First annual report of the Wisconsin Agricultural Experimental Association held at Madison, Wis., Feb. 5, 6, 1903. Address of president, secretary's report with papers and addresses given by members ...

Wisconsin Agricultural Experimental Association
[s.l.]: [s.n.], 1903

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FIRST ANNUAL REPORT

OF THE

WISCONSIN

Agricultural Experimental Association

HELD AT

Madison, Wis., Feb. 5, 6, 1903.

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

Compiled by
R. A. MOORE, Secretary.

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OFFICERS, 1903.

President—A. J. MEYERS.....Madison
Vice President—P. J. BONZELET.....Eden
Secretary—R. A. MOORE.....Madison
Treasurer—H. J. Renk.....Sun Prairie

COMMITTEES.

Program: Officers of the association.

Executive:
W. J. Moyle.....Yorkville
P. A. Dukleth.....Big Bend
G. E. Owen.....Portage
G. A. Freeman.....Pewaukee
R. C. Preston.....West De Pere
O. N. Johnson.....Fond du Lac

Co-Operative Experiments:
Farm Crops.....R. A. Moore
Horticulture.....E. P. Sandsten
Dairying.....E. H. Farrington
Agriculture Physics.....A. R. Whitson
Animal Husbandry.....W. L. Carlyle

CONSTITUTION AND BY-LAWS OF THE WISCONSIN AGRICULTURAL EXPERIMENTAL ASSOCIATION.

CONSTITUTION.

ARTICLE I.—NAME.

This organization shall be known as the Wisconsin Agricultural Experimental 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.

SEC. 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 term of office shall be one year or until their successors are elected.

ARTICLE VI.—DUTIES OF OFFICERS.

SECION 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 upon 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.

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—1903.

Names.	Post-Office Address.
Abbott, W. A.	Portage.
Ackeret, James.	Medford.
Adams, H. C.	Sechlerville.
Aderhold, H. T.	Colby.
Alberty, I. H.	Perry, N. Y.
Aldrich, B. E.	Burlington.
Aldrich, H E.	Burlington.
Allen, C. M.	West Sound, Wash.
Ames, E. R.	Gilmantown.
Anderson, R. W.	New Richmond.
Anderson, Oscar.	Chetek.
Andreassen, A. L.	Bloomer.
Arries, B. M.	Merrill.
Athearn, L. J.	Oshkosh.
Atwood, M. L.	Roscoe, Ill.
Atwood, J. R.	Roscoe, Ill.
Austin, C. P.	Janesville.
Ayers, A.	Oregon.
Bagnell, James	N. Ontario, Calif.
Baker, L. R.	Hammond, Ind.
Baker, F. E.	Whitehall, Ill.
Baker, E. D.	Whitehall, Ill.
Baker, R. E.	Britt, Ia.
Baker, L. D.	Cobb.
Baker, Ralph	Britt, Ia.
Bale, R. O.	Augusta, N. J.
Ball, L. C.	Monroe.
Bandoli, Max.	Eau Claire.
Barkhausen, Ernest.	Thiensville.
Barron, R. E.	Georgetown.
Barry, G. M.	Oregon.
Batten, S. E.	Cobb.
Bauer, J. W.	Naperville Ill.
Bean, A. P.	Hansen.
Behrens, B F. C.	Grafton.
Beirne, G. D.	Oakfield.
Beitel, J. B.	Hinckley, Ill.
Benedict, A. M.	Mazomanie.
Beneditz, G A.	Minnesota Junct'n
Bennett, Chas.	Walworth.
Bennett, A. F.	Pewaukee.
Benson, Edward.	Blanchardville.
Bible, Guy.	Cazenovia.
Bigger, T. S.	Walkerville, Ontario, Can.
Birdsall, J B.	Vignes.
Birge, M. A.	Horicon.
Birge, L J.	Horicon.
Bjorge, John.	Whitehall.
Boaler, Fred.	Green Bay.
Boies, P. R.	Marengo, Ill.
Bonnell, A. L.	Stanton, Minn.
Bonsack, A.	La Crosse.
Bonzelet, J. P.	Eden
Boss, S. J.	Clemansville.
Boss, U. C.	Clemansville.
Bradley, R. E.	Batavia, Ill.
Brehm, Alvin.	Sheboygan.
Bright, T. F.	Belvidere, Ill.
Bristol, A. C.	Oakfield.
Brohaugh, G. E.	Madison,
Brown, C. R.	Eau Claire.
Bruhn, Aksel.	Wilbur, Wash.
Brunner. M. G.	Kellnersville.
Buehler, J. G.	Ithaca.
Bumgartner, W. L.	Magnolia, Ill.
Bundy, A.	Peshtigo.
Bunker, H. W.	Clinton.
Bunting, O. H.	La Crosse.
Burce, R. E.	Eau Claire.
Burce, J. L.	Eau Claire.
Bussewitz, W.E.	Juneau.
Butler, G. C.	Sussex.
Buzzell, R. C.	Randolph.
Byrne, J. J.	Appleton.
Carlyle, S. G.	Chesterville, Can.
Carlyle, W. L.	Madison.
Carpenter, H. R.	Polo, Ill.
Carter, R. W.	Osceo.
Cartwright, W. B.	Silverwood, Ind.
Casberg, H. A.	Holman.
Cherovsky, J. L.	Kewaunee.
Chetlain L. A.	Galena, Ill.
Christiansen, O. A.	Erly.
Christison, O. G.	Cambridge.
Clendenning, H. V.	Bradwardine, Can.
Clark, H. G.	Iowa Falls, Ia.
Clark, J. D.	Whitewater.
Clausing, Adolph.	Bartel Sta.
Coburn, O. A.	Whitewater.
Cockerill, L. L.	Berlin.
Colburn, Bert.	Chippewa Falls.
Conant, W. A.	Boston, Mass.
Conger, C. W.	Seward, Ill.
Connell, W. F.	Colgate.
Convey, F.	Ridgeway.
Conway, D. F.	Elroy.
Coon, E. P.	Utica.
Coon, F. B.	Milton Jct.
Cooper. H. O.	Hillside.
Cowgill, D. L.	Doylestown.
Cranefield, F.	Madison.
Cramer, J. J.	Marshfield.
Crosby, A. N.	S. Wayne.
Cross, A J.	Allenville.
Cross, C. W.	Verona.
Crow, R. R.	Monroe.
Curtiss, W. R.	Trevor.
Cutler, L. H.	E. Dubuque, Ill.
Daellenbach, Christ.	Dorchester.
Dahlby, O B.	Ettrick.
Davis, L. M.	Kneeland.
Davis, LeRoy L.	Franksville.
Davis, P. H.	Vina, Calif.
Dawson, W. J.	La Crosse.
Dettinger, W. F.	Northfield.
Dettwiler, A. J.	Monroe.
Dickerson, G. A.	Angusta, N. J.
Dickey, Meldrum.	Green Bay, R. R. No. 7.
Dickson, Allan.	Madison.

MEMBERSHIP—1903.—Continued.

