley had been obtained from Germany and grown several years on the college farm at Guelph, previous to being secured by the Wisconsin Station.

For eight years this barley has been grown on experiment in comparison with twenty-five other varieties and improved by selection until we feel confident that it is worthy of dissemination. The Oderbrucker barley is a stiff-strawed, heavy-yielding, six-rowed, bearded variety, and is the most satisfactory barley from all points of view grown on the Station farm. From malt-

ing tests made by the Wahl-Henius Institute of Fermentology, Chicago, the Oderbrucker barley compares favorably with all other barleys on test for malting purposes. It is a high protein barley, containing fifteen per cent of that element which makes it a good feeding barley.

At the present time Wisconsin farmers are growing many scrub breeds and types of barley which should be discarded. The Experiment Station with the aid of our association is desirous of getting standard bred grains of the very best breeding into the hands of the general farmer at the earliest possible moment. Five hundred bushels of this high grade barley has been given to two hundred and fifty members of the Experiment Association and acre tests will be made in every county of Wisconsin. Members carrying on the experiments are requested to report as soon as the tests are completed. Blanks for making the reports will be sent by the Secretary in due time for the report.

WISCONSIN AGRICULTURAL EXPERIMENT ASSOCIATION.

REPORT BLANK, EXPERIMENT NO. 6.

Oderbrucker Barley.

(WIS. No. 55.)

Name of experimenter.....
P. O.....; County.....; State.....

1. Date of sowing.....
2. Amount of seed sown.....
3. Amount of ground covered (approximately).....
   (As near as possible try and cover one acre with seed obtained).
4. Nature of soil.....
5. Fall or spring plowed.....
6. Sown with drill or seeder.....
7. Following what crop in rotation.....
8. Were heads of any other grain noticeable within the plot on which barley was sown?.....

9. Were they removed?.....
10. Did the barley stand up well?.....
11. Was the ground on which the barley was sown free from Canada thistles, mustard and quack grass?.....
12. Did the barley rust?.....
13. Was any smut noticeable?.....
14. When was barley cut?.....
15. Yield per acre of Oderbrucker barley.....
16. Yield per acre of any other variety of barley grown.....
17. May we put you on the seed growers' list?.....
18. Please give a brief description of what you think of the Oderbrucker barley, Wisconsin No. 55.

Experiment No. 7.

Tests With Forage Rape.

For several years rape has been grown for soiling purposes on the Experiment Farm with that degree of success which suggests that it is worthy of a trial by Wisconsin farmers in general.

Sheep and young stock are very fond of the plant and fatten readily when pastured upon it. Care should be taken to not let sheep feed upon it while the plants are wet with dew, or when the sheep have been kept for several hours without food as they then eat so abundantly that it often leads to serious bloating or scouring.

The Variety Used.—The Dwarf-Essex rape has been the variety used most extensively at the Experiment Farm. This variety can be purchased from any good seed house, in five or ten pound lots for about eight cents per pound, and for considerable less in large quantities.

Rape can be grown late as well as early in the year, therefore, it often serves as a good catch crop when other crops have failed, and will afford a goodly supply of green fodder when the pastures are dry and short. If possible, try four experiments with rape.

A. Sow broadcast on one acre or more which you have previously seeded to oats, and which are about one inch in height

at the time of sowing the rape. Cover with slant tooth harrow or light drag which will not materially injure the oats. Let the oats ripen and when cut, the rape will come on rapidly and cover the stubble with its wide spreading leaves. It feeds to best advantage when about 18 inches in height or a little over. If hurdle fence is used and changed from time to time, the rape eaten will come on rapidly and soon be fit to pasture again.

B. Sow one acre or more which has been properly prepared with disk harrow or otherwise, to rape, using drill and putting the seed in about 30 inches apart between the rows so as to cultivate once or twice.

C. Sow one acre or more broadcast or with the drill at the time of sowing oats. The rape seed should be mixed with the oats. If the ground is not too rich the rape will not interfere with the oat crop or lessen the yield to any great extent. After harvesting oats, rape will come on rapidly and in a few weeks be of sufficient height to pasture. If sown on rich ground in a wet season the rape will interfere with the grain crop.

D. Sow one acre or more broadcast, without dragging, when oat crop is from two to four inches in height. Sow about four pounds of rape seed per acre, and if possible, before or immediately after a shower. This method is especially recommended on low rich soils.

Amount of Seed Necessary.—When sown in drills, three pounds per acre is sufficient, when broadcast, on small areas, five or six pounds should be used; when sown with oats at the time of seeding use about one pound per acre mixed with the seed oats.

By reserving ten feet square or one square rod and cutting rape when about eighteen inches or two feet in height, then weighing, the amount of green fodder per acre can be readily determined.

Rape should be cut about four inches from the ground in order to get best results for next crop.

If season is favorable you will succeed in getting three cuttings of rape from the same plot if it is sown early and alone.

Where the object is to fatten sheep for the market, a small grain ration should be fed at regular intervals.

REPORT BLANK, EXPERIMENT NO. 7. A.

Sowing Rape Broadcast on Oat Field and Dragging Ten or Twelve Days after Seeding with Oats.

Name of experimenter.....
P. O.....; County.....; State.....

1. Date of sowing oats.....
2. Date of sowing rape.....
3. What variety of rape used?.....
4. Amount of seed used per acre.....
5. Nature of soil.....
6. How prepared?.....
7. What height were the oats when rape was sown?.....
8. Did dragging materially injure the oat crop from first observation?
9. When were the rape plants first noticeable?.....
10. When were the oats cut?.....
11. How did the yield of oats compare with the yield on land where no rape was seeded?.....
12. How long after oats were cut before rape was fit for feeding purposes?.....
13. How many and what kind of animals did you pasture upon the rape?.....
14. Did you feed a grain ration also?.....
15. Did animals fed upon the rape thrive?.....
16. Were the rape plants affected by any insect enemies or fungus disease?.....
17. Approximately, how much green fodder did the rape produce per acre?.....
18. Did you notice any detrimental effects from the feeding of rape?.....
19. Briefly give your opinion as to the value of rape as a soiling crop.....

REPORT BLANK, EXPERIMENT NO. 7. B.

Sowing Rape with Drill.

Name of experimenter.....
P. O.....; County.....; State.....

1. Date of sowing.....
2. What variety?.....
3. Width between rows?.....
4. Amount of seed used per acre?.....
5. Nature of soil?.....
6. How prepared?.....
7. How long after sowing was rape fit for feeding purposes?..
8. How many and what kind of animals did you pasture upon rape? .....
9. Did you feed a grain ration also?.....
10. Did animals fed upon the rape thrive?.....
11. Approximately, how much green fodder did the rape produce per acre?.....
12. Did you notice any detrimental effects from the feeding of rape?.....
13. Briefly give your opinion as to the value of rape as a soiling crop.....

REPORT BLANK, EXPERIMENT NO. 7. C.

Sowing Rape on Plot with Oats in Accordance with Directions Given on Information Sheet.

Name of experimenter.....
P. O.....; County.....; State.....

1. Date of sowing.....
2. What variety of rape used?.....
3. Nature of soil?.....
4. Amount of seed used per acre?.....
5. How prepared?.....
6. When were the rape plants first noticeable?.....
7. When were the oats cut?.....

8. Did the rape interfere in any way with the growth of the oats?.....
9. Did you experience any difficulty in cutting and binding oats on plot where rape was sown?.....
10. Did the rape interfere with the drying out of the bundles?.
11. How long after oats were cut before rape was fit for feeding?.....

Which, in your opinion, is preferable, sowing the rape at the time of sowing oats or after the oats have reached the height of one or two inches?.....

REPORT BLANK, EXPERIMENT NO. 7. D.

Rape Sown Broadcast without Dragging, When Oat Crop is from 2 to 4 Inches in Height; Immediately Before or after a Shower.

Name of experimenter.....
P. O.....; County.....; State.....

1. Date of sowing oats.....
2. Date of sowing rape.....
3. What variety of rape used?.....
4. Amount of seed used per acre?.....
5. Nature of soil?.....
6. How prepared?.....
7. Did you sow rape seed immediately before or after a shower?.....
8. When were the rape plants first noticeable?.....
9. When were the oats cut?.....
10. How did the yield of oats compare with the yield on land where no rape was seeded?.....
11. How long after oats were cut before rape was fit for feeding purposes?
12. How many and what kind of animals did you pasture upon the rape?.....
13. Did you feed a grain ration also?.....
14. Did animals fed upon the rape thrive?.....
15. Approximately, how much green fodder did the rape produce per acre?.....

16. Did you notice any detrimental effects from the feeding of rape? .....
18. Briefly give your opinion as to the value of rape as a soiling crop .....

Experiment No. 8.

Soy Beans.

The soy bean was probably introduced into the United States from Japan about fifty years ago and has been cultivated with success in the southern states. In Japan it is used extensively as a human food, but in this country it is grown for the seed, as a forage plant, and as a soil renovator. As a forage its use as a soiling crop is becoming recognized, by stockmen and dairymen, as it withstands the drought exceptionally well and will give a good cutting of green forage at the time when other feeds are shriveled and wilted. Soy beans of the late variety gave a cutting of 9.9 tons green forage per acre at the Wisconsin Experiment Farm in 1900 and yielded thirty-eight bushels of seed beans per acre in 1902, and forty bushels per acre in 1903. It makes an excellent hay, and at the Kansas Station a yield of about three tons of cured hay per acre was secured.

Like the clover, the soy bean is a nitrogen gatherer and enriches the soil on which it is grown. It is said to grow on soil quite low in fertility, but a mellow, fairly rich soil is preferable. It requires a well drained porous soil; in no case should the seed be sown on low ground that is saturated with water during most of the growing period or on a heavy clay soil that is inclined to bake.

When sown for hay or a soiling crop, a drill or broadcast seeder can be used to advantage. If sown for seed, use a corn or bean planter and sow in drills about thirty inches apart and about three inches apart in the drill. When planted in drills as described, from two to three pecks of seed per acre will be used.

Soy beans should not be planted while the gound is cold; immediately after corn planting is a favorable time.

Sow in accordance with suggestions above given, for growing soy beans for seed, one-tenth of an acre.

When desired for hay, soy beans should be cut when the pods are partly developed. Try a few square rods sown broadcast for a soiling crop and for hay. When grown for seed they should be harvested and threshed as our common variety of beans and put in a large open bin and shoveled over frequently to avoid heating.

If you have a silo try soy beans with corn. Plant in drills with the corn planter using one-third soy beans and two-thirds corn mixed. When planting with corn for the silo use the Medium Green variety as this variety is noted for its great leaf development. No difficulty will be experienced cutting the soy beans with the corn harvester at the time of harvesting corn. For pasture, hay or seed the Ito San variety will give excellent satisfaction and will usually ripen before the fall frosts.

Secure a sack of inoculated soil from the Experiment Station and scatter on a portion of the field that you desire to plant to soy beans, and note the development of nodules. The roots of the soy bean plants growing on that part of the field where the bacteria-laden ground is scattered will have numerous nodules attached to them which decay in the fall and add much fertility to the soil. When a few square rods of ground are inoculated and soy beans are grown thereon, henceforth ground can always be secured from this source of supply to scatter on other fields where the desire is to have the nodules develop.

REPORT BLANK, EXPERIMENT NO. 8.

Soy Beans.

Name of experimenter .....

P. O. .....; County .....; State.....

1. Date of planting soy beans.....
2. Character of soil.....
3. What crop had been grown the previous year?.....

4. Was the land used, fall or spring plowed?.....
5. Give your method of planting.....
6. How long after planting were beans first noticeable?.....
   .....
7. Give your method of cultivation.....
8. Did you try a few square rods for forage?.....
9. How many pounds of green forage did you cut from a square rod?.....
10. How many pounds of cured hay did you get from a square rod? .....
11. Did the stock eat the green and cured forage readily?.....
12. What kind of stock did you feed it to?.....
13. Did the beans left for seed ripen evenly?.....
14. Date of harvesting.....
15. Manner of harvesting.....
    .....
    .....
16. Method of threshing.....
17. Yield per acre of marketable seed beans.....
18. Did you use any bacteria-laden soil for inoculation purposes? .....
19. Were nodules noticeable on the roots of the soy beans at any time during the growing period where such soil was used? .....
20. Were they noticeable where the soil was not used?.....
21. Date of sending report.....
22. Give in a general way your opinion of soy beans as a seed and forage plant for Wisconsin.....
    .....
    .....
    .....
    .....
    .....

BUSINESS MEETING.

Business meeting of the Wisconsin Agricultural Experiment Association, Thursday, February 9th, 1906, 8:30 A. M., Agricultural Hall.

Called to order by the president, A. L. Stone. The minutes of the last meeting were read and adopted, after which the following officers were elected:

President—A. L. Stone, Madison.

Vice-President—H. A. Main, Ft. Atkinson.

Secretary—R. A. Moore, Madison.

Treasurer—P. A. Dukleth, R D. 40, Mukwonago.