Names.	Post-Office Address.
Dietrick, J. J.	Black River Falls.
Dille, F. J	Oakfield.
Dineen, C. F	Cedarburg.
Di Vall, Arthur	Montfort.
Dixon, D	Cuba City.
Dodge, J. E	Lowell, Mass.
Doelle, W. A	Chaska, Minn.
Doerfer, C. F	Madison, R. R. No. 3
Donaldson, E. A	Eau Claire.
Donnelly, J. E	Dobie
Dow, Lloyd	Stoughton.
Downer, A. G	Appleton.
Drake, A. H	Beaver Dam.
Drecktrah, W	La Crosse.
Drege, Emil L	Madison, R. R. No. 2.
Drissen, W. H	Kewaunee.
Dudleston, Claude	La Valle.
Duff, W. L	Fayette.
Dufner, G. H	Fennimore.
Dukleth, P. A	Big Bend.
Dunbar, H D	Elkhorn.
Dutton, C. A	Centerville.
Ebert, F. E	Tomah.
Edwards, W. C	Cambria.
Elfers, D. G	Richmond, Ill.
Ellickson, Alfred	Cambridge.
Ellickson, Arthur	Cambridge.
Ellingson, F. T	Capron, Ill.
Elliot, L R	River Falls.
Emerson, B O	North Bend.
Emery, G. Q	Stoughton.
Erickson, A. J	Stetsonville.
Erickson, Jalmar	Hadleyville.
Erstad, Peter	Menomonie.
Evans, T. H	Wales.
Evans, W. H	Wales.
Fargo, Edward	Lake Mills.
Farnham, Ernest	Stephensville.
Farner, W. C	Waumandee.
Farrington, E. H	Madison.
Fielbel, E. W	Ft. Atkinson.
Fregel, B	Hancock.
Fielek, Joseph	Waukesha.
Finner, W. A	Arcadia.
Fischer, O. O	Pewaukee.
Fischer, Felix	Racine
Fish, A. E	Sparta.
Flieshauer, C. K	Arkansaw.
Floyd, G. E	Eureka.
Ford, J. A	De Soto.
Forsythe, John	Oconomowoc.
Fox, H. T	Durand.
Fredlund, J. J	Mt. Vernon, Wash.
Freeman, G. A	Pewaukee.
Frelich, F. G.	Kewaunee.
Freng, Matthew	Holmen.
Friday, C. E	Neosho.
Frohmader, C G	Oakdale.
Fruit, C. E	Livingston.
Gaarder, John	Holmen.
Ganschow, W. C	Bonduel.
Garbers, August	La Crosse.
Geller, H. W	Agri. College, Mich.
Gerken, Herbert D	Reedsburg.
Gilbert, Elias	Sturgeon Bay.
Gilbertson, Herman	Blanchardville.
Gillette, Rufus E	Fitchburg.
Glasgow, W. C	Waterloo, Ia.
Gleason, G. M	Madison.
Goodell, A. Jr	Reedsburg.
Gordon, J. R	Mineral Point.
Gordon, C. D	Mineral Point.
Gould, J. C	Hartford.
Grengo, A. L	Sussex.
Grenell, E. O	Darien.
Grist, H. C	Hayward.
Grover, G. E	Annsburg.
Grover, W. A	Ridgeland.
Grover, J. W. L	Browntown.
Guilford, W. S	Racine.
Gullickson, C. E	Cushing.
Gustafson, Theo	Lund.
Gysbers, James	Waupun.
Gysbers, John	Waupun.
Habighorst, Harry	Sheboygan Falls.
Hackett, C. H	Baraboo.
Hadden, G. A	Johnstown Center.
Haecker, H. C	Annandale, Minn.
Haevers, Martin	Tonet.
Hager, W. H	Prairie du Sac.
Hagestad, A. C	Ettrick.
Hahn, G	Sauk City.
Halbert, J. H	Augusta.
Halgrim, Henry	Dodgeville.
Hamlyn, W. W	West Bend.
Hanchett, W. H	Sparta
Hancock, J. E	Harvard, Ill.
Hanna, Roy	Red Oak, Ia.
Haunschild, L. G	Mondovi.
Hanson, J. H	Luana, Ia.
Hanson, A. F	City Point.
Hanson, H. T	Camp Douglas.
Hanson, M. N	Hollendale.
Hanson, Hans	Otsego.
Hanzlik, O J	Hillsboro.
Harris, Sidney	Waukau.
Haseltine, W. E	Baraboo.
Haskin, J. O	Prairie du Sac.
Hatch, Lewis	Oakfield
Hatfield, L. H	Evansville.
Heffron, John	Hudson.
Hembrook, Fred	Waterford.
Herbst, J. L	Sparta.
Herd, H. V	Madison
Herrick, E. C	Plainfield.
Hessel, C. J	Francis Creek.
Hesselburg, A. E	Rockland.
Hicken, A. B	Pewaukee.
Higday, J. S	Evansville.
Hillier, Byron	Springfield Corn's.
Holcomb, Roy	Concord.
Holman, C. R	Waupaca.
Holman, R. E	Waupaca.
Holt, W. E	Brooklyn.
Holzworth, R. B	Farmington.
Hossfeld, G. A	Holman.
Houkum, Stephen	Blair.
Howitt, C. H	Randolph.
Howland, Howard	Waupun.
Hoyem, Sigmund	Eau Claire.
Hubbard, Sherman	Evansville.
Hulsether, Albert	Utica.
Huntington, C. B	Perry, N. Y.
Hutchins, A. L	Madison.
Hutchins, H	Roscoe, Ill.

MEMBERSIP—1903.--Continued.

Names.	Post-Office Address.
Illian, W. L	Scott.
Imholt, B. A	Houlton.
Jackson, H. O	Cambridge.
Jackson, O. E	Stockholm.
Jacobson, A	Menomonie.
Jahn, Chas	Madison.
Jahnke, J. F	Pepin.
Jaquish, J. E	Ithaca.
Jeffery, H. C	Co gate.
Jensen, J. F	Lind.
Jensen, T. A	Miles, Wash.
Jewell, F. A	Dodgeville.
Jewell, W. F	Dodgeville.
Johnson, A. E	Iola.
Johnson, H. W	Wiota.
Johnson, C. I	Snoqualmie, Wash.
Johnson, Bert	Viroqua.
Johnson, H. C	Deerfield.
Johnson, C. F	Ettrick.
Johnson, O. N	Fond du Lac.
Johnson, Kasper	Iola.
Johnson, G. G	Waupun.
Jones, E. F	Sun Prairie.
Jones, C. E	Dousman, R. F. D.
Jones, E. E	Rockland.
Jones, Albert	Dousman, R. F. D.
Jung, August	Randolph.
Keenan, Wm	Oregon.
Keough, L. F	Forestville.
Kendall, V. F	Waupaca.
Kent, H. W	Rusk
Kieffer, M	Dacada.
Kilby, O. W	Wheeler.
Kingsley, S. J	Cascade, Iowa.
Kitchen, J. H	Eldorado
Klovdahl, John	Wittenberg.
Kluck, R. E	McConnell, Ill.
Kluck, F. E	McConnell, Ill.
Klussendorf, W. J	Howard.
Knecht, John	Waumandee.
Kohlwey, O. F	Grafton.
Kolar, F	Muscoda.
Koll, Chas	Eau Claire.
Korf, Jesse	Forreston, Ill.
Kramer, H. F	Eagleton.
Knudtsen, O. H	Beloit.
Kubat, Wm	Neilsville.
Kuenster, Gustav	Glen Haven.
Kukowinski, John	Chicago, Ill. (1003 N. Hermitage Ave.
Kundert, Edw	Monroe.
Kuykendall, F. S	Vienna, Ill.
Langworthy, J. V	Augusta.
Larson, A. D	Waupaca.
Larson, J. M	Mt. Morris.
Larson, W. B	Ogdensburg.
Larson, O. E	Emerald Grove.
Lasseh, H. J	Orfordville.
Laub, Wm	Madison.
Lauderdale, S. J	Tibbets.
Lehman, Wm	Neosho
Liebe, John Jr	Grand Rapids.
Lien, Alfred	Blanchardville.
Linker, W. F	Hartford.
Linton, F. J	Ft. Atkinson.
Little, G. D	Janesville.
Loyd, E. B	Cambria.
Logan, J. W	Stanley.
Logan, R. G	Greenfield, Ind.
Longanecker, Elmer	Cerro Gordo, Ill.
Loomis, Chas. W	Wauwatosa.
Lord, Wesley	Neenah.
Lorentzen, A. A	Stanton.
Lunn, C. M	Afton
Lytle, J. L	Luana, Ia.
McCabe, C. H	Fountain City.
McCarthy, P. H	Brownsville.
McCleery, Albert	Waterman, Ill.
McClure, Mark	Manhatten, Ill.
McConnell, R. E	Walworth.
McCormick, E. S	Mt. Hope.
McDonald, J. R	North Bend.
McGuire, Wm	Lake Geneva.
McKay, L. E	Chippewa Falls.
McLean, Wm	Elkhorn.
McLees, Adam	Viroqua.
McNoun, J. H	Mauston.
Mass, W. C	Cedar Grove.
Macaulay, R. H	Dunnville
Maddock, D. E	Maddock, N. Dak.
Mader, H. F	Cadott.
Main, A. G	Hortonville, R R. D. No. 1.
Malde, O. G	Durand, Ill.
Marchant, J. L	Rosendale.
Marck, F. R	Vienna.
Markey, W. E	Sullivan.
Marsden, R	Fennimore.
Mattison, Thos	Blair.
May, E. D	Berlin.
Mead, R. E	New Lisbon
Menne, J. N	New Franken.
Merritt, L. A	Mondovi.
Meyer A. J	Madison.
Meyer, E. J	Tomah.
Meyers, C. S	Sugar Grove, Ill.
Miller, A. L	Allenville.
Miller, Leslie	Livingston.
Miles, Ira D	Taylor.
Mills, Stephen	Springville.
Milward, J. G	Madison.
Minnick, Hugh	Baraboo.
Mce, G. J	Holmen.
Moen, Geo. A	Cambridge.
Moody, R. F	Oshkosh.
Moore, C. K	Wauwatosa.
Moore, R. A	Madison.
Moore, F. F	Roscoe, Ill.
Morgan, W. J	Saginaw, Mich.
Morgan, Hiram	Beloit.
Morris, A. G	Waterville.
Mortimer, G. W	Rice Lake.
Mortimer, A. L	Withee.
Muenster, H	New Holstein.
Murphy, D. E	Carlton.
Mutch, S. S	Elroy.
Neeley, R. S	Pecatonica, Ill.
Nelson, O. A	Cumberland.
Nelson, Edward	Fennimore.
Nelson, James	Waupaca.
Nelson, J. N	Fennimore.
Nelson, A. M	Spring Valley.

MEMBERSHIP—1903.—Continued.

Names.	Post-Office Address.
Ness. Christopher	Urne.
Nevens, C. H	Winnebago, Ill.
Newberry, E. L	Peshtigo.
Nichols, Vernon	Sharon.
Nichols, C. L. Jr	Hebron, Ill.
Nicholaus, D. C	Troy Center.
Noble, B. L	Rochester.
Nix, T. C	Sanger, Cali.
Ogle, J. L	Waldo.
Ogilvie, J. M	Verona.
Oldham, H. D	Manitowoc.
Oliver, Albert	Galesville.
Olsen, Edward	Norseville.
Olsen, A. O	Livingston.
Olsen, J. P	Ripon.
Olson, Nalvin A	Chetek.
Olson, H. A	Cambridge, R. R. No. 1.
Osborne, W. F	Cobb.
Osterday, E. S	Wiota.
Oestreich, R. G	Kewaunee.
Owen, Grant E	Portage.
Pachernig, A	Waccabuc, N. Y.
Paden, H B	Kasbeer, Ill.
Palmer, J. B	Whitewater.
Palmer, Levi	Verona.
Partridge, Harry C	Cross Plains.
Patterson, J V	Bloomington.
Pattison, T. J	Tarrant.
Paulson, P. A	Hudson.
Paulson, J. N	Manitowoc.
Peterson, Geo. A	Menomonie.
Peterson, Chas. A	Orange.
Phillips, Jesse	Elizabeth, Ill.
Poellman, M. J	Granville.
Pope, Nat. Jr	Waupaca, R. R. No. 5.
Portz, Albert	Waukesha.
Posten, R. H	Knapp.
Powell, L. J	Stockbridge.
Powell, D. E	Rockton.
Preston, R. C	West Depere.
Purdy, W. N	Bangor.
Quincannon, Ed	Lake Geneva.
Ramer, C. J	Hanover.
Ray, H. K	Kewanee, Ill.
Reddeman, A. W	Waterloo.
Rehbein, Arthur E	Northheim.
Reich, Joseph	East Gibson.
Renk, W. F	Sun Prairie.
Renk, H. J	Sun Prairie.
Reynolds, Harry	Peebles.
Rhodes, O. C	Galesville.
Rice, H. M	Boscobel.
Richards, W. B	Racine.
Richardson, A. L	Wyoming.
Richter, B. F	Chippewa Falls.
Roberts, W. J	Prion.
Roberts, F. W	Woodworth.
Robertson, R. B.	Tomah.
Robinson, Hugh	Evansville.
Robinson, M. J	Neenah.
Robinson, M. C	Kingsbury, Calif.
Rogers, Fred	Mendota.
Rogers, B. J	Fennimore.
Rood, Minnick	South Wayne.
Rood, O. C	Wiota.
Rosenow, L. J	Montana.
Rosenow, H. E	Oconomowoc.
Rosenow, H. G	Montana.
Rowe, L. M	Waupaca.
Rowntree, C. C	Rochester.
Rundell, H. F	Livingston.
Ruste, C. O	Barneveld.
Russell, A. C	Island Lake.
Rutter, Chas	Ferryville.
Ryall, B. R	Augusta.
Safford, Henry	Sycamore, Ill.
Sampson, Julius	Menomonie.
Sandberg, J. T	Marinette.
Sandsten, E. P	Madison
Savage, A. F	Quincy, Fla.
Saxe, A. W	Whitewater.
Staack, B F	Middleton,
Schafner, C. H	Duplainville.
Schaefner, Sam'l	Kinley.
Schaefer, E. A	Appleton.
Schaefer, R. J	Appleton.
Scherz, Fred J	Rise Lake.
Schimmelfennig, W. J.	Marshfield.
Scnmidt, O. B	Richfield.
Schneider, P. G	Northfield.
Schneider, Andrew	Leland.
Schneider, Joseph	Rice Lake.
Schottler, C. J	Germantown.
Schreiber, R. C	Fall River.
Schroeder, F. C	Washington, D. C., Bureau of Soils.
Schroeder, Christ	Kewaunee.
Schumacher, H. C	Kewaunee.
Schwartz, J. J	Troy Ctr.
Scott, W. F	Port Washington.
Scribner, R. M	Rosendale,
Seaberg Chas	Iron M'tain, Mich.
Seidler, Walter	Milwaukee, Wis., 315 13th St.
Semb, T. A	Erly.
Sette, E. W	Juneau.
Seymour, S. D	Milwaukee, Box 1495.
Sheen, C. J	Trevor.
Sherman, W. T	Reedsburg.
Sherman, G. J	Eau Claire.
Shultis, O. D	Waukesha.
Signor, J. M	Eau Claire.
Skalitzky, F. G	Sun Prairie.
Slaby, Edw	Kewaunee.
Slatter, J. H	Sun Prairie.
Slosser, G. B	Blk. River Falls.
Slosser, J. A	Blk. Riv. Falls.
Smith, J. W	Smithton.
Smith, G. W	Millington, Ill.
Smith, R. L	Flint, Mich.
Smith, D. A	Prion.
Snyder, R. B	Clinton.
Snyder, H. A	Brooklyn.
Spooner, Carleton M.	Orange.
Sprague, G. D	Benson, Neb.
Starker, C	Sun Prairie.
Stauffacher, A. J	Stearns.
Steffen, C. J	Western Union.
Stevens, M. B	Jefferson.
Stevens, Wallace	Tomah.

MEMBERSHIP—1903.—Continued.

Names.	Post-Office Address.
Stewart, J. R.....	Verona.
Stewart, R. L	Randolph, Ill.
Stogdell, R. H.... ...	Esdaile.
Stone, A. L	Medford.
Strader, E. W.....	Augusta.
Strande. T. A	Taylor.
Streckenbach, A. W ..	Sun Prairie.
Strutt, A. J	Ridgeway.
Swan, Leon.....	Waupaca.
Swan, N. J..... ..	Wauwatosa.
Swan, D M.....	Wauwatosa.
Taft, H. W....	Whitewater.
Tainter, L	Menomonie.
Tanner, R. C.....	Capron, Ill.
Taylor, W. O.....	Mauston.
Taylor, J. H	Orfordville.
Tellstrom, Elias.....	Chippewa Falls.
Thayer, W. R	Whitewater.
Thiel, Alfred.....	Viroqua
Thieleke, E. A	School Hill.
Thom, J A	Millburn, Ill.
Thom, Edwin	Millburn, Ill.
Thomas, J. E	Wales.
Thomas, Henry.....	Wausaukee.
Thompson, T. P	Oriska, N. Dak.
Thompson, A. B	Centerville.
Thompson, Theo.....	Curtis.
Thompson, Walter ...	Northfield.
Thompson, Morris....	Waterman, Ind.
Tiedebohl, T. C.....	Chicago, Ill.
Tiffany, Geo	Melrose.
Tillotson, H	Bristol.
Tobler, Alfred	Brooklyn, Ia.
Toepel, Wm.....	Sheboygan.
Toole, W. A.....	Baraboo.
Torrey, W. E.....	Hebron.
Tracey, E. E	Wonewoc.
Travis, V. W.....	Canisteo, N. Y.
Treat, P. S.....	Franks, Ill.
Treseder, S. J.	Viroqua.
Truesdale, T. S.....	Gillingham.
Turnbull, J. C	Cuba.
Uehling, L. E.....	Afton.
Uttermark, C. J. F....	Somerset.
Vance, Claude	Decatur, Ill.
Varnum. G. F.....	Melrose.
Vincent, J. A..	Lancaster.
Voegeli, Wm	Jordan Center.
Wahler, Adolph.....	Edmund.
Waite, E. L.....	Oshkosh, R. F. D.
Walline, C. W..... ...	Cambridge, Ill.
Walter, Andrew.....	Oshkosh.
Warner, J.....	Whitewater.
Waterstreet, Wm.....	Marshfield.
Watkins, H. A	Edmund.
Watson. G. M.....	Milwaukee.
Watson, S. E.....	Milwaukee.
Wiegand. O. R.....	Cleveland.
Wendt, George.....	Rosendale.
West, J. B.	Whitewater.
Weston, John..... .	Burnette Jct.
White, T. J	Vesper.
Whitmore, C. H	Center.
Whitson, A. R.....	Madison.
Wiegand, O. R.....	St. Wendell.
Williams, J. R.....	Packwaukee.
Williams, A. B.....	Dodgeville.
Williams, E. R.....	Bangor.
Williams, C. J	Hill-ide.
Williams, Melvin.....	Potosi
Williams, A. R.....	Waukesha.
Williamson, A. B... ..	Millville.
Winter, F. H.....	Fox Lake.
Wirth, M. W	Tomah.
Wittak, Geo	Milwaukee
Woodcock, E. R	Collins.
Woodruff, W. B.....	Avon, N. Y.
Woodward, John	Madison.
Wrabetz, F.....	Kewaunee.
Wright, W. J	Waukesha.
Wright, T. J	Mauston.
Wyatt, Ernest	Tomah.
Young, F. T.....	Delafield.
Zahrt, F. H	Hortonville.
Zenz, A.....	Hurricane.
Zimmerman, Fred....	Jordan.

PROGRAM OF THE SECOND ANNUAL MEETING OF THE WISCONSIN AGRICULTURAL EXPERIMENTAL ASS'N.