The subject relating to admittance to the association of persons in the state, who have completed in some agricultural college a course equivalent to that given by the Wisconsin College was discussed, and on motion by Mr. Hanchett was adopted as an amendment to the constitution.

Resolutions:—The following resolution was reported by the committee, and unanimously adopted:

Whereas, The Congressional grant known as the Hatch Act, providing for the establishment of an Experiment Station in each state of the Union, has brought untold good to the agricultural interests of this country, and

Whereas, There is now pending in Congress a bill (H. R. 345) providing for an additional appropriation for experiment stations created under the Hatch Act,

Be it Resolved, That the Wisconsin Agricultural Experiment Association hereby endorses said bill and urges its early passage.

Resolved, That the Secretary of this Association be and is hereby directed to forward a copy of these resolutions to each Representative of Wisconsin, in Senate and House of Representatives.

SECRETARY'S REPORT ON STATE APPROPRIATION.

R. A. Moore, Secretary of the Association, made the following financial report which was duly adopted.

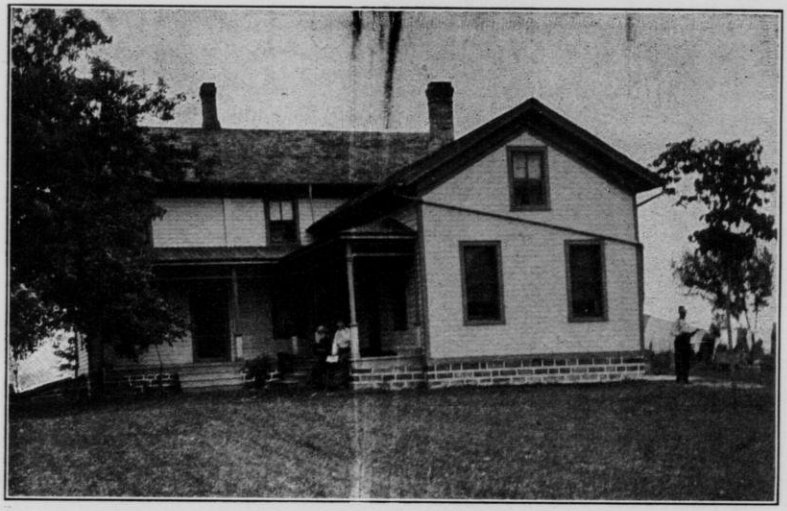
RECEIPTS, 1905.

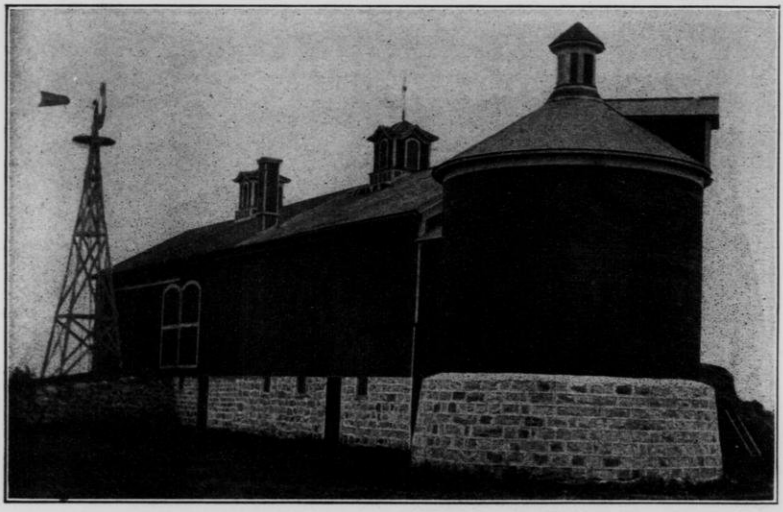
Money in state treasury, Feb. 9, 1905, time of making last report	$656 71
Amount due not used from May 1, 1903, to June 30, 1903	165 00
State appropriation for 1905	1,000 00
Total	$1,821 71

DISBURSEMENTS.

1905.		
Feb. 15.	Cantwell, for cards, blanks, etc	$9 75
Feb. 20.	Bags, printing, etc., Milwaukee Bag Co.	30 37
Feb. 23.	Salzer Co., 1,000 pounds alfalfa	141 26
Feb. 24.	Miss Bibbs, for clerical services	5 00
Mar. 7.	Milwaukee Bag Co., for bags	8 08
Mar. 9.	Salzer Seed Co., 2,000 pounds alfalfa	282 52
Mar. 9.	Democrat Printing Co., 1,100 programs	17 00
Mar. 30.	Miss Bibbs, for clerical services	5 00
Mar. 28.	Eight hundred pounds of alfalfa	112 90
May 1.	Miss Bibbs, for clerical services	5 00
May 1.	Envelopes and letter heads	22 00
June 26.	Miss Bibbs, for clerical services	5 00
July 5.	To R. A. Moore, traveling expenses	25 49
July 8.	To Democrat Printing Co., envelopes	15 00
July 24.	To Miss Bibbs, for clerical services	5 00
Aug. 2.	To Democrat Printing Co., 5,000 envelopes	5 00
Aug. 7.	To E. C. Nielson (photographs)	7 20
Aug. 29.	To Miss Bibbs, for clerical services	5 00
Sep. 5.	To E. C. Nielson, developing films	9 13
Sep. 7.	To Whitall Tatum Co., glassware	23 24
Sep. 9.	To E. W. Keyes, for stamps	100 00
Sep. 12.	To A. L. Stone, representing Association at State Fair	7 44

Sep. 20.	Amount forwarded	846 38
Sep. 20.	To R. A. Moore, Sauk County lecture tour	12 29
Sep. 27.	To Miss Bibbs, for clerical services.....	5 00
Sep. 30.	To Chas. Scribners Sons, 3 vols. Illus. Flora	11 00
Oct. 5.	To C. N. W. R. R. charges on 3 crates, bottles	2 37
Oct. 9.	To Wis. Exp. Sta., 500 bushels of barley.	250 00
Oct. 19.	To. R. A. Moore, traveling expenses.....	16 53
Oct. 28.	To Miss Bibbs, for clerical services.....	5 00
Nov. 6.	To Cantwell Printing Co., 60 cases at 10c., 1 vol. bound.....	6 50
Nov. 28.	To Miss Bibbs, for clerical services.....	5 00
Dec. 26.	To R. A. Moore, traveling expenses.....	8 40
1906.		
Jan. 2.	To Miss Bibbs, for clerical services.....	5 00
Jan. 17.	To J. E. Moseley, 8 doz., films.....	7 20
Jan. 18.	To E. W. Keyes stamps.....	100 00
Jan. 19.	Salzer Seed Co., La Crosse, alfalfa.....	292 52
Jan. 29.	To Miss Bibbs, for clerical services.....	5 00
	Total	$1,578 19
1906.		
Jan. 29.	Total receipts in State Treasury.....	$1,821 71
	Total disbursements from State Treasury..	1,578 19
	Balance in State Treasury.....	$ 243 52





Residence and farm buildings, Silver Lake Stock Farm, Dukleth & Son, owners and managers, Big Bend, Waukesha County.

TREASURER'S REPORT.

P. A. Dukleth, Treasurer of the Association, made the following report which was duly accepted.

Report as rendered by Treasurer, February 9th, 1906.

RECEIPTS.

Money in treasury February 9, 1905, time of last meeting		$209 52
Feb. 9.	From members as fees	1 50
Feb. 10.	From member as fee	50
Feb. 12.	From President as membership fees	4 50
Feb. 14.	From Clerk as membership fees	1 00
Feb. 27.	From Secretary as membership fees	30 00
Mar. 28.	From members as fees	1 00
Apr. 6.	From member as fee	50
Apr. 12.	From Secretary as membership fees	50 00
June 2.	From Secretary as membership fees	23 50
1906.		
Jan. 21.	From Secretary as membership fees	4 50
Jan. 27.	From Secretary as membership fees	100 00
Jan. 27.	From member as fee	50
Feb. 8.	From Clerk as membership fees	88 00
Feb. 8.	From members as fees	6 00
	Total Receipts	$521 02

1905. DISBURSEMENTS.

Feb. 10.	To T. S. Hamilton for premium on grain	50
Feb. 10.	To Will Raichle for premium on grain	50
Feb. 10.	To A. E. Howard for premium on grain	1 00
Feb. 10.	To W. H. Stantorf for premium on grain	3 00
Feb. 10.	To M. Thompson for premium on grain	2 00
Feb. 10.	To G. Muehliesen for premium on grain	2 00
Feb. 10.	To A. Suhr for premium on grain	2 00
Feb. 10.	To Ray West for premiums on grain	10 00
Feb. 10.	To J. H. McNown for premiums on grain	8 00
Feb. 10.	To Howard Capener for premiums on grain	2 00
Feb. 10.	To C. H. Nevins for premiums on grain	2 00
Feb. 10.	To Geo. Morris for premium on grain	2 00
Feb. 10.	Amt. forwarded	35 00

Feb. 10.	To amount forwarded	35 00
Feb. 10.	To O. C. Feathers for premiums on grain.	5 00
Feb. 10.	To S. J. Stienstra for premium on grain.	3 00
Feb. 10.	To A. F. Rosenow for premiums on grain	6 50
Feb. 10.	To H. E. Rosenow for premiums on grain	6 00
Feb. 10.	To Clyde Spaulding for premium on grain	50
Feb. 10.	To Arthur Cooper for premium on grain .	3 00
Feb. 10.	To Otto Toepfer for premiums on grain	6 00
Feb. 10.	To Renk Bros. for premiums on grain...	7 00
Feb. 10.	To R. J. Schaefer for premiums on grain	2 00
Feb. 10.	To A. B. Hicken for premium on grain ..	50
Feb. 10.	To R. B. Snyder for premium on grain...	2 00
Feb. 10.	To J. M. Keys for premiums on grain ...	4 50
Feb. 10.	To J. M. Leach for premium on grain....	1 00
Feb. 10.	To Miss Elsie Taylor attending meeting.	10 50
Feb. 10.	To Miss Mabel Taylor speaking at meeting	8 66
Feb. 10.	To W. L. Illian for premium on grain...	2 00
Feb. 10.	To J. M. Larson for premium on grain...	1 00
Feb. 10.	To A. W. Saxe for premium on grain ...	1 00
Feb. 10.	To L. L. Olds for judging grains and forage plants	9 10
Feb. 10.	To Supt. O. J. Kern for traveling expenses attending meeting	6 00
Feb. 10.	To W. E. Markey for premium on grain..	50
Feb. 10.	To Rufus Gillette for premiums on grain	1 00
Mar. 31.	To Milwaukee Bag Co., for sacks	20 00
Apr. 12.	To Milwaukee Bag Co., for bags	12 84
Apr. 12.	To J. A. Salzer Seed Co., for seed and sacks	29 96
Apr. 17.	To R. A. Moore traveling expenses	3 93
May 22.	To Whital Tatum Co., for grain jars....	12 93
May 30.	To Miss Bibbs for clerk services	5 00
June 2.	To Albert Bilkey for return of membership	50
June 26.	To James E. Moseley, camera and supplies	25 20
Sept. 20.	To R. A. Moore for expenses connected with the Ass'n work	1 80
Sept. 20.	To Miss Bibbs for office expenses....	10 00
1906.		
Jan. 24.	To Whitehead & Hoag Co., for badges..	76 80
Jan. 27.	To Miss Bibbs for office expenses	10 00
	Total disbursements	$330 72

Feb. 9. Fwd. Total receipts	$521 02
Total disbursements	330 72
Balance in hands of Treasurer	$190 30

AGRICULTURAL ENGINEERING.

CHAS. A. OCOCK, MADISON.

Members of the Experiment Association:

Last year we had in mind several lines of work that we wished to take up, but owing to several reasons we were unable to go into any one line very far. The subject of stable ventilation has been dropped for the time being, but will probably be taken up later. The subject is one which will bear a large amount of study, and we believe should be taken up very thoroughly, since there are so many of our farmers who under-estimate the King system of ventilation.

Work was started last year by Professor Knapp along the line of re-enforced concrete fence posts as compared with wood, regarding both cost and stability. This was interrupted, but will probably be continued in the future.

The line of farm machinery is more difficult to experiment with because in so doing, the manufacturers would feel they had reasons for complaint. Therefore, it was thought best to learn from the members of the Experiment Association something regarding the number of farm machines used by the average farmer in Wisconsin. In order to do this, the following report blank was sent out to one hundred and fifty-eight members of the Association.

REPORT BLANK.

Wisconsin Agricultural Experiment Association.

Name .....P. O.....
..... County ..... State .....
What lines of farming do you follow?.....
What kinds of soil in your locality?.....

Please fill out the following blanks so far as possible, with reference to the kind and manufacture of implements used.

	Kind.	Manufacture.
Plows,	.....	.....
Harrows,	.....	.....
Disc harrows,	.....	.....
Grain drills,	.....	.....
Grain seeders,	.....	.....
Corn planters,	.....	.....
Corn plows,	.....	.....
Potato planters,	.....	.....
Potato diggers,	.....	.....
Mowers,	.....	.....
Hayrakes,	.....	.....
Hayloaders,	.....	.....
Haypresses,	.....	.....
Grain binders,	.....	.....
Corn binders,	.....	.....
Grain separators,	.....	.....
Traction engines	.....	.....
Corn huskers and shredders,	.....	.....