Madison, Wis., Thursday and Friday, February 5-6, 1903.

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

PROGRAM.

EVENING SESSION, CAPITOL.

Wednesday, February 4, 7.30 P. M.

Joint session agricultural experimental association, state board of agriculture and horticultural society.

1. Music.....Short Course Band
2. Remarks.....Supt. of Farmers' Institutes, Geo. McKerrow
3. Quartette.....Former Short Course Students
4. Recitation.....Miss R. E. Burce
5. Address.....State Supt. C. P. Cary
6. Vocal Solo.....W. J. Moyle
7. Address: Relation of Horticulture to the Public Schools, J. W. Livingston

Thursday, Feb. 5, 10 A. M., Library Hall.

Annual Address.....A. J. Meyer
Report of Secretary.....R. A. Moore
Rape as a Forage Plant.....O. E. Sette
Discussion: H. E. Rosenow, B. S. Hillier, W. E. Bussewitz, B. A. Imholt, C. F. Dineen.
Trials with Alfalfa.....W. A. Abbott
Discussion: C. E. Jones, O. G Morris, H. E. Rosenow.

INTERMISSION.

Thursday, Feb. 5, 2 P. M., Library Hall.

Plant and Animal Breeding.....J. D. Clark
Rational Horse Breeding.....Dr. A. S. Alexander
Address.....J. Q. Emery
Trials with Wisconsin No. 4 Oats.....Edw. F. Heuer
Discussion: C. F. Dineen, M. Rood, F. E. Ebert.
Breeding Draft Horses for the Market.....O. N. Johnson
The Grange.....George Schaefer, Sec. State Grange

Friday, Feb. 6, 9 A. M., Capitol.

Formaldehyde Treatment of Seed Oats for Prevention of Smut,
.....W. H. Hanchett
Discussion: P. V. Becker, C. A. Koll, J. V. Nichols, D. L. Cowgill, E. E. Jones, C. J. Schottler.
Breeding Native Plums and Hardy Cherries.....W. J. Moyle
Soy Beans for Forage and Seed:
Northern Illinois, Jesse Phillips.
Central Wisconsin, J. P. Bonzelet.
Discussion: P. A. Dukleth, James Nelson, O. G. Morris, R. A. Gillett, Bert Johnson.

Business Meeting—
Election of officers, reports of committees, etc.
Plan of work for the coming year—
Division of Farm Crops.....R. A. Moore
Division of Animal Husbandry.....W. L. Carlyle
Division of Horticulture.....E. P. Sandsten
Division of Agricultural Physics.....A. R. Whitson
Division of Farm Dairying.....E. H. Farrington

FIRST ANNUAL REPORT

OF THE

Wisconsin Agricultural Experimental Association.

PRESIDENT'S ANNUAL ADDRESS.

A. J. MEYER, MADISON.

Members of the Experimental Association and Gentlemen: My message to you today is a short one. It is, indeed, a great pleasure to see so many of our members present. If there is any strength in numbers, we certainly have here the promise of a most successful meeting. I trust that you have all come loaded with ideas and questions and that you will not be backward in giving us the benefit of both.

We meet to-day at a critical time in the life of our organization. A bill has been offered to the legislature asking for an appropriation large enough to place us upon a financial basis and give us the means to carry on our work properly. What we do here to-day and to-morrow must furnish to a large degree the justification for granting or for denying the appropriation. We cannot hope for state aid until it has been proved beyond the shadow of doubt that we have the spirit and the back bone necessary to make proper use of such funds. The state gives money to aid the state;—not one little corner of it, not the tiny fraction of it gathered here today within these four walls,—but to aid the whole state. It is entirely proper then for the legislature, before granting this appropriation, to

demand the right to know who we are and what our intentions are. The records of this meeting must tell the story and it rests with you to make it worth the reading.

The question confronts each one of us squarely: What is your object in belonging to this association? What do you see ahead of you as you look adown the years? What are you headed for? Bring 600 odd members up against a set of questions of that nature, and a number of them will suddenly awaken to the fact that they really have spent no thought upon why they belong to the association, that they don't see anything ahead of them, and that they are headed for nowhere. The large majority, however, must always be of those who have a comparatively definite object in view in joining the association, who do see something ahead of them, and who have a rather well fixed notion of the port toward which their sails are set.

Whether one is to be useful or useless, helpful or harmful to us, will depend altogether upon what his general object in life is, and upon how closely he follows that object. The man who can estimate the pleasure he derives from his growing crops, from his herd and his flock, only in dollars and cents is not the man who will ever make himself very useful in our organization. He is the kind of a man who destroys public enterprise faster than a good man can build it up. On the other hand, the man who raises crops because he enjoys seeing the crops grow, who spends his time investigating new methods of cultivation and new crops because his very heart and soul are wrapped up in the living things about him, who raises live stock because he loves live stock and because his heart is in his work,—such a man can be of incalculable value to us. He is the kind of a man that will build up faster than a score of poor men can pull down. Such a man need not worry about the dollars. They come of their own accord; he can't get away from them.

A great many of you had the pleasure of listening to Mr. Hale, America's great peach grower, some time ago in this very room. You remember some one asking: "Do you think peaches can be grown in Wisconsin?" Without a moment's

thought his answer came: "I'd raise peaches in Wisconsin, or I'd get out of Wisconsin; and I wouldn't get out of it." There you have the whole secret that has made Mr. Hale the greatest peach grower in the world. He set out to grow peaches in Connecticut. It couldn't be done—certainly not—everybody knew that. No, not quite everybody; there was one man who didn't know it; who, in fact, knew quite the opposite. That man was Mr. Hale. He grew peaches in Connecticut, not the first year nor the second year nor the third year, but trying year after year, with never a moment's loss of faith, at the end of nine years he had trees that had become acclimated and the victory was his.

If that kind of a spirit could be instilled into the heart of our association, there would be almost no limit to what it might accomplish. Let each of our alfalfa investigators start out with this determination: "I will grow alfalfa in Wisconsin, or I'll get out of Wisconsin; and I won't get out of it." Then you may be sure alfalfa will be grown. It may not be done in one year, nor in two years, nor even in five years, but if they have the back bone to stick to their determination, they will finally grow alfalfa. Yes, and they will grow any other crop that they start out to grow. Such a spirit never meets defeat.

Before concluding, I want to congratulate you upon the work you have done the past season, and urge each one of you to continue in the particular work you have started and make it more perfect each year. A single year's experience in any one line may serve, in a small way, to show which way the wind blows, but it proves absolutely nothing. After an experiment has run through five years or more we may begin to make statements with some assurance that our statements are correct. There seems to be a little tendency on the part of some members to attempt too much. This is always unsatisfactory. Do not try to carry too large a load. Better one thing well done, than a half dozen attempted and all poorly done. I trust that you will all feel free to take an active part in our program, particularly the free for all discussions. This is your meeting—make all the use of it you can.

SECRETARY'S REPORT.

R. A. MOORE, MADISON.

Mr. President, Members of the Wisconsin Agricultural Experimental Association:

Less than two years ago our organization came into existance and today we are holding our second annual meeting.

The rapidly increasing membership and the many lines of useful investigations followed during the past season by members living in widely separated districts of the state make these trial tests and experiments of great value, not only to our membership, but to all people following various lines of agriculture. We have an important work in hand and we need the support of all who believe in placing agriculture on a higher plane.

Our membership now numbers over five hundred, laboring for the common purpose of wresting from nature's embrace the many problems that are of so much importance to those following agriculture as a vocation.

During the past year nearly all experiments were carried on with farm crops and this seems to be the line of work which will tax the efforts of the Association to the greatest extent and bear the best fruit in the next few years, as less has been done and the possibilities seem greater in that direction than in any other line of work.

Very little thought up to the present time has been given to the subject of the propagation of new varieties of seeds and plants. The energy of the farmer has been directed to the grading up of fat stock or dairy herds, the perfection of the swine or sheep departments, or possibly the raising of pure-bred horses or poultry, while any variety of oats, peas, corn, rye, etc., seemed good enough to sow for the season's crop.

It is not surprising that I look forward with a great deal of pleasure to the possibilities and accomplishments in store for the Wisconsin Agricultural Experimental Association when

we have but to realize that the raising of grain and forage plants is the foundation rock upon which all successful dairying and live stock industry are, and must ever be dependent.

John M. True, Secretary State Board of Agriculture, reports on the five leading cereals of Wisconsin for the season of 1902 as follows:

	Number bushels.	Value.	Average yield per acre.
Oats	95,000,000	$26,600,000	40
Corn	45,000,000	20,700,000	30
Barley	19,250,000	8,662,500	35
Wheat	11,000,000	7,150,000	20
Rye	7,560,000	3,477,600	21
	177,810,000	$66,590,100	

It seems reasonable from what has been accomplished by the experiments made with select varieties of grain during the past season that an increase of ten per cent. in yield can readily be accomplished through the efforts of the Experiment Station and this association in weeding out old varieties of grain and replacing them with new varieties that show by the test characteristics superior to the varieties displaced.

Minnesota, by breeding a new variety of wheat known as Minnesota No. 169, has raised the yield several bushels per acre, which means many million dollars to the state.

We are doing the same thing with oats and will take up barley and rye the coming season.

The United States Government is interested in our work. Dr. A. F. Woods, writing under date of March 19th, has the following to say after learning of the object and purpose of the Wisconsin Experimental Association:

"I attended the meetings of the Experimental Union this winter at Guelph, Canada, and was greatly impressed with the work that they are doing in this line. I am sure that the farmers of Ontario have been very greatly benefited by this experimental work which they have done in cooperation with the agricultural college. The line of work which you have undertaken seems to be somewhat similar to this in nature, and I

am sure will prove as valuable to the farmers of Wisconsin. If there is anything we can do to aid you in this work we shall gladly improve the opportunity.

"We are also much interested in your work along the line of getting the farmers to treat their seed oats so as to prevent smut. I am sure that the experimenters will see the value of this treatment when they give it a personal test."

Perfection and advancement in agricultural lines we follow should be our highest ambition and I trust the plans outlined for the work the coming year will enable each member to choose those lines of work in which he is most interested.

The oat smut investigations made during the past season as published in the Experiment Station bulletin No. 98 will aid very much in calling the attention of the farmers of Wisconsin to the necessity of treating their seed grain for the prevention of smut and save the $5,000,000 which is now being lost annually through the smut evil.

In a few instances where tests were made, treating seed grain for the prevention of smut, some smut was still noticeable, which has prompted the writer to recommend a somewhat stronger solution for its treatment the coming season.

From tests made at the Experiment Station it has been found that a solution much stronger than the one used the past year by members of the Association for the prevention of smut can be used without damaging the seed grain.

For future experiments the members of the Association are advised to treat the seed grain in accordance with the recommendation herewith given.

TREATMENT OF SEED OATS FOR THE PREVENTION OF SMUT.

If the desire is to treat forty bushels of seed oats place in tank or casks thirty-six gallons of water, and pour in one pint of formaldehyd; if more oats are to be treated make up the solution by using the above proportions of formaldehyd and water. Place oats in gunny sacks and submerge them in the solution for ten minutes after lifting from receptacle let drain for a minute or two in order to save solution and then empty on threshing floor or platform to dry.

If a considerable quantity of oats are to be treated much time may be gained by having a tank or several large casks and an abundant supply of the solution so as to submerge eight or ten sacks of oats during each period of time.

BARLEY TREATED FOR THE PREVENTION OF SMUT.

Seed barley was treated for the prevention of smut by several members of the Association, using the formula prescribed for treating oats. In all cases reported the treatment was effective, little or no smut being found in the crop grown from the treated seed.

The Experimental Association has an important mission to perform and by the hearty cooperation such as was made manifest during the past season, the good work can be carried into the remotest parts of the state.

Who knows the possibilities in store for Soy beans, cow peas, alfalfa, vetch, rape or sorghum or the advance that can be made all along the line by improvement in corn, oats, barley and other cereals. If forage and grain can be increased in quantity and perfection it seems reasonable that this must necessarily improve our dairy and live stock industry.

COOPERATIVE WORK OF THE ASSOCIATION FOR 1902.

Approximately two hundred members cooperated in making tests and carrying on experiments during the past season, many of which we deem advisable to report, at this time. Some experiments cover a period of more than one season, consequently will not be reported until next year.

OAT SMUT TESTS AND EXPERIMENTS.

The reports of the tests and experiments with oat smut show that trials were conducted by thirty-nine members in twenty-five counties of Wisconsin in accordance with data given herewith.

THE LOSS DUE TO OAT SMUT.

The crop report issued recently by John M. True, Secretary State Board of Agriculture, gives the acreage of oats in Wisconsin for 1902 at 2,375,000 acres, and the total yield 95,000,000 bushels. From the investigations made by the writer and other members of the Association in several counties of the state it is a conservative estimate that not less than seventeen per cent. of the oat crop of the state was destroyed by smut. The 95,000,000 bushels represent only eighty-three per cent. of the possible crop, as seventeen per cent. was destroyed. If no oats had been destroyed by smut the farmers would have raised approximately 114,000,000 bushels, a gain of 19,000,000 bushels. Estimating oats at thirty cents per bushel there is a money loss of over $5,000,000. Then there is the very considerable damage done the straw by smut.

This heavy annual loss can practically all be saved by treating the seed grain in accordance with directions previously followed.

Tables of investigations made by members of the Association to determine the extent the oat crop of 1902 was affected with smut.

Name of Investigator	Post Office.	County.	Treated oats sown.	Untreated oats sown.	Smut in treated oats	Smut in untreated oats.	Saved by treatment.
			bus'l	bus'l	p. c	p. c.	p c.
P. J. Bonzelet	Eden	Fond du Lac.	25	9	0.5	25.0	24.5
E. E. Jones	Rockland	La Crosse	20	50	1.6	25.0	24.0
J. J. Schwartz	Troy Center	Walworth	14	3	0.5	5.5	5.0
W. E. Bussewitz ..	Juneau	Dodge	70	2.5	0.5	8.0	7.5
A. E. Jung	Randolph	Dodge	70	18	3.0	20.0	17.0
Alvin Brehm	Sheboygan	Sheboygan ...	40	6	0.5	25.0	24.5
P. V. Becker	N. Plymouth	Sheboygan ...	35	2	1.0	33.0	32.0
H. C. Schumacher	Kewaunee R. No.1	Kewaunee	28	3	.....	2.0	2.0
B. A. Imholt	Houlton	St. Croix.....	40	10	1.0	15.0	14.0
C. A. Koll	Eau Claire	Eau Claire....	50	55	.....	1.0	1.0
D. L. Cowgill	Doyleston	Columbia	2	2	0.5	21.0	20.5
J. Halbert	Augusta	Eau Claire....	14	14	0.5	7.0	6.5
O. C. Rood	S. Wayne	La Fayette ..	30	3	0.1	10.0	9.9
H. A. Olson	Cambridge	Dane	100	10.0	0.3	40.0	39.7
Lester Powell	Stockbridge	Calumet	18	9	.....	40.0	40.0
J. N. Nelson	Fennimore	Grant	75	15	1.5	25.0	23.5
J. R. Stewart	Verona	Dane	36	80	1.0	25.0	24.0
F. H. Zahrt	Hortonville	Outagamie ...	30	30	0.5	12.0	11.5
H. E Rosenow....	Oconomowoc	Waukesha	22	22	.....	8.0	8.0
J. V. Nichols	Walworth	Walworth	50	25	.....	20.0	20.0
E. E. Jung	Randolph	Columbia	50	15	2.0	23.0	21.0
	Totals and avs...	.....	824	383.5	0.69	18.6	17.9

Oat smut determinations made by members of the Wisconsin Agricultural Experimental Association for the season of 1902.

Reporting Member.	Farmer.	Post Office.	Seed oats treated and untreated for the prevention of smut.	
			Treated.	Untreated
Grant County: Clyde E. Roesch, Potosi....	Joseph Gibson.....	Potosi.....	0.3	.....
	John Dane.....	Potosi.....	.....	12
	August Mulkey.....	Potosi.....	.....	21
	Christ Keener.....	Potosi.....	.....	10
	C. E. Roesch.....	Potosi.....	.....	14
Walworth County: D. C. Nicolaus, Troy Center.	F. Brinkman.....	Troy	.....	7
	H. L. Randolph....	Troy Center.....	.....	10
	A. Swoboda.....	Troy	.....	9
	F. W Nicolaus.....	Troy Center.....	0	.....
	F. Babcock.....	Troy	.....	50
	J. Key.....	Troy Center.....	.....	6
Dunn County: R. H. Macaulay, Dunnville.	Curtiss Bros.....	Dunnville.....	1.0	.....
	C. R. Cook.....	Dunnville.....	1.0	.....
	John Flick, Jr.....	Dunnville.....	0	.....
	F. P. Skillings.....	Dunnville.....	.....	25
	Paul Macaulay.....	Dunnville.....	.....	25
	R. H. Macaulay.....	Dunnville.....	.....	2
Taylor County: J. J. Ackeret, Medford.....	Jacob Hartman.....	Medford	.....	12
	Jacob Schaff.....	Medford	0	.....
	Andrew Heier.....	Medford	.....	2
	Conrad Kress.....	Medford	.....	8
	George Halverson...	Medford	.....	7
	Albert Johnson.....	Medford	.....	1
	John Sauer.....	Medford	.....	12
	Joseph Wanzer.....	Medford	.....	10
Outagamie County: F. H. Zahrt, Hortonville....	J. W Zahrt.....	Hortonville.....	0	.....
	A. C. Miller.....	Hortonville.....	.....	4
	Conrad Schwab.....	Hortonville.....	.....	9
Fond du Lac County: J. P. Oleson, Ripon..... R. F. D. No. 2.	F. F. Stellmacher...	Ripon, R. R. No. 2	.....	2
	Edw. Hill	Ripon.....	.....	6
	Jno. Schattschneider	Ripon, R. R. No. 2	1.7	.....
	Peter Oleson.....	Ripon, R R. No 2	0.7	.....
	Chas. Paschen, Jr...	Ripon, R. R. No. 2	.....	3.7
Racine County: Chas. Steffin, Corliss.....	Peter Keene.....	Racine	0.2	.....
	Henry Heidersdorf..	Sylvania.....	.....	25
	William Osborn.....	Sylvania.....	.....	20
Grant County: J. A. Tormey, Fennimore....	Emil Schwein.....	Fennimore.....	0	.....
	Thos. Tormey.....	Fennimore.....	.....	31
Jackson County: J. J. Dietrich, Bl. Riv. F'lls	J. J Dietrich.....	Black River Falls	.....	10
	E. Marke.....	Black River Falls	0	.....
Columbia County: J. B. Cook, Portage.....	Chas. Beny.....	Portage	0	.....
	Stuart Beny.....	Portage.....	.....	18
	E. F. Cook.....	Portage	.....	28
	Chas. Schroeder....	Portage.....	.....	33
	J B. Cook.....	Portage.....	3.5	.....
	Chas. Clark.....	Portage.....	.....	28
Marinette County. W. R. Newberry, Peshtigo..	Samuel Sweetty.....	Peshtigo.....	.....	12
	J. Polzine.....	Peshtigo.....	.....	15
	W. P. Newberry.....	Peshtigo.....	0.5	.....
	S. G. May.....	Peshtigo.....	.....	10
	Gust. Neniuman....	Peshtigo.....	.....	15