How many farmers out of every ten in your locality house their implements in suitable sheds when not in use?.....

How many farmers in your locality do not house their implements at all, but leave them out in the weather?.....

This information is desired as an aid in the study of the farm machinery of the state. All information will be treated as strictly confidential and will not be given to outside parties.

Counties from which reports were received	Barron.	Buffalo.	Clark.	Crawford.	Dane.	Door.	Eau Claire.	Grant.	Green Lake.	Iowa.	Jackson.	Juneau.	Kewaunee.	La Crosse.	La Fayette.	Milwaukee.	Monroe.	Outagamie.	Oconto.	Rock.	Sauk.	Sheboygan.	St. Croix.	Vernon.	Walworth.	Waukesha.	Waupaca.	Waushara.	Winnebago.	Total.
No. reporting from county	1	3	1	1	5	3	1	1	3	1	1	3	1	3	1	1	3	3	1	1	3	1	3	1	1	5	1	1	3	50
Plows (walking)					6		1	1	3	1	1	3	1	3	1	1	3	4	1	1	3	1	3	1	1	3	1	1	3	60
Plows (sulky)	1				4				1					1				1												21
Plows (gang)		1			1		1		2		1	3	1	3	1	1	3	3	1		3	1	3	1	1	3	1	1	4	7
Harrows (smoothing)	1	3	1	1	6	3	1	1	2	1	1	3	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	52
Harrows (disk)	1	2	1	1	4	3	1	1	2	1	1	3	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	38
Grain drills	1	2	1	1	3	*3	1	1	2	1	1	3	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	31
Grain seeders																														36
Corn planters (hand)	1				5			*1	2	1	1	*3		1	*1					1			*1							10
Corn planters (two row)	*1																		1				1	1						40
Cultivators (walking)	1	2	1	1	7	3	1	1	2	1	1	3	1	3	1	1	4	3	1	1	3	1	3	1	1	3	1	1	3	6
Cultivators (riding)		2				3			2		1	3		3		1	3	3	1	1	3	1	3	1	1	3	1	1	3	48
Potato planters	1	2	1	1	6	3	1	1	2	1	1	3	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	17
Potato diggers		3				3			2		1	4	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	13
Mowers	1	3	1	1	6	3	1	1	2	1	1	4	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	59
Hay rakes	1	3	1	1	6	3	1	1	2	1	1	4	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	52
Hay loaders	1	3	1	1	6	3	1	1	2	1	1	4	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	24
Hay presses	1	3	1	1	6	3	1	1	2	1	1	4	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	7
Grain binders	1	3	1	1	6	3	1	1	2	1	1	4	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	53
Corn binders		1			4	3			2		1	4		3		1	3	3	1	1	3	1	3	1	1	3	1	1	3	42
Grain separators	1	3	1	1	3	3	1	1	2	1	1	4	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	63
Traction engines		1			3	3			2		1	4		3		1	3	3	1	1	3	1	3	1	1	3	1	1	3	26
Corn huskers & shredders	1	3	1	1	3	3	1	1	2	1	1	4	1	3	1	1	3	3	1	1	3	1	3	1	1	3	1	1	3	24
Machines in suitable sheds	9	1	7	5	8	8	9	9	9	9	9	5	5	7	5	7	8	8	8	8	8	9	7	9	5	7	7	8	8	207
Those who never house	0	+	1	5	1	1	1	1	1	0	1	4	0	3	5	1	3	1	1	+	8	0	1	1	2	2	0	0	1	45

*Check rowers. † No report.

We wish to thank those members who so kindly filled out the blanks and returned the same, as it has given us opportunity to make a report to the Association; otherwise there could be no report.

It was thought best to withhold the names of those reporting, also the names of machinery manufacturers. As will be seen in the following table, it was necessary to make some changes from the report blank. This suggests sending out new blanks with a more complete list of farm machines.

The stars in the table represent checkrow corn planters. The daggers represent those not reporting the per cent who shelter or do not shelter their farm tools.

It is hoped the members of the Association will be interested in sending in the report blanks the coming year, in order to insure a more complete report.

DISPLAY OF GRAINS AND FORAGE PLANTS FOR 1906.

R. A. MOORE.

Perhaps one of the most attractive features of the last annual meeting of the Experiment Association was the display of grains and forage plants. Approximately two hundred dollars had been set aside for premiums to be paid for the best exhibits of pure-bred seed grains. The quality of the grain displayed was of a very high standard and the interest taken in the exhibit was such that the Association deems it advisable to continue this line of effort.

We feel that much can be done in the way of encouraging the dissemination of good seed that has been grown in our own state.

As soon as the Experiment Association demonstrates to the seedsmen and farmers of Wisconsin that good seed can be grown within our borders which is acclimated to our home conditions, it will not be necessary for them to place their orders with growers from other states. The seedsmen of our state and of adjoining states will be only too pleased to assist in the dis-

Exhibition of grains and forage plants grown by members of the Wisconsin Agricultural Experiment Association, season of 1905. Competing for premiums at the Fifth Annual Meeting, February, 1906.

semination of home grown seeds if they can be shown that the quality is equally as good or better than they can get elsewhere. Realizing the great improvement that can be made in the growing of farm crops we trust that every member of the association will do all in his power to assist in every possible manner in the production of choice grains and forage plants for our next display.

MEMBERS AWARDED PREMIUMS AT THE WISCONSIN AGRICULTURAL EXPERIMENT ASSOCIATION MEETING, FEB. 8TH AND 9TH, 1906.

Class 1a.—Best ½ peck Swedish Select Oats (Wisconsin No. 4).

First premium	—V. G. Ellis, Evansville, Wis.	$3 00
Second "	—H. F. Kramer, Bloomer, Wis.	2 00
Third "	—Otto Toepfer, Madison, R. F. D. No. 6, Wis.	1 00
Fourth "	—O. C. Feathers, Manawa, Wis.	50

Class 1b.—Best ½ peck any other variety oats.

First premium	—R. N. West, Ripon, Wis.	$3 00
Second "	—Henry B. Smith, Brooklyn, Wis.	2 00
Third "	—Fred P. Grebe, Randolph, Wis.	1 00
Fourth "	—Alvin M. Anderson, Whitewater, Wis.	50

Class 2a.—Best bundle Swedish Select Oats in sheaf.

First premium	—G. Muehleisen, Tell, Wis.	$3 00
Second "	—H. E. Rosenow, Oconomowoc, Wis.	2 00
Third "	—W. L. Illian, Adell, R. F. D. No. 19, Wis.	1 00
Fourth "	—R. N. West, Ripon, Wis.	50

Class 2b.—Best bundle any other variety oats in sheaf.

First premium	—Fred P. Grebe, Fox Lake, Wis.	$3 00
Second "	—R. N. West, Ripon, Wis.	2 00
Third "	—Sam Herdrich, Adell, Wis.	1 00
Fourth "	—O. C. Feathers, Manawa, Wis.	50

Class 3a.—Best ½ peck Manshury Barley.

First premium	—C. H. Howitt, Randolph, Wis.	$3 00
Second "	—R. N. West, Ripon, Wis.	2 00
Third "	—Clarence Jordalen, Stoughton, Wis.	1 00
Fourth "	—Herman Roethel, Kiel, Wis.	50

Class 3b.—Best ½ peck Oaerbrucker Barley.

First premium	—J. P. Bonzelet, Eden, Wis.	$3 00
Second "	R. J. Schaefer, Appleton, R. F. D. No. 1, Wis.	2 00
Third "	—Alex. Krueger, Watertown, Wis.	1 00

Class 3c.—Best ½ peck any other variety of barley.

First premium	—R. N. West, Ripon, Wis.	$3 00
Second "	—Fred P. Grebe, Fox Lake, Wis.	2 00
Third "	—H. N. Longley, Dousman, Wis.	1 00
Fourth "	—Ivan McIntyre, Ft. Atkinson, Wis.	50

Class 4a.—Best bundle of Manshury Barley in sheaf.

First premium	—H. E. Rosenow, Oconomowoc, Wis.	$3 00
Second "	—C. H. Howitt, Randolph, Wis.	2 00

Class 4c —Best bundle of any variety of barley in sheaf.

First	premium	—H. E. Rosenow, Oconomowoc, Wis.	$3 00
Second	"	—Fred P. Grebe, Fox Lake, Wis.	2 00
Third	"	—W. L. Illian, Adell, R. F. D. No. 19, Wis.	1 00

Class 5a.—Best ten ears Clark's Yellow Dent Corn.

First	premium	—C. H. Howitt, Randolph, Wis.	$3 00
Second	"	—G. C. Morris, Ridgeway, Wis.	2 00
Third	"	—Jas. B. Smiley, Albany, Wis.	1 00
Fourth	"	—Louis Risum, Brodhead, Wis.	50

Class 5b.—Best ten ears Silver King (Wisconsin No. 7).

First	premium	—H. E. Rosenow, Oconomowoc, Wis.	$3 00
Second	"	—L. P. Martiny, North Freedom, Wis.	2 00
Third	"	—Samuel Stienstra, Galena, Illinois	1 00
Fourth	"	—Earl J. Fruit, Arthur, Wis.	50

Class 5c —Best ten ears Wisconsin No. 8.

First	premium	—O. R. Frauenheim, Random Lake, Wis.	$3 00
Second	"	—W. O. Christianson, Chippewa Falls, Wis	2 00
Third	"	—H. W. Meekin, Fond du Lac, Wis.	1 00

Class 5d —Best ten ears North Star Yellow Dent.

First	premium	—W. A. Toole, Baraboo, Wis.	$3 00
Second	"	—Howard Palmer, Baraboo, Wis.	2 00
Third	"	—R. N. West, Ripon, Wis.	1 00
Fourth	"	—Floyd McKichan, Patch Grove, Wis.	50

Class 5e.—Best ten ears Yellow Flint.

First	premium	—Geo. M. Hanson, Fontenoy, Wis.	$3 00
Second	"	—Alvin M. Anderson, Whitewater, Wis.	2 00
Third	"	—W. H. Stantorf, Barnum, Wis.	1 00
Fourth	"	—A. L. Greengo, Menomonee Falls, Wis.	50

Class 5g.—Best ten ears any other variety of corn.

First	premium	—Clyde Akins, Warren, Illinois	$3 00
Second	"	—Arthur Cooper, Elizabeth, Illinois	2 00
Third	"	—J. M. Keys, Richland Center, Wis.	1 00
Fourth	"	—H. L. Spink, Platteville, Wis.	50

Class 5h —Best single ear of corn, any variety.

First	premium	—Arthur Cooper, Elizabeth, Illinois	$3 00
Second	"	—J. F. Koltes, Dane, Wis.	2 00
Third	"	—C. H. Howitt, Randolph, Wis.	1 00
Fourth	"	—Clyde Akins, Warren, Illinois	50

Class 6a.—Best ½ peck of Medium Red Clover Seed.

First	premium	—J. H. McNown, Mauston, Wis.	$3 00
Second	"	O. R. Frauenheim, Random Lake, Wis.	2 00
Third	"	—W. L. Illian, Adell, R. F. D. No. 19, Wis.	1 00

Class 6b.—Best ½ peck of Mammoth Red Clover Seed.

First	premium	—J. H. McNown, Mauston, Wis.	$3 00

Class 6c.—Best ½ peck of Alsike Clover Seed.

First	premium	—H. W. Meekin, Fond du Lac, Wis.	$3 00
Second	"	—J. H. McNown, Mauston, Wis.	2 00
Third	"	—W. L. Illian, Adell, R. F. D. No. 19, Wis.	1 00

Class 7a —Best ½ peck Soy Beans.

First premium	—F. P. Grebe. Fox Lake, Wis.	$3 00
Second "	—Arthur Rosenow, Oconomowoc, Wis.	2 00
Third "	—O. R. Frauenheim. Random Lake, Wis.	1 00

Class 8a.—Best bundle of Soy Beans in sheaf.

First premium	—Arthur Rosenow, Oconomowoc, Wis.	$3 00
Second "	—P. A. Dukleth, Mukwonago, Wis.	1 00
Third "	—Fred P. Grebe, Fox Lake, Wis.	1 00

Class 9a.—Best ½ peck of Alfalfa Seed.

First premium	—H. W. Meekin, Fond du Lac, Wis.	$5 00

Class 10a.—Best sample of Alfalfa Hay.

First premium	—Samuel Stienstra, Galena. Ill.	$3 00
Second "	—A. B. Hicken, Waukesha, R. F. D. No. 7, Wis.	2 00
Third "	—Louis Risum, Brodhead, Wis.	1 00

PREMIUM LIST, 1906.

(Awards to be made February, 1907.)

DEPARTMENT OF FARM CROPS.

Class 1. Oats.

Best ½ peck Swedish Select oats (Wis. No. 4) $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ½ peck any other variety, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Class 2. Oats in Sheaf.

Best bundle Swedish Select oats, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best bundle any other variety, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Class 3. Barley.

Best ½ peck Manshury Barley, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ½ peck Oderbrucker Barley, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ½ peck any other variety, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Class 4. Barley in Sheaf.

Best bundle of Manshury Barley, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best bundle of Oderbrucker Barley, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best bundle of any other variety, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Class 5. Corn.

Best ten ears, Clark's Yellow Dent (Wisconsin No. 1), $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ten ears, Silver King (Wis. No. 7), $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ten ears, (Wisconsin No. 8), $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ten ears, North Star Yellow Dent, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ten ears, Yellow Flint, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ten ears, White Flint, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ten ears, any other variety, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best single ear of corn, any variety, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Class 6. Clover Seed.

Best ½ peck of medium red clover seed, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ½ peck of mammoth red clover seed, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Best ½ peck of alsike clover seed, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Class 7. Soy Beans.

Best ½ peck soy beans, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Class 8. Soy Beans in Sheaf.

Best bundle of soy beans, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Class 9. Alfalfa Seed.

Best ½ peck of alfalfa seed, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

Class 10. Alfalfa Hay.

Best sample of alfalfa hay, $3.00; 2nd, $2.00; 3rd, $1.00; 4th, 50 cents.

RULES AND REGULATIONS UNDER WHICH PREMIUMS ARE GIVEN.

1. The exhibitor must be a member of the Wisconsin Experiment Association.
2. Grain or forage plants must have been grown the season previous to exhibition by the exhibitor.
3. No fees will be charged for exhibiting in any classes.
4. The samples of grain and forage plants exhibited are to be retained by the Experiment Association unless a special permit is given to the exhibitor to take his sample away.
5. Exhibits are to be brought in by members of the association. If sent by express or freight all carrying charges should be prepaid.
6. Varieties of grain or forage plants not specifically named in the list can compete as "any other variety" in which case these different varieties compete against each other and not as an individual class.
7. Exhibitors cannot compete for two premiums on the same variety of grain or forage plant.
8. A proper entry of all grains, seeds, etc., must be made in the entry book at the Secretary's office before they are placed on exhibition tables.
9. Expert judges will be secured to place the awards.
10. The meeting of the association will be held at Madison in the Agronomy Building and rooms have been secured in that building for the exhibits.

WISCONSIN CORN STUDY.

How to Improve the Corn Crop.

PROF. R. A. MOORE.

Wisconsin grows but thirty bushels of corn per acre; we should grow sixty and above on our better farms, and more than thirty on our poorer farms. An increase of ten bushels per acre would mean five million dollars worth of additional corn for our farmers annually. Our sister states have seized the opportunity afforded them by following the gospel of truth extended to them by Professors Holden, Hopkins, Lyons, and others, and the yields of corn by many farmers have been raised approximately fifty per cent. Now it is up to Wisconsin to do likewise.

For improvement of yield we should observe careful selection of seed ears when stalk study is permissible. The ears should not be taken from the stalks until well matured. Seed corn should not be dumped on a floor, but hung in a well ventilated room or top of corn crib to dry. A well ventilated furnace room is an admirable place to cure corn. A small outside building, well ventilated, with corn racks arranged and shielded stove in center of room is preferable for drying large amounts of seed corn. After seed corn is well dried, it will stand cold weather without serious results.

The ear we desire should be cylindrical and true to type; tapering ears are objectionable as they do not carry uniform kernels. Kernels should be of medium depth and of practically the same width from butt to tip of ear with edges fitting closely from crown to cob. Ears having sixteen to twenty rows are preferable for our latitude as by carrying that number of rows, they dry out more readily than if carrying more. A slightly roughened seed coat is desirable and the corn should come well down around the shank, which should be of medium size. The tips of the ears should be fairly well filled, but do not discard the ear if a few tip kernels are missing when other good characteristics are present.

Ears should be of uniform size, 8 to 10 inches in length, and 6 to 7 inches in circumference. Uniformity in size of ear usually carries with it uniformity in size of kernels.

CORN BREEDING.

A Seed Corn Patch. Ten selected ears planted in rows separately to determine individuality and prepotency of different ears. Yield of seed corn of some rows five times as great as that of other rows.

The secret of good crops is largely in the seed. Only the best should be planted. No uniformity of stand can be secured unless seed has good germinating power. All corn of doubtful character should be tested. General test should first be made by taking at least two kernels from each of fifty ears and making test in simple plate tester. If test if from 96 to 100, strong and vigorous, and corn was cured under similar conditions, the farmer can be reasonably certain the corn is all right. Resort to the ear test, if general test is low, or if any doubt exists, as it will amply repay for time and trouble.

Before testing make a general selection of ears that have kernels of about the same size. Use the planter plate that will plant by check row system three or four kernels to a hill. Stay by the planter until it will drop four kernels eighty out of a possible one hundred times.

Shelled corn should not be purchased for seed. Every corn grower should insist on having seed corn shipped in the ear so that he can test the same before planting and discard it if of no value. There is no good reason why any honest seed corn dealer should refuse to sell corn in the ear.

The greatest corn improvement will be made from varieties that are already being grown within or in close proximity to our state. Standard varieties should be carefully bred and properly acclimated for various sections of our state, so that every farmer will have within easy reach corn especially acclimated for his locality. It is advisable that the farmer grow and cure his own seed corn, or purchase it in the ear from some one in his locality who has given special attention to that important line of effort.

SOME HELPFUL HINTS IN CORN STUDY.

As an aid to members of the Experiment Association, who will not have an opportunity to take up the systematic judging of corn, I will herewith give the score card used by the students in the college together with explanations and suggestions to emphasize corn improvement in Wisconsin.

WIS. OFFICIAL CORN SCORE CARD.

		1		2		3		4		5	
1 Trueness to Type or Breed characteristics	10										
2 Shape of ear	10										
3 Color: a. Grain	5										
b. Cob	5										
4 Market condition	10										
5 Tips	5										
6 Butts	5										
7 Kernels: a. Uniformity of	10										
b. Shape of	5										
8 Length of ear	10										
9 Circumference of ear	5										
10 Space: a. Furrow between rows	5										
b. Space between kernels at cob	5										
11 Percentage of Corn	10										
Total	100										

EXPLANATION OF POINTS IN CORN JUDGING.

1. *Trueness to Type or Breed Characteristics:* The ten ears of the sample should possess similar or like characteristics and should be true to the variety which they represent.
2. *Shape of Ear:* The shape of the ear should conform to variety type, tapering slightly from butt to tip, but approaching the cylindrical.
3. *Color: a. Grain; b. Cob.* Color of grain should be true to variety and free from mixture. White corn should have white cobs, yellow corn red cobs.
4. *Market Condition:* The ears should be sound, firm, well matured and free from mold, rot or injuries.
5. *Tips:* The tips of the ears should not be too tapering and should be well filled with regular uniform kernels.
6. *Butts:* The rows of kernels should extend in regular order over the butt, leaving a deep impression when the shank is removed. Opened and swelled butts are objectionable.

7. *Kernels: a. Uniformity of; b. Shape of.* The kernels should be uniform in shape, size and color, and true to the variety type. The kernels should be so shaped that their edges touch from tip to crown. The tip portion of the kernel is the richest in protein and oil, and hence of the highest feeding value. For this reason the tip portion should be full and plump.
8. *Length of Ear:* Northern section 8 to 9 inches, central section 8¼ to 9¼ inches, southern section 8½ to 9½ inches. Long ears are objectionable because they usually have poor butts and tips, broad, shallow kernels, and hence a low percentage of corn.
9. *Circumference of Ear:* Northern section 6 to 6½ inches, central section 6¼ to 6¾ inches, southern section 6½ to 7 inches.
10. *a. Furrow between rows; b. Space between furrows at Cob.* The furrow between the rows of kernels should be small. Space between kernels near the cob is very objectionable.
11. *Percentage of corn:* The percentage of corn is determined by weight; depth of kernels, size of cob and maturity all affect the percentage.

RULES TO BE USED IN JUDGING.

1. *Length of Ear*—The deficiency and excess in length of all ears not conforming to the standard should be added together, and for every inch thus obtained a cut of one point be made.
2. *Circumference of Ear*—The deficiency and excess in circumference of all ears not conforming to the standard should be added, and for every inch thus obtained a cut of one-half point should be made. Measure the circumference at one-third the distance from the butt to the tip of the ear.
3. *Percentage of Corn.*—Per cent of corn should be from 85 to 87. In determining the percentage of corn weigh and shell every alternate ear in the sample. Weigh the cobs and subtract from weight of ears, giving weight of corn. Divide the weight of corn by total weight of ears, which will give the per cent of corn.

For each per cent short of standard, a one-point cut should be made.

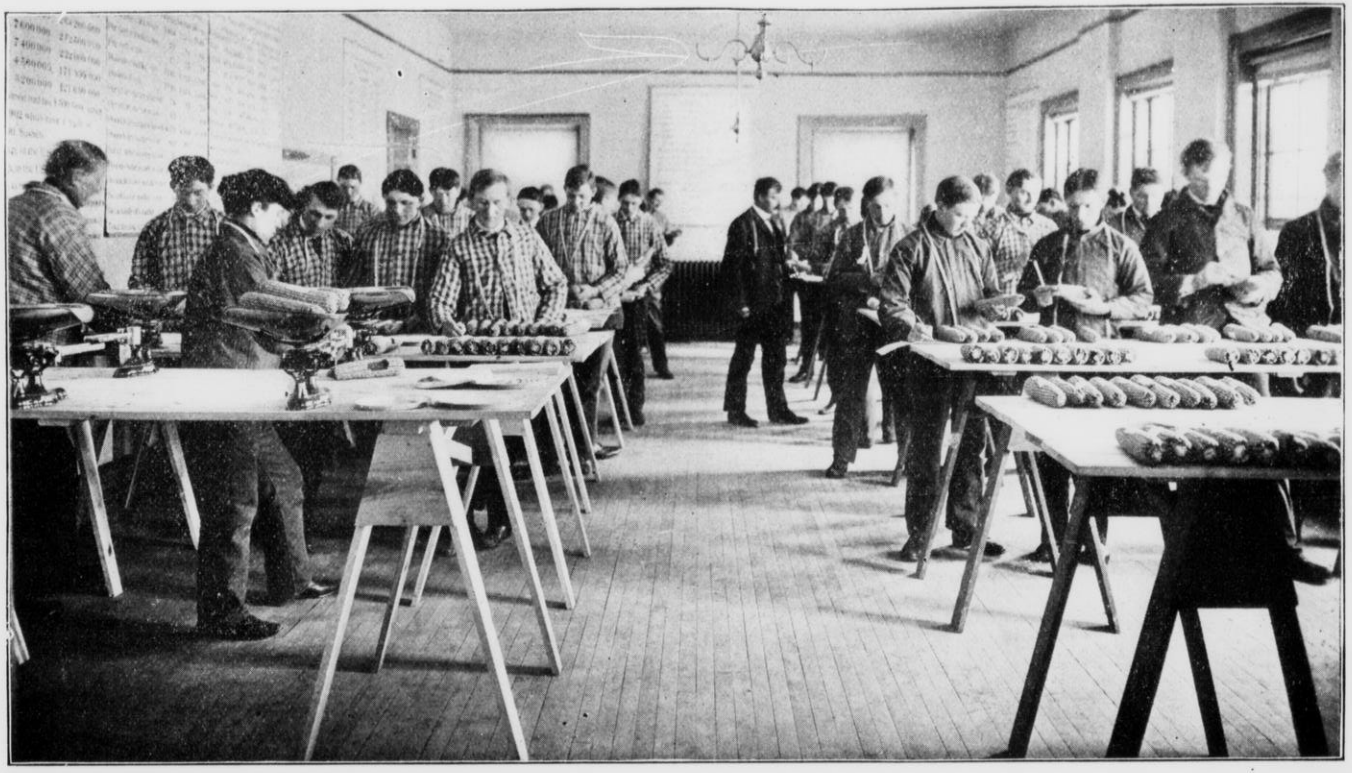
4. *Color of Corn and Cob*—A red cob in white corn, or a white cob in yellow corn, should be cut five points. For each mixed kernel, a cut of one-tenth point should be made. Kernels missing from the ear shall be counted as mixed. Difference in shade or color, as light or dark red, white or cream color, must be scored according to variety characteristics.
5. *Scoring Tips*—Where one inch of the cob is exposed, a cut of one-half point should be made, and a proportionate cut as the cob is less exposed. Regularity of the rows near the tip and the shape and size of the kernels must also be considered in scoring tips.
6. *Scoring Butts*—If the kernels are uniform in size and extend over the butt in regular order, give full marking. Small and compressed or enlarged or open butts are objectionable, as are also those with flat, smooth, short kernels, and must be cut according to the judgment of the scorer.
7. Ten ears of corn constitute a sample for scoring.

CORN JUDGING. LESSON I.

Trueness to Type or Breed Characteristics.