Oat smut determinations made by members of the Wisconsin Experimental Association for the season of 1902—Continued.

Reporting Member.	Farmer.	Post Office.	Seed oats treated and untreated for the prevention of smut.	
			Treated.	Untreated
Dane County:				
Geo. Thompson, Madison R F. D. No. 2	John Herpher	Sun Pra R.F.D	.....	40
	Erick Olsen	Sun Prairie R.R.1	.....	35
	Frank Bewick	Sun Prairie R.R.1	0	.....
	Nels Nelson	Madison R. R. 2.	5.0	.....
	Larson Bros	Madison R. R. 2.	.....	50
	Mark Miller	Sun Prairie R.R.1	.....	20
	Albert Crabtree	Sun Prairie R.R.1	.....	30
	John Bolstad	Windsor R. F. D	.....	55
	Tom. Torgeson	Madison R. R. 2	.....	30
Dunn County:				
R. H. Posten, Knapp	Wm. Miller	Knapp	.....	5
	Thos. Miller	Knapp	.....	5
	Will Hickman	Knapp	.....	4
	R Cockrom	Knapp	.....	7
	A. R. Hall	Knapp	.....	1
	Edward Yearmark	Knapp	.....	7
Iowa County:				
L. Underwood, Avoca	Chas. Gutknecht	Avoca	.....	11.5
	O. P. Underwood	Avoca	.....	23
	Geo. Smith	Avoca	.....	30
	C L. Underwood	Avoca	.....	32
	C L. Underwood	Avoca	4.0	.....
	John Gallagher	Avoca	.....	20
Waushara County:				
Edw. Heuer, Wautoma	A W. Heuer	Wautoma	.....	4.6
	Addison Spees	Wautoma	.....	12
	Edw. Schultz	Wautoma	.....	7.6
	J. F. Webers	Wautoma	.....	6
Grant County:				
H. F. Rundell, Livingston	A. E. Rundell	Livingston	1.0	.....
	Clarence Fawcette	Livingston	.....	17
	A V. Wells	Livingston	.....	9
	Wm. Warne	Livingston	.....	11
	U. L. Kirkpatrick	Livingston	.....	23
	B. F. Bennett	Livingston	.....	27
Kewaunee County:				
J. J. Blanik, Kodan	Henry Runke	Algoma	.....	18
	J. J. Blanik	Kodan	0	.....
	Jacob Blanik	Kodan	.....	21
Jackson County:				
J. B. Slosser, Black R. Falls.	W. T. Horsville	Black River Falls	.....	5
	Louis Johnson	Black River Falls	.....	32
	Albert Thompson	Black River Falls	.....	33
	F. W. Hubert	Black River Falls	.....	7
	Geo. Smart	Taylor	.....	8
	John Fucher	Black River Falls	.....	10
Average all tests			.9	16.5

SUMMARY OF ABOVE TABLE.

Observations by eighteen reporters in fourteen different counties where the seed oats had been treated for the prevention of smut showed on the average less than *one per cent.* of smut.

Seventy-one observations made in the same counties where the seed oats had not been treated showed *16.5 per cent.* of the crop destroyed by smut.

TRIALS WITH ALFALFA.

Thirteen members of the association experimented with alfalfa. In the majority of cases a fair stand was secured and we will watch with interest the second year's trial.

The season was not favorable for growing alfalfa owing to the over abundance of moisture. In nearly all cases the alfalfa was sown with a nurse crop which seems from past experience, to be the best method of getting a good stand where the land is inclined to be weedy.

At the Experiment Station the past season alfalfa was sown with barley as a nurse crop and sprouted nicely and grew to be about four inches in height when the barley lodged and the crop was smothered. Where grain sown as a nurse crop with alfalfa lodges we find that it is sure to kill the alfalfa unless cut and removed.

If alfalfa is sown with oats or barley as a nurse crop do not sow more than one-half or one-third the amount of oats or barley usually sown per acre.

Where the nurse crop is sown thin it gives the alfalfa a better chance to spread and also affords ample protection from weeds. If the nurse crop is cut for hay remove from the alfalfa field within a day or two, for if left to lie upon the young alfalfa plants it will injure them.

There seems no doubt, but that alfalfa is to become a great forage plant for Wisconsin and at least one hundred members should carry on experiments with it the coming season.

Summary of alfalfa investigations made by members of W. A. E. A.

Experimenters.	Post office.	County.	Variety.	Soil.	When sown.		Germination period, days	When cut.		Hay per acre tons.		Stand.	Rate of seed per acre lbs.
					Oats.	Alfalfa.		Oats.	Alfalfa.	Oats.	Al'fa		
Wm. Hamlyn.....	West Bend.....	Washington	Turkestan...	Sandy loam..	.....	April 5.	14	.....	.....	.....	.....	Uneven...	8
W. E. Bussewitz..	Juneau.	Dodge.. ...	Turkestan...	Black soil....	April 12	April 12.	21	July 2..	Aug. 21.	2	½	Fair.....	15
Rufus Gillett.....	Madison R. R. 3	Dane	Common	Black prairie.	April 10.	April 10	35	July 15..	.....	.....	.....	Poor.....	20
B. S. Hillier.....	Springfield Crs.	Dane.	Common	Clay loam....	April 4..	April 4.	31	July 15..	.....	2	.....	Poor.....	15
W. A. Abbott.....	Wausau.....	Marathon..	Common	Sandy loam..	.....	June 6..	5	.....	Aug. 1..	.....	1	Good.....	30
E. J. Meyer.....	Tomah.....	Monroe.....	Turkestan...	Sandy	.....	April 9.	23	.....	.....	.....	.....	Poor.....	20
C. E. Jones.....	Dousman	Waukesha .	Common	Sandy	Mar. 29.	Mar. 29.	20	July 12..	Sept. 1.	1¼	.....	Medium..	30
Jesse Phillips.....	Elizabeth, Ill...	Jo. Daviess	Turkestan...	Deep clay l'm	May 28.	May 28.	3	July 15..	Aug. 15.	2	1.5	Good.....	15
J. P. Bonzelet....	Eden.....	Fo'd du Lac	.....	Clay	Barley April 16.	April 16.	9	Barley July 25.	....	.....	.....	Fair.....	15
H. E. Rosenow...	Oconomowoc ..	Waukeha...	Common	Clay.....	Mar. 29.	Mar. 29.	24	July 11..	.....	1½	.....	Good.....	18
H. C. Schumacher	Kewaunee R. R 1	Kewaunee..	Common	Clay loam....	April 18	April 18.	14	Aug. 10	.....	1	.....	Poor.....	15
O. G. Morris.....	Dousman	Waukesha..	Turkestan...	Sandy loam..	April 14.	April 14	11	July 31..	.....	.....	.....	Fair.....	15
B. A. Imholt.....	Houlton.....	St. Croix...	Common	Clay loam....	April 18.	April 18.	3	July 30..	Sept. 2..	.....	½	Good.....	15

RAPE AS A FORAGE PLANT.

A large number of members of the association sow rape as a forage plant annually and would not be without it, but as the experimental work of the society in 1901 was extensively with rape, not so much prominence was given to experiments with that plant the past season. Eight members reported on investigations made which are herewith given.

We note that the rape was fed or pastured by hogs, sheep and cattle and was satisfactory in each and every trial. Where the rape was sown with grain, some difficulty was experienced in binding.

On account of over-abundance of moisture in the southern half of the state, rape sown with grain grew so rank that it interfered with the grain crop. The experience of those who have grown rape for several years seems to indicate that the safest and most profitable way to grow rape is to sow in drills or broadcast without a nurse crop.