The study of corn like the study of stock is now taken up from a practical and scientific standpoint, and we trust will be carried forward to a successful issue. Score cards have been adopted by colleges in different states where the subject of corn judging is taught, with slight variations. By following the suggestions accompanying the score card and the general discussions given therein on the different divisions under which corn is judged one may become quite familiar and proficient in judging corn under the score card system.

Fairs and other associations where prizes are given for best display should provide that ten ears should be considered as a sample, as that number is now used at exhibitions in other states



Judging corn by the score card method. Short Course in Agriculture, University of Wisconsin.

and should become uniform throughout Wisconsin. This number is taken as it furnishes an easy basis for calculation. The samples of corn should be arranged on tables so that the judge can have easy access to the same, pass judgment in a comfortable position and have abundant space for comparison.

The first subject to be considered in judging a sample is trueness to type or breed characteristics, for which ten points are allowed if the sample is perfection. Corn like cattle belongs to a great family, this family being subdivided into species or types. We are interested in particular with the flint and dent species of corn which are grown generally. Other species we might mention are pop corn, pod corn, sweet corn, and soft corn. Each of the above species are divided into numerous breeds or varieties, which is brought about by the ingenuity of man combined with variation in climate, soil, cultivation, etc. The Dent corn is the great commercial corn of the United States, and that with which so much progress has been made by breeding during the past five or six years, consequently we will consider this corn specifically and the other groups generally.

The score card is arranged for Dent corn and the rules and suggestions given in connection with the score card refer to the Dent in general.

Different breeds of corn, like different breeds of cattle, have distinctive characteristics by which they are recognized. Those breeds having a particular color are easy to distinguish between, as Boone County White from Reid's Yellow Dent or either of these races from the Calico or Strawberry Dent. When one wishes to distinguish between breeds of the same color it is more difficult, and it is only by actual experience in handling and studying the markings that one can become proficient. The markings of pure breeds are quite distinct as the breeder working for improvement has been trying to make prominent one or more desirable characteristics. This is plainly noticeable in the Reid's Yellow Dent and the Leaming, two of the pure yellow breeds of Illinois. These varieties differ in the shade of color, the Reid's being a pale yellow while the Leaming is more highly colored, approaching an orange color. In other characteristics the Reid's Yellow Dent has a very cylindrical ear and furrows running from butt to tip, while the Leaming has more of a tapering ear and occasionally drops one or more furrows at the middle of the ear. Different seed coats are al-

lowable in the Reid's Yellow Dent, which may be either rough or smooth with a variation in the indentation from a round dimple dent to a wide narrow dent. The Leaming has a roughened seed coat which is characteristic of the breed. The breeds of the white corn like the yellow have certain characteristics peculiar to each, and are readily distinguished after an acquaintance is formed.

The corn breeders of Wisconsin by becoming acquainted with the desirable characteristics of seed corn will work with a common interest of producing and improving these desirable qualities in the different breeds of corn that are to become standard varieties in various portions of the state. By several hundred working with the same purpose in view a breed of corn will be bred having the characteristics which will be known on account of those similar traits and the more nearly the corn conforms to this type the higher the marking can be given to it in uniformity and breed characteristics.

CORN JUDGING. LESSON II.

Shape of Ear, Cob and Kernels.

In judging the sample of ten ears of corn after considering trueness to type and breed characteristics we next examine closely the shape of the ear. Ten points are allowed if the ears are perfect in shape, but it is as difficult to find an ear of corn perfect in shape as it is to find cows, horses, and sheep perfect in shape.

The shape of ears of the different varieties of corn differ as widely as the shape and form of the different pure-bred breeds of cattle. Each race and variety has a characteristic shape peculiar to the variety to which it belongs. For example, the Boone County White Corn has a long cylindrical ear, very large in circumference, while the Leaming has an ear considerably shorter, finer in cob and a general taper to cob and ear.

If the characteristic shape described in the Leaming corn were found in Boone County White, or Reid's Yellow Dent, it

would be scored severely as it would not be characteristic of those breeds.

The shape most desirable to be found in corn is a cylindrical ear from butt to tip, and corn breeders are trying to secure this shape in all varieties, consequently we may expect to find in the future more uniformity in shape in the different breeds of corn.

Where ears are inclined to taper it will be noticed that two or more rows, as a rule, are dropped near the middle of the ear, otherwise the kernels on the cob are irregular being deeper and larger at the butt than at the tip. This makes the kernels vary in size throughout the ear, and renders the corn almost totally unfit for seed. No planter can plant kernels of this type so as to give a uniform stand, one of the desirable characteristics of a field of corn.

In scoring corn on shape one must take in consideration the soil and climatic conditions, under which the corn is grown.

The shape of an ear desirable for central Illinois would differ in many respects from the shape most desirable for central Wisconsin. Our shorter season demands a shallower kernel which will carry with it a different characteristic shape than that grown further south.

The characteristic wedge shape of kernel is the most desirable and this should receive consideration in judging samples or in the selection of seed for the season's crop. The wedge shape kernel carries with it a greater depth, more rows to the ear, and a greater proportion of corn to cob.

Prof. A. D. Shamel, former instructor in corn judging at the University of Illinois says: "It has been found that there is a correlation between the shape of the kernel and the composition. For instance, a kernel having a thin tip is low in per cent of oil and protein and high in per cent of starch. It is usually true that such pointed kernels are low in vitality or lack constitution. The most desirable shape is plump tips, having about the same thickness as the upper portion of the kernel."

No set rule can be given as to the exact number of points to be taken from the full score on account of any particular weakness in regard to shape. The scorer after carefully noting the deficiency in shape will rely on his individual judgment in marking the score and not be dependent on any set rule.

CORN JUDGING. LESSON III.

Color of Grain and Cob.

Having already considered breed characteristics and shape of ear, the next essential to examine is color which we consider under two heads, viz., color of grain and color of cob. Five points are allowed on color of grain and five on color of cob where each is perfect.

Yellow corn should have a red cob and white corn a white cob in pure-bred varieties. Anything to the contrary would show defectiveness in purity of breeding and should be cut severely by the corn judge and rejected as seed by the corn breeder.

The color of the corn varies with the breed, the Reid's Yellow Dent has a pale yellow color, while the Leaming has a brighter shade of yellow and these shades predominate and are characteristic of the breeds. Other yellow breeds vary slightly in color from a pale yellow to a deep orange, and are only known by a thorough acquaintance with the variety of corn under consideration and are then cut accordingly.

The cob in yellow corn should be a bright cherry red and as the color of cobs vary from this standard, a cut should be made by the scorer. A bright cherry red cob denotes health and vigor in corn and a pale or dark red cob denotes lack of constitution or vitality. The white cobs should be a glistening white, and not a dead pale color. The above points should be considered when scoring corn at fairs or when the corn breeder is carefully selecting seed for the season's crop.

General questions, however, are often asked as to whether it is preferable to grow white or yellow corn, and which is the richest in the food elements, and which will produce the most grain and forage per acre, etc.

From tests made by careful breeders of corn, and by experiment stations, it has been found that in general, color makes no difference as far as quality is concerned, and it is merely a matter of taste to the grower as to the color of corn he desires.

White or yellow corn through careful breeding of one variety and neglect of the other would soon show a marked difference

in regard to yield and quality in favor of the variety to which attention has been given, regardless of color.

Like the breeder of live stock, the corn grower had better select that breed of corn that suits his ideal taste best, keeping in mind that the quantity and quality of marketable corn per acre are the essential characteristics sought for.

CORN JUDGING. LESSON IV.

Market Condition.

Ten points are allowed on the score card where market condition is perfect. By market condition we mean general excellence and that degree of ripeness or maturity that is taken note of from the grower's or feeder's standpoint. Corn that shows immaturity and a tendency to be loose on the cob with wide space between the kernels should be cut severely on the score card under market condition. Where market condition is perfect or nearly so the kernels are firm on the cob and the ear gives a rasping sound when twisted. The kernels fit closely together lengthwise upon the cob between the rows and crosswise between the kernels of each row. Corn when scored from the feeder's standpoint is not cut so severely as from the grower's or seedman's standpoint. When we consider that a bushel of corn plants approximately seven acres and the importance to be attached to uniformity of stand we will fully appreciate the value of considering the market condition from the grower's standpoint in a very critical way.

No one head under which corn is judged is so important to Wisconsin farmers as market condition, and all farmers of the state should not only be able to judge corn from that standpoint, but should understand how to work for the perfection of that characteristic.

Several standard varieties of corn will have to be established in various portions of the state that will ripen properly under the conditions peculiar to that section. This can only be done by securing seed corn having those desirable traits that would

naturally adapt it to a certain section of the state, and put it through a test. If farmers were to try this plan individually it would be many years before known varieties would be established, but Wisconsin is fortunate in the fact that it has an association of eight hundred young men who are working on the corn problem at the present time, and definite results may be looked for in a reasonable period.

The utmost importance is attached to market condition in carrying on trial tests as a variety of corn would be of little value to a community or division of the state, if it would not properly mature. Much can be done in the way of planting and cultivating the crop to hasten maturity, and this should be resorted to.

The check-row system of planting admits more sunlight and a freer circulation of air through the corn than the drill system.

The cultivator can be worked more effectually to retain moisture, and keep down the weeds which enables the corn to gain several days in the race for maturity over corn of the same variety that has been planted in drills. Corn will gradually become accustomed to its environment and will adjust itself to varying conditions. By selecting those ears for seed that show good market condition, even if there be but few in the entire field, the earliness of the corn can be improved upon materially.

It is possible to mature the Illinois dent corns in certain portions of Wisconsin by giving them special conditions, such as location, and planting merely one kernel in a hill the ordinary width of the planter. Much good, through careful work may yet be derived from the seven standard varieties of corn that have recently been established for Illinois. It seems that Wisconsin with her 1½ million acres of land annually devoted to corn should propagate in the shortest possible time, varieties best adapted for various localities, and then to hold to those established strains that annually show good market condition.

CORN JUDGING. LESSON V.

Butts and Tips.

In scoring butts and tips we allow five points for each if perfect, but cut down in accordance with imperfections. A well filled butt that is symmetrical and not bulging is desirable. The corn should come well over toward the shank so when snapped a rounded hollow space would be plainly noticeable. The corn breeder desiring to get a large proportion of corn to cob often goes too far in breeding for a small shank and nearly a full covered butt. Where the shank is too small the ears drop off during the ripening period or readily tear off while harvesting. Where this weakness is noticeable the butt should be cut accordingly on the score card. Poorly filled butts are caused by the first silks developing too far in advance of the pollen and drying to such an extent that they do not become fertilized when the pollen ripens. All ears, where the butts are partially filled, should be rejected or this characteristic may become permanent or partially so. If an earlier variety of corn or corn more advanced should be in an adjoining field the butt kernels are liable to be mixed by being fertilized with this foreign pollen instead of the pollen from their own variety. It is largely on account of chance crossing that occurs to the butt and tip kernels that those kernels are rejected when planting. Their peculiar formation makes them non-uniform which interferes in planting evenly and they also seem weaker in germination and more tardy in growth than kernels from the middle or intermediate parts of the ear. The tip kernels are apt to be flinty and pop corn shape which is undesirable in dent corn.

A perfect tip which has a center kernel termed a cap is hard to find, but occasionally a few are found where large quantities of corn are handled. In a perfect tip the rows of corn should come over the tip in regular order and meet near the apex. The kernels should be uniform in size and shape and should not be mixed or shallow. Where bare tips are noticeable to quite an extent, throughout the field, we allude the same to the fact that the silks formed last, which represent the tips, were too late for the pollen, and as a result were not fertilized.

By planting ears having defective tips that undesirable char-

acteristic would soon become permanent or nearly so. Open tips have a tendency to increase the shallowness of kernels on the tip half of the ear which makes the corn on that portion of the ear undesirable for planting on account of the lack of uniformity compared with the kernels on the butt portion of the ear.

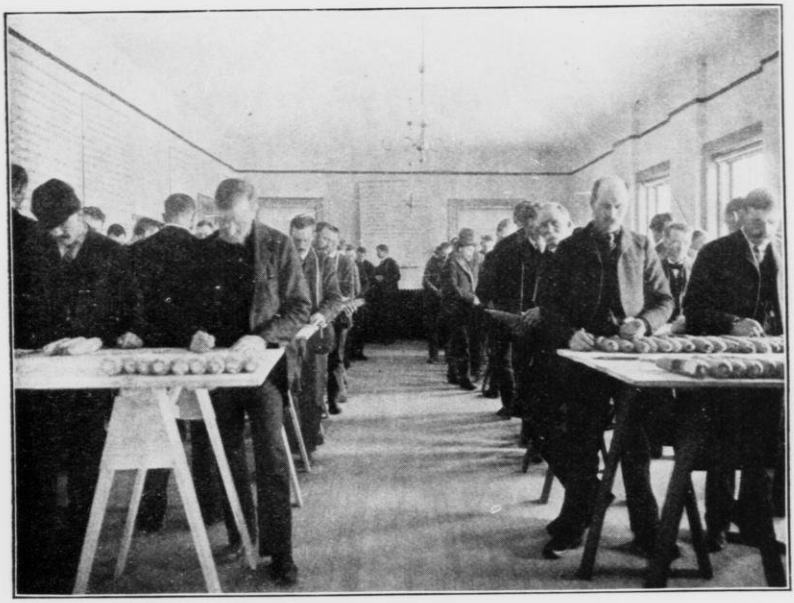
From the standpoint of the corn judge, butts and tips that do not meet the standard should be scored quite severely, and should carefully be rejected by the corn grower where the defect is too prominent.

CORN JUDGING. LESSON VI.

Kernel Study.

The seventh division under which ear corn is judged is kernel study for which 15 points out of 100 are allowed; 10 for uniformity and 5 for shape.

The kernels should be uniform in shape, size, and color and true to the variety type. The shape should be such that the edges of the kernels touch from tip to crown. The tip portion of the kernel, that part attached to the cob and which contains the germ, is rich in protein and oil and hence of the highest feeding value. For this reason the tip should be full and plump. A plump tip also denotes vitality and constitution. Corn growers should regard with suspicion corn that has weak and shriveled tips no matter how well the outside of the ear may look. At least 85% of all the oil in the kernel is in the germ which extends from within the tip upward, hence corn of high oil content is preferable for factories where the manufacture of corn oil is emphasized. The time is approaching when corn may be purchased on a basis represented by its chemical constituents instead of by the pound or bushel. Milk and cream are now purchased almost universally by their butter fat content and grains will be the next in order. Tests by the Illinois Experiment Station show that the oil content in corn may vary from 2½ to 7½ and protein from 6½ to 16 per cent. Protein



Famer Course students judging corn in accordance with the score card method.

is valued at 5 cents per pound while starch is less than 1 cent. It does not seem fair for a farmer who has used care in selecting high protein seed corn to be obliged to take the same price per bushel for his crop as one who is raising only ordinary corn. When Wisconsin farmers market more corn we feel confident that the matter of selling by the test will be carefully investigated. At the present time nearly all the Wisconsin corn is marketed through farm animals which undoubtedly is the best possible way of marketing farm crops. By so doing we put our animals in proper condition for the market and save middle men's profits on our crops as well as retaining the fertilizing elements contained therein to keep up the fertility of the farm.

If seed corn high in protein and oil content is planted the progeny will be high in those desirable characteristics. One bushel of seed corn will plant about seven acres. Will it not then pay Wisconsin farmers to carefully select seed corn that is high in oil and protein?

CORN JUDGING. LESSON VII.

Selecting Corn of High Oil and Protein Content.

From careful experiments carried out by the Illinois College of Agriculture extending through a series of years it has been determined definitely that the composition of the corn kernel can be materially changed. From many thousand tests at the Chicago Glucose factories it has been found that the composition of whole corn is approximately as follows:

Starch	70.0%
Water	11.4%
Protein	10.5%
Oil	4.5%
Fiber	2.2%
Ash	1.4%

It will be noted that the starch content is extremely high compared with the other elements, hence the claim that corn is a one sided ration for farm animals.

The farmer is particularly interested in the oil and protein content of the corn, consequently the richer the corn is in these elements the more money value per bushel the corn is worth for feeding purposes. Plants, like animals, do not improve if left merely to nature's laws but strive to maintain a certain standard. It has remained for man to step in and by changing environment and following certain definite principles accomplish beneficial results.

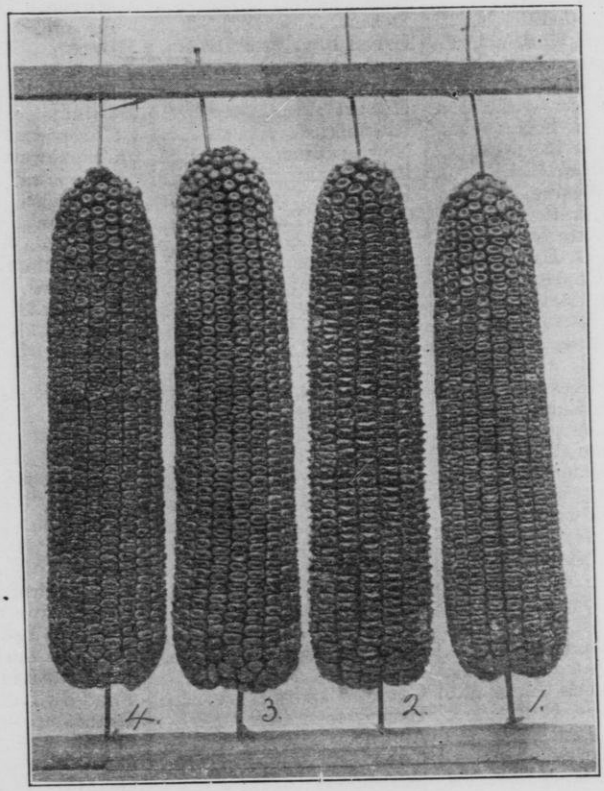
In the improvement of corn the farmer can by the proper selection of seed materially change the constituents, most desired, from a lower to a higher degree thus growing a corn of higher value for feeding farm animals. The composition of different kernels of corn taken from the same ear are approximately the same, hence a single kernel from an ear is a fair index of the composition of all the remaining kernels of that particular ear. By planting corn that is high in oil and protein the crop grown from that select seed is also high in those desirable elements.

By a physical examination of one kernel from each ear the relative composition as to oil and protein can be fairly accurately determined. No difficulty will be experienced in distinguishing between ears that are high and low, in protein and oil after a few comparisons are made.

To make these determinations all the apparatus necessary is a pocket knife. Remove at least two kernels of corn from the ear and examine closely, if that portion of the kernel next to the cob known as the tip is pointed, shriveled and has a very small face mark covering the germ, discard the ear at once, as it will be found not only low in oil but low in vitality as well. The face mark under which the germ is found should be broad and extend from the tip well up toward the top or crown of the kernel. This indicates a large germ beneath. Practically 85% of all the oil in the kernel is found in the germ which is also rich in protein, hence the desirability of a large and well developed germ. The kernel has to be cut in order to determine the protein content as that is noticeable within. The kernel should be cut from tip to crown through the narrow and broad dimensions, this will bring plainly to view the germ which is of a dark gray color; the starch which is white, and a flinty composition which is of a grayish white in white corn, and a dull yellow in yellow corn. The large portion of the protein con-

tained in the kernel is found in this flinty matter. If the flinty portion of the kernel fits closely to the germ and crowds the white starchy matter into comparatively small space, the corn upon the ear from which the kernel was selected is high in protein. After the examination of a few kernels one will make note of the relative size of the parts at a glance.

It seems that it will amply repay any farmer to select a few bushels of seed corn in this way from year to year until a high standard of corn is obtained.



Some good ears of Seed Corn.

WISCONSIN SEED GRAIN GROWERS.

Members of the Experiment Association are rapidly becoming the seed growers of the state, and by systematic selection of seed and care in culture and curing of the crop, produce a fine grade of pure-bred seed grain. These seed grains are sold by the producers either in small or large quantities, at reasonable rates.

Growers of Swedish Select oats.
(Wisconsin No. 4)

Name of grower.	Address.	County.
Lee, Geo.	Arkdale	Adams.
Stevenson, J. W.	Rice Lake	Barron.
Donnelly, J. E.	Dobie	Barron.
Schrickel, E. A.	Green Bay, R. F. D. No. 2.	Brown.
Muehleisen, Gottlieb	Alma, R. F. D. No. 1.	Buffalo.
Knecht, John	Fountain City	Buffalo.
Leach, J. M.	Hilbert	Calumet.
Kramer, H. F.	Bloomer	Chippewa.
Guptill, L. R.	New Auburn	Chippewa.
Woodard, F. B.	Bloomer	Chippewa.
Raven, Wesley.	Bloomer	Chippewa.
Martiny, L. P.	Chippewa Falls	Chippewa.
Chrisler, Harley	Lodi	Columbia.
Cowgill, D. L.	Doylestown	Columbia.
Rutter, Charles	Ferryville	Crawford.
Gillispie, Earl	Kilbourn	Crawford.
Benson, Edward E.	Mt. Horeb. R. F. D. No. 5	Dane.
Dreger, Emil	Madison, R. F. D. No. 6.	Dane.
Gillette, R. A.	Verona	Dane.
Toepfer, Otto	Madison, R. F. D. No. 6	Dane.
Brothers, Renk.	Sun Prairie	Dane.
Peck, H. M.	Marshall	Dane.
Chatterton, R. W.	Basco	Dane.
Cobb, Homer A.	Sun Prairie	Dane.
Bussewitz, W. E.	Juneau	Dodge.
Keogh, Edward	Algoma	Door.
Kent, H. W.	Rusk	Dunn.
Isaacson, Theo.	Menomonie	Dunn.
Donaldson, H. A.	Eau Claire, R. F. D. No. 3	Eau Claire.
Langworthy, J. V.	Augusta	Eau Claire.
Bonzelet, J. P.	Eden	Fond du Lac.
Whittaker, H.	Fond du Lac, R. F. D. No. 5	Fond du Lac.
West, Ray	Ripon	Fond du Lac.
Hendricks, L. E.	Campbellsport	Fond du Lac.
McCormick, E. E.	Lancaster	Grant.
Fruit, C. E.	Arthur	Grant.
Dixon, Darley	Cuba	Grant.
Stivarius, G. A.	Fennimore	Grant.
Barron, R. E.	Cuba City	Grant.
Best, Frank E.	Brooklyn	Green.
Marty, Matthias	Monticello, R. F. D. No. 2.	Green.
May, E. D.	Berlin	Green Lake.
Lloyd-Jones, Enos	Hillside	Iowa
Halgrim, H. O.	Dodgeville	Iowa.
Strande, T. A.	Taylor	Jackson.
Markey, W. E.	Sullivan	Jefferson.

Growers of Swedish Select oats—Continued.
(*Wisconsin No. 4*)

Name of grower.	Address.	County.
Conway, Jno. P.	Elroy	Juneau.
Tillotson, H. A.	Bristol	Kenosha.
Myrick, M. O.	Bristol	Kenosha.
Smithwick, Martin.	Kewaunee, R. F. D. No. 6.	Kewaunee.
Cherosky, Anton.	Kewaunee, R. F. D. No. 1.	Kewaunee.
Schroeder, C.	Kewaunee, R. F. D. No. 3.	Kewaunee.
Moe, Julius	Holmen	La Crosse.
Rood, Ole C.	South Wayne	Lafayette.
Roethel, Herman.	Kiel	Manitowoc.
Wiegand, O. R.	Cleveland, R. F. D. No. 2.	Manitowoc.
Hessel. C. J.	Francis Creek	Manitowoc.
Reich, Joseph.	East Gibson	Manitowoc.
Toepel, William	Cleveland	Manitowoc.
Olson, Otto W.	Walsh	Marinette.
Redelings, Dr. T. J.	Marinette	Marinette.
Swan, David.	Wauwatosa	Milwaukee.
Harris, R. E.	Warrens	Monroe.
Ebert, Francis E.	Tomah	Monroe.
Downer, G. R.	Appleton	Outagamie.
Jamison, W. G.	Appleton	Outagamie.
Schaefer, R. J.	Appleton, R. F. D. No. 1.	Outagamie.
Dineen, M.	Cedarburg	Ozaukee.
Gustafson, Theo.	Stockholm	Pepin.
Grover, G. E.	Junction City	Portage.
Hanson, N. P.	Amherst Jct., R. F. D. No. 4	Portage.
Knutson, O. H.	Beloit	Rock.
Ellis, V. G.	Evansville	Rock.
Olds, L. L.	Clinton	Rock.
Stuart, Mutch.	Jewett	St. Croix.
Illian, W. L.	Adell	Sheboygan.
Lanpheer, Harry.	Glenbeulah	Sheboygan.
Olson, Ed.	Strum, R. F. D. No. 1.	Trempealeau.
Bjorge, John.	Whitehall	Trempealeau.
Houkom, S.	Blair	Trempealeau.
McLees, Adam	Viroqua	Vernon.
Dunbar, Harry.	Elkhorn	Walworth.
Meurer, Paul Jr.	Genoa Junction	Walworth.
Anderson, Alvin M.	Whitewater	Walworth.
Schlafer, A. L.	So. Germantown	Washington.
Gould, J. C.	Hartford	Washington.
Lobdell, E. L.	Mukwonago	Waukesha.
Jones. Albert.	Dousman	Waukesha.
Longley, H. N.	Dousman	Waukesha.
Rosenow, Henry E.	Oconomowoc.	Waukesha.
Schafer, Charles H.	Waukesha, R. F. D. No. 7	Waukesha.
Hicken, A. B.	Waukesha, R. F. D. No. 7	Waukesha.
Larson, A. D.	Waupaca, R. F. D. No. 4.	Waupaca.
Rowe, L. M.	Waupaca	Waupaca.
Heuer, E. F.	Wautoma	Waushara.
Wismer, Herman.	Larsen, R. F. D. No. 13.	Winnebago.
Miller, H. C.	Allenville	Winnebago.
Moody, R. F.	Oshkosh	Winnebago.
Vandercook, R. I.	Linden, Michigan.	