INFORMATION CONCERNING THE SWEDISH SELECT OATS.

During the spring of 1899, the Wisconsin Experiment Station secured from the United States Department of Agriculture, Washington, D. C., several varieties of oats for trial purposes. One of the varieties, known as the Swedish Select Oats, U. S. No. 2788, showed such commendable characteristics the first season that it was deemed advisable to test it further.

The Swedish Select oat originated in Sweden, was imported into Russia and became one of the standard varieties of that country. Mr. M. A. Carleton, explorer of the United States Department of Agriculture, Section of Seed and Plant Introduction, who visited Russia in 1898 under direction of the department, was so pleased with this variety of oats that he secured twenty bushels, a small part of which was sent to the Wisconsin Station. These oats have been grown under the supervision of the writer on the university plots for four seasons, during which time they have been carefully tested and compared with thirty-six other varieties.

Summary of rape investigations made by members of W. A. E. A.

No.	Experimenters.	Post Office.	County.	Date of sowing.	Variety.	Soil.	Seed per acre, lbs.
1	Roy E Kluck	McConnell, Ill	Stevenson	Mar. 27	Dwarf Essex	Clay loam (high)	6
2	Roy E. Kluck	McConnell, Ill	Stevenson	April 14	Dwarf Essex	Clay loam	4.5
3	Jesse Phillips	Elizabeth, Ill	Jo. Daviess	April 22	Dwarf Essex	Well drained clay	2
4	B. S. Hillier	Waunakee, R. R	Dane	May 6	Dwarf Essex	Sandy clay	2.5
5	B. S. Hillier	Waunakee, R. R	Dane	May 16	Dwarf Essex	Sandy clay	2.5
6	O. C. Rood	So. Wayne	La Fayette	April 15	Dwarf Essex	Gravelly clay loam	¾
7	O. C. Rood	So. Wayne	La Fayette	April 26	Dwarf Essex	Black river bottom	3
8	O C. Rood	So. Wayne	La Fayette	May 5	Dwarf Essex	Clay loam	1
9	W. E Bussewitz	Juneau	Dodge	April 12	Dwarf Essex	Black loam	¾
10	W. E. Bussewitz	Juneau	Dodge	April 19	Dwarf Essex	Black loam	5
11	Alvin Brehm	Sheboygan	Sheboygan		Dwarf Essex	Clay	1
12	H. E. Rosenow	Oconomowoc	Waukesha	May 5	Dwarf Essex	Clay loam	2
13	H. E. Rosenow	Oconomowoc	Waukesha	May 19	Dwarf Essex	Peat soil	
14	H. E. Rosenow	Oconomowoc	Waukesha	April 12	Dwarf Essex	Clay loam	½
15	B. A. Imholt	Houlton	St. Croix	May 5	Dwarf Essex	Heavy clay	4
16	B. A. Imholt	Houlton	St. Croix	April 12	Dwarf Essex	Heavy clay	3
17	B. A. Imholt	Houlton	St. Croix	May 2	Dwarf Essex	Heavy clay	4
18	Jesse Phillips	Elizabeth, Ill	Jo. Daviess	April 10	Dwarf Essex	Black loam	2
19	Jesse Phillips	Elizabeth, Ill	Jo. Daviess	April 10	Dwarf Essex	Rich black loam	3
20	Jesse Phillips	Elizabeth, Ill	Jo. Daviess	April 28	Dwarf Essex	Black loam	2

Summary of rape investigation made by members of W. A. E. A.

No.	Manner of sowing.	Germination period, days.	Date of cutting oats.	Did rape cause trouble in binding.	Did rape interfere with drying.	Time after cutting oats when rape was fit to feed.	Time after sowing when rape was fit to feed.	Green feed per acre, tons.	To what fed.	Satisfactory or not.
1	Sown with oats	14	July 20	Yes	Yes					
2	Sown after oats were 2 or 3 inches high	9	July 25	No	No	25 days		20	Hogs	Yes.
3	Sown 10 or 12 days after sowing oats	9	July 29	No	No	21 days		9	Hogs	Yes.
4	Sown 27 days after sowing oats	13	July 20	No	No	60 days			Sheep	Yes.
5	Sown 37 days after sowing oats, without dragging	7	July 20	No	No	60 days			Cows	Yes.
6	Sown with oats		Aug. 4	No	No	21 days				
7	Sown in drills 44 inches apart	7					42 days	25	Hogs	Yes.
8	Sown 22 days after sowing oats, without dragging	6	Aug. 5	No	No	21 days		2	Hogs	Yes.
9	Sown with oats	8	Aug. 1	No	No	42 days				
10	Broadcast						56 days		Hogs	Yes.
11	Sown with oats	8	Aug. 13	Yes	No	18 days			D'ry cows	Yes.
12	Sown 23 days after sowing oats, without dragging	16	July 20	No	No	56 days	84 days		D'ry cows D'ry cows	Yes. Yes.
13	Sown with drill 24 inches apart									
14	Sown with oats	7	July 25	No	No	25 days				Yes.
15	Sown 18 days after sowing oats (harrowed)		Aug. 1	No	No	14 days			Cattle	
16	Sown with drill 30 inches apart						56 days	12	Sh'p&h'gs	Yes.
17	Sown 15 days after sowing oats	6	Aug. 1	No	No	42 days		6	Sh'p&catt	Yes.
18	Sown with oats	8	July 29	Yes	Yes	28 days				
19	Sown with drill 30 inches apart						56 days	9.5	Hogs	Yes.
20	Sown 15 days after sowing oats, without dragging	7	July 39			42 days		9.9	Hogs	Yes.

On the experimental plots the oats yielded exceptionally well, having a stiff straw, light hull and weighing thirty-six to forty pounds per measured bushel. We have found them the most satisfactory oats of all the varieties tested.

In order to test and, if satisfactory, to disseminate this variety of oats quickly and widely throughout the state, a sack containing two and one-half bushels was tendered to one member of the experimental association in each county of the state. (In some counties, two members were furnished.)

These seed oats were sold to the members of the association at $1.75 per sack of two and one-half bushels, sack included, f. o. b., Madison.

After a careful consideration of the subject, we decided that it was much better to let one person have a full sack of these oats at reasonable cost, rather than give away small quantities to many persons. Under this plan, the person who received the grain got a sufficient quantity of seed to make it worth his while to give the variety a thorough test. It further enables him to soon have a sufficiently large amount of seed grain to not only supply his own needs, but to sell to his neighbors.

The oats have been grown in 33 different counties of the state by 41 members of the association, and gave yields varying from thirty to ninety bushels per acre and an average of 53 bushels per acre, as noted in the table.

This is considered an excellent yield, as the average yield of the state, all varieties considered, given by J. M. True, Secretary of the State Board of Agriculture, is 40 bushels per acre.

The Swedish Select Oats (Wisconsin No. 4) seem especially adapted for high, well drained land, and the best known returns are from clay-loam soils. The great root development is one of the characteristics of the Swedish oats, which enables the plant to resist drought better than any other variety tested. The straw is coarse and is noted for its stiffness and power to withstand lodging. The Swedish oats lodged for the first time during the four years' test on the Experimental farm the past season, this being due to the severe storms of July.

Tests made with Swedish select oats. (Wisconsin No. 4.)