Growers of Oderbrucker Barley,
(Wisconsin No. 55).

Name of grower.	Address.	County.
Walker, Ray C	Plainville	Adams.
Johnson, L. M	Ashland	Ashland.
Tomkins, A. Pearce	Ashland	Ashland.
Tomkins, O. Scott	Ashland	Ashland.
Hans, Enoch	Rice Lake	Barron.
Heidstab, C. O	Rice Lake	Barron.
Moergeli, Henry	Washburn	Bayfield.
Hansen, H. H	Fontenoy	Brown.
Nies, Peter	Greenleaf, R. F. D. No. 3	Brown.
Roeckel, J. P	Lark	Brown.
Roffers, J. H	Green Bay, R. F. D. No. 7	Brown.
Schrickel, E. A	Green Bay	Brown.
Speerschneider, F. A	New Franken	Brown.
Muehleisen, G	Alma	Buffalo.
Christoph, T. C	Chilton	Calumet.
Peterson, H. N	New Holstein	Calumet.
Whitby, A. J	Chilton, R. F. D. No. 5	Calumet.
Christiansen, W. O	Chippewa Falls	Chippewa.
Guptill, L. R	New Auburn	Chippewa.
Kramer, H. F	Bloomer	Chippewa.
Lebeis, F. J	Bloomer	Chippewa.
Martiny, L P	Chippewa Falls	Chippewa.
Minnick, Hugh	Chip'wa Falls, R. F.D.No 8	Chippewa.
Lee, E. W	Granton	Clark.
Imig, A. H	Neillsville	Clark.
Von Lanyi, Oscar	Neillsville	Clark.
Zerbel, L. R	Humbird	Clark.
Chrisler, H. E	Lodi	Columbia.
Sharpee, Carl	Rio	Columbia.
Sharpee, E. A	Rio	Columbia.
Sharpee, P. A	Rio	Columbia.
Steele, S. H	Lodi	Columbia.
Anderson, Henry	Mt. Horeb	Dane.
Belda, W. F	De Forest	Dane.
Birrenkott, M. J	Klevenville	Dane.
Brager, Henry	Mt. Horeb	Dane.
Burr, H. R	Marshall	Dane.
Chatterton, R. W	Basco	Dane.
Chynoweth, H. E	Madison, R. F. D. No. 3	Dane.
Dreger, E. L	Madison, R. F. D. No. 6	Dane.
Finsnes, Andrew	Stoughton	Dane.
Gangstad, Otis	Deerfield	Dane.
Gillette, Rufus A	Verona	Dane.
Hill, Otto C	Mt. Horeb	Dane.
Hillier, H. B	Waunakee	Dane.
Jewett, L. C	Marshall	Dane.
Kaltenberg, A	Waunakee	Dane.
Koltes, J. F	Dane	Dane.
Lyons, J. S	Basco	Dane.
Peck, H. M	Marshall	Dane.
Pope, Leon T	Sun Prairie	Dane.
Renk Bros	Sun Prairie	Dane.
Thorstad, N. H	Deerfield	Dane.

Growers of Oderbrucker Barley—Continued.
(*Wisconsin No. 55*).

Name of grower.	Address.	County.
Toepfer, O. F	Madison, R. F. D. No. 6	Dane.
Trow, E. J.	Oregon	Dane.
Wernich, W. H.	De Forest	Dane.
Bennett, Philo	Rubicon	Dodge.
Beule, E. A	Fox Lake	Dodge.
Ehrhardt, Daniel	Knowles	Dodge.
Ellison, C. J	Rubicon	Dodge.
Grebe, Fred P.	Fox Lake	Dodge.
Howitt, C. H	Randolph	Dodge.
Jung, A. E.	Randolph	Dodge.
Krueger, H. E.	Beaver Dam, R. F. D. No. 5	Dodge.
Weston, John	Burnett	Dodge.
Boucsein, Gust,	Detroit Harbor	Door.
Keogh, H. P	Forestville	Door.
Matheson, M. C	Sawyer	Door.
Oldenburg, G. H	Bailey's Harbor	Door.
Orell, Leo	Algoma, R. F. D. No. 4	Door.
Simon, H. N	Sawyer, R F. D. No. 3	Door.
Sullivan, J. J	Forestville	Door.
Lindberg, Emil	Itasca Station, Box 15	Douglas.
Millar, Will, Jr	Menomonie	Dunn.
Krogstad, O. J	Eau Claire, R. F. D. No. 4	Eau Claire.
Winter, L. H.	Eau Claire	Eau Claire.
Bonzelet, J. P.	Eden	Fond du Lac.
Hinz, A. F.	Ripon	Fond du Lac.
Kuehn, C. A.	Brandon	Fond du Lac.
Meekin, H. W.	Fond du Lac	Fond du Lac.
West, Ray N.	Ripon	Fond du Lac.
Whittaker, Horace	Fond du Lac	Fond du Lac.
Bennett, Ora	Glen Haven	Grant.
Gassen, Louis	Glen Haven	Grant.
Kinney, R. E.	Potosi, R. No. 2	Grant.
McKichan, F. E.	Patch Grove	Grant.
Orth, A. F	Muscoda	Grant.
Rundell, D. E.	Livingston	Grant.
Spink, H. L.	Platteville	Grant.
Stivarius, G. A	Fennimore, R. No. 4	Grant.
Williams, J. R	Lancaster	Grant.
Barmore, T. J.	Monroe, R. No. 5	Green.
Biglow, L. F	Brooklyn	Green.
Harrison, Geo.	Monroe	Green.
Smith, D. C.	Brooklyn	Green.
Smith, H. B	Brooklyn	Green.
Clark, Clarence	Markesan	Green Lake.
Miller, G. E., Jr	Markesan	Green Lake.
Murkley, H D.	Berlin	Green Lake.
Thompson, Lute	Berlin, R. No. 1	Green Lake.
Aavang, H. O.	Barneveld	Iowa.
Grimstad, A. C.	Barneveld	Iowa.
Morris, Geo.	Ridgeway	Iowa.
Osborne, W. F.	Linden	Iowa.
Ray, R L.	Arena	Iowa.
Lyon, W. B.	Merrilan Junction	Jackson.

Growers of Oderbrucker Barley—Continued.
(*Wisconsin No. 55*).

Name of grower.	Address.	County.
Hetts, Eugene	Ft. Atkinson	Jefferson.
Hetts, J. D	Ft. Atkinson	Jefferson.
Krueger. Alexander	Watertown	Jefferson.
Main, H. A	Ft. Atkinson	Jefferson.
Matthews, M. D	Helenville	Jefferson.
McIntyre, Ivan M	Ft. Atkinson	Jefferson.
McNown, J. H	Mauston	Juneau.
Parsons, W. A	Ft. Atkinson, R. No. 2	Jefferson.
Ward, W. R	Ft. Atkinson, R. No. 1	Jefferson.
Snyder, B. F	Wonewoc, R. No. 1	Juneau.
Brook, J. W	Salem, R. No. 1	Kenosha.
Myrick, M. O	Bristol	Kenosha.
Blanik, G. F	Algoma	Kewaunee.
Collin, D. W	Luxembourg	Kewaunee.
Raether, L. J	Algoma, R. No. 1	Kewaunee.
Schroeder, C	Kewaunee	Kewaunee.
Smithwick, Martin	Kewaunee, R. No. 6	Kewaunee.
Brown, Ed	West Salem	La Crosse.
Griswold, H. W	West Salem	La Crosse.
Jones, E. E	Rockland	La Crosse.
Laurence, F. W	West Salem	La Crosse.
Leete, Carroll	West Salem	La Crosse.
Ashton, C. H	Belmont	LaFayette.
Rood, Minnick	South Wayne	LaFayette.
Rood, Ole C	South Wayne	LaFayette.
Schellenger, Roy	Warren, Ill. P. O	LaFayette.
Vinger, M. J	Argyle	LaFayette.
Deleglise, Leo L	Antigo	Langlade.
Chloupek. V. A	Mishicot	Manitowoc.
Clusen, R	Manitowoc, R. No. 6	Manitowoc.
Heidemann, O. C	Keil, R. No. 2	Manitowoc.
Heyroth, L H	Mishicot, R No. 3	Manitowoc
Krase, H. C	Two Rivers	Manitowoc.
Meyer, L J	Mishicot, R. No. 1	Manitowoc.
August Mueller	Manitowoc	Manitowoc.
Roethel, Herman	Kiel, R. No. 2	Manitowoc.
Siemers, Edw	Cleveland	Manitowoc.
Straka, E. E	Kellnersville, R. No. 2	Manitowoc.
Sullivan, J. A	Grimms	Manitowoc.
Wilkowske, R. T	Mishicot	Manitowoc.
Olson, Otto W	Walsh	Marinette.
Dennison, Nicolaus	No. Milwaukee, R. No. 10	Milwaukee.
Meyer, A. J	Oakwood, R. No. 18	Milwaukee.
Mueller, August	Manitowoc	Manitowoc.
Swan, N. J	Wauwatosa	Milwaukee.
Ebert, E D	Toman	Monroe.
Ebert, Francis	Tomah	Monroe.
Harris, R. E	Warrens	Monroe.
Meyer, E. J	Tomah	Monroe.
Whitehead, H. W	Leon, R. No 1	Monroe.
Clack, John	Appleton	Outagamie.
Jamison, Robt	Appleton, R. No. 2	Outagamie.
Mueller, Ed. O	Appleton	Outagamie.
Schaefer R. J	Appleton, R. No. 1	Outagamie.

Growers of Oderbrucker Barley—Continued.
(*Wisconsin No. 55*).

Name of grower.	Address.	County.
Persons, M. B.	Plum City	Pierce.
De Coster, J.	Deronda	Polk.
Nelson, P. C.	Milltown	Polk.
Peterson, August	Amery, R. No. 4	Polk.
Sorenson, A. E.	Osceola	Polk.
Rasmussen, Gordon	Franksville, R. No. 9	Racine.
Rhodes, Louis	Kansasville	Racine.
Jaquish, J. E.	Twin Bluffs	Richland.
Lawton, Ray	Viola	Richland.
Turgasen, J. H.	Richland Center	Richland.
Austin, W. D.	Janesville, R. No. 6	Rock.
Ellis, V. G.	Evansville	Rock.
Fisher, Joseph.	Janesville	Rock.
Kimble, Newcomb	Milton Junction	Rock.
Imholt, B. A	Houlton	St. Croix.
Gross, W. E.	Merrimac	Sauk.
Hudson, Dwight	Reedsburg	Sauk.
Ochsner, A. C.	Plain	Sauk.
Riek, Anthony	Spring Green	Sauk.
Volz, Robert	Reedsburg	Sauk.
Von Blaricon, Ed	Spring Green	Sauk.
Becker, P. V.	Plymouth	Sheboygan.
Eastman, S. A.	Sheboygan Falls	Sheboygan.
Fischer, L. H.	Haven, R. No. 6	Sheboygan.
Frauenheim, Oscar	Random Lake	Sheboygan.
Garside, Harry	Cedar Grove	Sheboygan.
Herdrich, Sam	Adell	Sheboygan.
Illian, W. L.	Adell, R. No. 19	Sheboygan.
Liebzeit, A. E.	Sheboygan Falls, R. No. 7	Sheboygan.
Ogle, James L.	Waldo	Sheboygan.
Sharpe, C. E.	Waldo	Sheboygan.
Te Stroete, J. A.	Cedar Grove, R. No. 14	Sheboygan.
Chrysler, Harvey	Osseo	Trempealeau.
Johnson, Kasper	Blair	Trempealeau.
Amott, A. L.	Viroqua	Vernon.
Cass, Leonard	Viroqua	Vernon.
Theige, K. J	Viroqua	Vernon.
Anderson, A. M.	Whitewater	Walworth.
Downey, Urso	Whitewater	Walworth.
Dunbar, H. D.	Elkhorn	Walworth.
Harris, Jesse S.	Delavan	Walworth.
Johnson, Elmer	Williams Bay	Walworth.
Marck, F. R.	Honey Creek, R. No. 1	Walworth.
Peters, Ezra	Sharon	Walworth.
Schottler, Conrad	So. Germantown	Washington.
Dukleth, P. A.	Mukwonago, R. No. 40	Waukesha.
Haass, Otto	Merton	Waukesha.
Longley, H. N.	Dousman	Waukesha.
Raht, J. T.	Waukesha, R. No. 2	Waukesha.
Feathers, O C.	Manawa	Waupaca.
Goldsmith, R. B.	Weyauwega	Waupaca.

Growers of Oderbrucker Barley—Continued.
(*Wisconsin No. 55*).

Name of grower.	Address.	County.
Heinke, Alvin	New London	Waupaca.
Holman, R. M	Waupaca	Waupaca.
Johnson, A. O	Weyauwega	Waupaca.
Johnson, C. G	Clintonville, R. No. 1	Waupaca.
Kneip, Wm	Weyauwega	Waupaca.
Krostue, Julius	Sheridan	Waupaca.
Larson, Elmer J	Waupaca	Waupaca.
Zwicky, J. D	Scandinavia	Waupaca.
Hasselquist, Wm	Wild Rose, R. No. 2	Waushara.
Blakely, Albert J	Neenah	Winnebago.
Boss, S. J	Oshkosh, R. No. 7	Winnebago.
Walters, Andrew	Oshkosh, R. No. 1	Winnebago.
Bennett, P. T	Chicago, 9720 Pros. Ave	State. Illinois.
Cooper, A. A	Elizabeth	Illinois.
Crane, V. R	St. Charles	Illinois.
Grimwood, Ivan J	Bristol	Illinois.
Huebsch, L. A	Galena	Illinois.
Patterson, R. H	Durand	Illinois.
Kaiser, E. C	Garnavillo	Iowa.
Thompson, T., Jr	Wadena	Iowa.
Wirkler, A. J	Garnavillo	Iowa.

Growers of Manshury Barley,
(*Wisconsin No. 62*).

Name of grower.	Address.	County.
Muehleisen, Gottlieb	Alma	Buffalo.
Chrisler, Harley E	Lodi	Columbia.
Chatterton, Ray W	Basco	Dane.
Gillette, Rufus A	Verona	Dane.
Jordalen, Clarence	Stoughton	Dane.
Renk, William F	Sun Prairie	Dane.
Toepfer, Otto F	Madison, R. F. D. No. 6	Dane.
Howitt, C. H	Randolph	Dodge.
Krueger, Henry E	Beaver Dam, R. F. D. No. 5	Dodge.
West, Ray N	Ripon	Fond du Lac.
McKichan, Floyd E	Patch Grove	Grant.
Stivarius, Geo. A	Fennimore	Grant.
Krueger, Alexander	Watertown	Jefferson.
Cherosky, Anton	Kewaunee, R. F. D. No. 1.	Kewaunee.
Roethel, Herman	Kiel	Manitowoc.
Schaefer, R. J	Appleton, R. F. D. No. 1	Outagamie.
Fischer, Louis	Haven	Sheboygan.
Illian, W. L	Adell, R. F. D. No. 19	Sheboygan.
Clark, J. D	Whitewater, R. F. D	Walworth.
Rosenow, A. F	Oconomowoc	Waukesha.
Wismer, Herman	Larsen, R. F. D. No. 13	Winnebago.

Growers of Wisconsin Seed Corn.

(*Wisconsin No. 7 corn*).

Name of grower.	Address.	County.
Nies, Peter	Greenleaf	Brown.
Schrickel, Edward A	Green Bay, R. F. D. No. 2.	Brown.
Speerschneider, Julius	New Franken	Brown.
Heike, Rudolph H	Mondovi	Buffalo.
Joos, Frank B	Fountain City	Buffalo.
Muehleisen, Gottlieb	Alma, R. F. D. No. 1	Buffalo.
Rosenow, Louis J	Montana	Buffalo.
Suhr, Adolph	Cochrane	Buffalo.
Peterson, Henry N	New Holstein	Calumet.
Kramer, Henry F	Bloomer	Chippewa.
Martiny, L. P	Chippewa Falls	Chippewa.
Woodard, Frederick B	Bloomer	Chippewa.
Gerhardt, Walter	Neillsville	Clark.
Zerbel, L. R.	Humbird	Clark.
Lloyd, Evan B	Cambria	Columbia.
Sharpee, E. A	Rio, R. F. D. No. 1	Columbia.
Dale, Clarence	Soldiers Grove	Crawford.
Erickson, Erick	Soldiers Grove	Crawford.
Stantorf, W. H	Barnum	Crawford.
Bewick, W. W	Madison	Dane.
Brigham, C. J	Blue Mounds	Dane.
Chatterton, Ray	Basco	Dane.
Christianson, John	Cambridge	Dane.
Gillette, Rufus	Verona	Dane.
Hillier, H. B	Waunakee	Dane.
Jordalen, Clarence	Stoughton	Dane.
Maeder, J. W	Sun Prairie	Dane.
Peck, Henry M	Marshall	Dane.
Thorstad, N. H	Deerfield	Dane.
Tweeten, Theo	Cottage Grove	Dane.
Ehrhardt, Daniel	Knowles	Dodge.
Grebe, Fred P	Fox Lake	Dodge.
Stommel, Eugene	Mayville	Dodge.
Wright, Marvin	Waupun	Dodge.
Gerking, Fred J	Elk Mound	Dunn.
Kent, J. S	Rusk	Dunn.
Remington, Archie	Elk Mound	Dunn.
Hinz, A. F	Ripon	Fond du Lac.
Oleson, Janes P	Ripon	Fond du Lac.
West, Ray N	Ripon	Fond du Lac.
Eddy, A. R	Lancaster	Grant.
Fruit, E. J	Arthur	Grant.
Spink, H. L	Platteville	Grant.
Ball, Leroy C	Monroe	Green.
Best, Frank E	Brooklyn	Green.
Schellenger, Roy	Warren, Ill., P. O.	Green.
Aavang, Henry O	Barneveld	Iowa.
Grimstad, A. C.	Barneveld	Iowa.
Kelley, A. L. Delos	Mineral Point	Iowa.
Lyon, Wilson B	Merrillan	Jackson.

Growers of Wisconsin No. 7 corn—Continued.

Name of grower.	Address.	County.
Main, H. A.	Ft. Atkinson	Jefferson.
Parsons, W. A	Ft. Atkinson	Jefferson.
Conway, John P	Elroy	Juneau.
Gallagher, M. M	Elroy	Juneau.
Brook, James W	Salem	Kenosha.
Tillotson, H. A	Bristol	Kenosha.
Griswold, Harry	West Salem	La Crosse.
Lovejoy, Hiram D	West Salem	La Crosse.
Ashton, Charles H	Belmont	Lafayette.
Rood Bros	South Wayne	Lafayette.
Stewart, J. W	Blanchardville	Lafayette.
Chloupek, Victor A	Mishicot	Manitowoc.
Clusen, Reinhold	Manitowoc	Manitowoc.
Heidemann, Otto	Kiel	Manitowoc.
Roethel, Herman	Kiel	Manitowoc.
Straka, Edward E	Kellnersville	Manitowoc.
Thieleke, Edward A	Kiel	Manitowoc.
Christenson, C. A. M	Walsh	Marinette.
Olson, Otto W	Walsh	Marinette.
Hamilton, Thomas S	Westfield	Marinette.
Harris, R. E	Warrens	Monroe.
McConnell, R. E	Tomah	Monroe.
Bixby, Phil T	Appleton	Outagamie.
Clack, John H	Appleton	Outagamie.
Main, A. G	Hortonville	Outagamie.
Behrens, Bernhard	Grafton	Ozaukee.
Tretsven, John O	Milltown	Ozaukee.
O'Keefe, Mike	Stevens Point	Portage.
Sorenson, Hilbert	Franksville	Racine.
Ghastin, W. J	Twin Bluffs	Richland.
Lawton, A. R	Viola	Richland.
Post, Harry L	Sextonville	Richland.
Robinson, Virgil	Gotham	Richland.
Truesdale, Thomas S	Gillingham	Richland.
Devine, C. B	Evansville	Rock.
Ellis, V. G	Evansville	Rock.
Imholt, B. A	Houlton	St. Croix.
Capener, Howard	Baraboo	Sauk.
Hudson, Dwight	Reedsburg	Sauk.
Ochsner, Arthur C	Plain	Sauk.
Cornelius, H. R	Shawano	Shawano.
Kroll, John M	Shawano	Shawano.
Hagestad, A. C	Ettrick	Trempealeau.
Raichle, Will	Trempealeau	Trempealeau.
Johnson, Bert	Viroqua	Vernon.
Halvorsen, Theodore	Whitewater	Walworth.
Anderson, Alvin M	Whitewater, R. No. 5	Walworth.
Howard, A. E	Whitewater	Walworth.
McLaren, W. P	Delavan	Walworth.
Meurer, Paul, Jr	Genoa Junction	Walworth.
Pfeiffer, W. A	West Bend	Washington.

Growers of Wisconsin No. 7 corn—Continued.

Name of grower.	Address.	County.
Haass, Otto	Merton	Waukesha.
Longley, Harvey	Dousman	Waukesha.
Rosenow Bros	Oconomowoc	Waukesha.
Spaulding, Clyde F	Oconomowoc	Waukesha.
Goldsmith, R. B	Weyauwega	Waupaca.
Johnson, Charles G	Clintonville	Waupaca.
Blakely, A. J	Neenah	Winnebago.
Boss, U. C	Oshkosh	Winnebago.
Cross, A. J	Allenville	Winnebago.
Lord, J. W	Neenah	Winnebago.
Moody, R. F	Oshkosh	Winnebago.
Olson, Harry O	Larsen	Winnebago.
Treleven, Guy T	Omro	Winnebago.
Stienstra, Samuel	Galena, Illinois.	
Vandercook, R. I	Linden, Michigan.	

White flint.

Name of grower.	Address.	County.
Myrick, M. O	Bristol	Kenosha.
Wilkowske, R. T	Mishicot	Manitowoc.

North Star yellow dent (Wisconsin No. 11).

West, Ray N	Ripon	Fond du Lac.
McKichan, Floyd E	Patch Grove	Grant.
Palmer, Howard	Baraboo	Sauk.
Toole, W. A	Baraboo	Sauk.

Indiana yellow dent. (Wisconsin No. 5).

Dreger, Emil	Madison, R. F. D. No. 6.	Dane.

White Cap dent.

Stiles Brothers	Lake Mills	Jefferson.
Keys, J. M	Richland Center	Richland.

Reid's yellow dent.

Name of grower.	Address.	County.
Biglow, L. F	Brooklyn	Green.
Mulcahy, John W	Belmont	LaFayette.
Cooper, Arthur	Elizabeth, Illinois	
Huebsch, Lewis A	Galena, Illinois	
Vandercook, R. I	Linden, Michigan	

Leaming.

Stivarius, Geo. A	Fennimore	Grant.
Tubbs, L. H	Seymour	Outagamie.
Hegge, E. A	Pigeon Falls	Trempealeau.
Van Buren, E. W	Waukesha	Waukesha.

Clark's yellow dent (Wisconsin No. 1).

Name of grower.	Address.	County.
Johnson, Billie	Strong's Prairie	Adams.
Leach, J. M	Hilbert, R. F. D. No. 1	Calumet.
Shepard, R. A	Columbus	Columbia.
Thompson, Melvin	Mt. Horeb	Dane.
Renk Brothers	Sun Prairie	Dane.
Howitt, Charles H	Randolph	Dodge.
Risum, Louis	Brodhead	Green.
Morris, George	Ridgeway	Iowa.
Miles, I. D	Sechlerville	Jackson.
Hamilton, T. S	Westfield	Marquette.
Batho, Lester	Plum City	Pierce.
Bunker, Herbert W	Clinton	Rock.
Miller, Harvey H	Evansville	Rock.
Goodell, Alfred	Reedsburg	Sauk.
Clark, J. D	Whitewater	Walworth.

Wisconsin No. 8.

Meekin, H. W	Fond du Lac	Fond du Lac.
Frauenheim, O. R	Random Lake	Sheboygan.

Growers of soy beans.

Name of grower.	Address.	County.
Walker, R. C	Plainville	Adams.
Roffers, Henry	Ashland	Ashland.
Strand, Oscar M	Rice Lake	Barron.
Roeckel, Joseph P	Lark	Brown.
Bilkey, Joseph W	Portage	Columbia.
Dale, Clarence	Soldiers Grove	Crawford.
Gillette, R. A	Verona	Dane.
Kuehn, Charles A	Brandon	Fond du Lac.
Whittaker, Horace	Fond du Lac, R. No. 5	Fond du Lac.
Ball, Leroy C	Monroe	Green.
Main, Herbert A	Ft. Atkinson	Jefferson.
Glindinning, H. L	Shullsburg	LaFayette.
Mulcahy, John W	Belmont	LaFayette.
Straka, Edward E	Kellnersville, R. No. 2	Manitowoc.
Redelings, Dr. T. J	Marinette	Marinette.
Menn, B. A	Norwalk	Monroe.
Bixby, Phil. T	Appleton	Outagamie.
Schaefer, R. J	Appleton	Outagamie.
Persons, M. B	Plum City	Pierce.
Tretsven, J. O	Milltown	Polk.
Ghastin, William J	Twin Bluffs	Richland.
Ebenreiter, Herman	Sheboygan Falls	Sheboygan.
Frauenheim, O. R	Random Lake	Sheboygan.
Lanpheer, Harry	Glenbeulah	Sheboygan.
Howard, Arthur E	Whitewater	Walworth.
Longley, Harvey N	Dousman	Waukesha.
Rankin. W. D	Menomonee Falls	Waukesha.
Rosenow, H. E	Oconomowoc	Waukesha.
Bille, J	Waupaca	Waupaca.
Feathers, O. C	Manawa	Waupaca.
Johnson, Charles G	Clintonville, R. No. 1	Waupaca.
Stienstra, Samuel	Galena, Illinois	
Nevins, C. H	Winnebago, Illinois	