Experimenters.	Address.	County.	When sowed.	Rate of seeding per acre, bushels.	Nature of soil.	Sown with drill or seeder.	Date of harvesting.	Yield per acre.
Edward F. Heuer	Wautoma	Waushara	April	2½	Sandy loam	Drill		45
J. F. Warner	Whitewater	Walworth	April 12	2	Sandy loam	Drill	Aug. 1	36
Julius G. Moe	Holman	La Crosse	April 14	2	Clay loam	Seeder	July 27	40
Adam McLees	Viroqua	Vernon	April 10	2½	Prairie loam	Seeder	Aug. 15	60
Theo. F. Allen	Ft. Atkinson	Jefferson	Mch. 28	2	Sandy loam	Seeder	Aug. 1	55
W. J. Jones	Elm Grove	Milwaukee		2½	Black loam	Drill	July 31	50
Wm. L. Illian	Scott	Sheboygan	April 15	2½	Clay loam	Seeder		90
C. L. Hill	Rosendale	Fond du Lac	April 17	2½	Black soil	Drill	Aug. 11	60
C. F. Dineen	Cedarburg	Ozaukee	April 20	2¼	Clay loam	Seeder	Aug. 1	60
H. W. Kent	Rusk	Dunn	April 14	2½	Sandy loam	Drill	July 29	45
J. V. Langworthy	Augusta	Eau Claire	April 15	2½	Sandy loam	Drill	Aug. 4	40
John E. Charley	Ellsworth	Pierce	April 18	2½	Clay loam	Seeder	July 31	45
O. C. Rood	South Wayne	Lafayette	April 9	1¾	Black loam	Seeder	Aug. 10	58
W. E. Bussewitz	Juneau	Dodge	April 15	2½	Black loam	Seeder	Aug 4	60
L. M. Rowe	Waupaca	Waupaca	April 14	2½	Clay loam	Seeder	Aug. 4	61
A. B. Hicken	Pewaukee	Waukesha	April 2	2½	Clay loam	Seeder	Aug. 8	52
Theo. Gustafson	Lund	Pierce	Mch. 29	2½	Clay loam	Seeder	July 31	75
Geo. Ericksen	Kewaunee	Kewaunee	April 21	2½	Sandy loam	Drill	Aug. 14	35
J. W. Stevenson	Rice Lake	Barron	April 30	2	Clay loam	Drill	July 25	60
Wm. Topel	Sheboygan	Sheboygan	April 8	1	Clay	Seeder	Aug. 4	44
H. F. Kramer	Eagleton	Chippewa	April 10	2½	Black loam	Seeder	July 29	64
Theo. A. Strande	Taylor	Jackson	April 17	2½	Black loam	Drill	Aug. 6	50
E. C. McCormick	Mt. Hope	Grant	April 14	2½	Clay loam	Seeder	July 31	50
R. E. Barron	Georgetown	Grant	April 4	2½	Clay loam	Seeder	July 29	65
D. L. Cowgill	Doylestown	Columbia	April 14	1¾	Red clay	Drill	Aug. 2	81
O. H. Knudtson	Beloit	Rock		2½	Sandy loam	Seeder		32
B. I. Birmingham	Abrams	Oconto	April 17	2	Clay loam	Drill	Aug. 5	60
Francis Ebert	Tomah	Monroe	April 5	2¼	Clay	Seeder	Aug. 1	60
H. D. Dunbar	Elkhorn	Walworth	Mch. 31	2½	Rich loam	Drill	Aug. 20	50
Ed. Benson	Mt. Horeb	Dane	April 15	2½	Sandy clay	Seeder	Aug. 1	40
H. O. Halgrim	Dodgeville	Iowa	April 18	2½	Clay loam	Seeder	Aug. 13	31
A. D. Larson	Waupaca	Waupaca	April 15	2	Clay	Seeder	Aug. 2	75
R. F. Moody	Oshkosh	Winnebago	April 25	2	Clay	Drill	July 28	45
H. A. Tillotson	Bristol	Kenosha	April 8	2	Black loam	Seeder	Aug. 4	50
Jno. Knecht	Waumandee	Buffalo	April 9	2½	Clay loam	Drill	July 28	44
E. D. May	Berlin	Green Lake	April 29	1¼	Sandy loam	Drill	July 29	36
R. A. Gillett	Verona	Dane	April 23	2	Prairie loam	Drill	July 28	22
Julius Cherovsky	Kewaunee	Kewaunee	April 23	2	Clay loam	Seeder	Aug. 4	50
H. A. Olson	Cambridge	Dane	April 14	2	Clay loam	Drill	July 28	43
Geo. Snyder	Middleton	Dane	April 15	2½	Clay loam	Drill	July 24	84
Edw. L. Newberry	Peshtigo	Marinette	April 20	2	Sandy loam	Seeder	July	55

Number of members reporting on No. 4 oats, 41. Number bushels per acre, all tests, 53. Number of counties where tests were made, 33.

EXPERIMENT WITH POTATOES.

Influence of depth of planting as to yield and starch content.—Owing to the fact that only four members made tests the past season with potatoes, not sufficient data has been secured to arrive at any definite conclusions. The tests made on the influence of depth of planting and other information are given in the following table:

Experimenters.	Address.	Co.	Depth planted 2 in. yield by amt. lbs.	Depth planted 4 in. yield by amt. lbs.	Depth planted 6 in. yield by amt. lbs.
J. Knecht.....	Waumandee ...	Buffalo.....	92	125	97
H. E. Rosenow....	Oconomowoc ..	Waukesha.....	119	123	152
E F. Heuer	Wautoma	Waushara	91 5	112	107
J. P. Bonzelet	Eden.....	Fond du Lac ..	19	19.3	16.5
Average	.....	.....	80.3	94.8	93 1

The experiments show that a greater yield of potatoes is secured by planting seed four inches in depth than when planted two inches deep, and the greater starch content was reported from the potatoes the seed of which had been planted two or four inches deep.

SOY BEANS.

Tests were carried on during the past season in twenty-two counties by twenty-six experimenters with soy beans as a forage and seed producing crop.

The Ito San variety was used in all these trials and proved to be satisfactory in every respect. The average yield of all tests reported is 20.8 bushels to the acre, 6.6 tons per acre of green feed, and 2.9 tons of soy bean hay per acre was secured as an average in the tests. The members' reports show that in all cases where it was fed green to farm animals that it was relished very much and gives bright promise for the future. From the reports we find that the soy bean ripened evenly with but few exceptions. The early frost of last year

killed some of the beans before they were matured, and thus ruined the tests. Several different methods for harvesting were used. Some were hand pulled, others cut them with a mower, and in one or two instances they were cut with a binder. The method of threshing was in most cases with a flail. Four reporters threshed them with a separator. The soy bean is a crop which we think will give considerable promise under Wisconsin conditions and we trust that a large number of the members will experiment extensively this year with soy beans.

At the present time the dairymen of Wisconsin are sending large amounts of money to the south for oil meal, oil cake and other protein feeds in order to form balanced rations for their animals. Soy beans are very high in protein content and as soon as the dairymen can grow the soy bean successfully they can save a large amount of money which is now being sent out of the state for protein feeds.

During the coming year experiments will be carried on in sowing soy beans with corn to be cut into the silo, and it would also be well to carry on experiments pasturing the soy bean with hogs or sheep after the beans are nearly matured. It is known that hogs take very kindly to the soy bean and will fatten readily when fed on soy beans with a ration of corn. There seems to be no doubt in the mind of the writer that the soy bean will soon become a valuable forage plant for the Wisconsin farmers.

Summary of investigations with soy beans made by members of the W. A. E. A.

No.	Experimenters.	Post Office.	County.	Variety.	Soil.
1	Wm. F. Renk	Sun Prairie	Dane	Medium green	Black prairie loam.
2	F. H. Zahrt	Hortonville	Outagamie	Ito san	Sandy loam.
3	Raymond Ames	Gilmanton	Buffalo	Ito san	Black loam.
4	James Nelson	Waupaca, R. F. D., No. 3	Waupaca	Ito san	Sandy loam.
5	W. F. Osborne	Cobb	Iowa	Ito san	Dark sandy clay loam.
6	Wm. C. Maas	Oostburg	Sheboygan	Ito san	Very fertile loam.
7	Andrew Bundy	Peshtigo	Marinette	Ito san	Clay.
8	Stephen Houkom	Blair	Trempealeau	Ito san	Clay loam.
9	C. A Koll	Eau Claire	Eau Claire	Ito san	Sandy.
10	Byron Hillier	Waunakee	Dane	Ito san	Clay loam.
11	H. W. Kent	Rusk	Dunn	Ito san	Sandy loam.
12	Bert Johnson	Viroqua	Vernon	Ito san	Sandy loam.
13	E. J. Meyers	Tomah	Monroe	Ito san	Sandy loam.
14	Theo. A. Strande	Taylor	Jackson	Ito san	River bottom.
15	Jesse Phillips	Elizabeth, Ill	Jo Daviess	Ito san	Well drained clay.
16	B. A. Imholt	Houlton	St. Croix	Ito san	Sandy loam.
17	J. P. Borzelet	Eden	Fond du Lac	Ito san	Clay.
18	Alvin Brehm	Sheboygan	Sheboygan	Ito san	Clay loam.
19	O. G. Morris	Dousman	Waukesha	Ito san	Sandy loam.
20	Geo. Wittak	Valmy	Door	Ito san	Loamy clay.
21	Henry Rosenow	Oconomowoc	Waukesha	Ito san	Clay loam.
22	E. G. Osterday	Wiota	La Fayette	Ito san	Black loam.
23	W. E. Bussewitz	Juneau	Dodge	Ito san	
24	W. W Hamlyn	West Bend	Washington	Unknown	Sandy loam.
25	O. C. Rood	So. Wayne	La Fayette	Ito san	Sandy loam.

Summary of investigations with soy beans made by members of the W. A. E. A.

No.	Fed green.	Green feed per acre, lbs.	Hay per acre, lbs.	Beans ripened.	When planted.	When harvested.	How harvested.	How threshed.	Beans per acre, bu.
1	No			Unevenly	May 20	Oct. 10	Mower	Separator	15
2	No			Did not ripen	June 14	Killed by frost. Oct. 15.			
3	No			Did not ripen	June 15	Killed by frost			
4	No			Evenly	May 17	Oct. 6	Hand pulled	Separator	25
5	No				May 27	Killed by frost	Mower		
6	Yes (relished)			Evenly	June 2	Oct. 6	Hand pulled		
7	Yes (not relished)	9,600	4,800	Unevenly	May 26	Sept. 20	Corn knife	Couldn't thresh	
8	No				May 16		Mower (for hay)		
9	No				June 2	Killed by frost Sep. 12			
10	No			Evenly	May 20	Sept. 14	Hand pulled	Flail	20
11	Yes (relished)	28,160	7,680		May 22	Killed by frost			
12	No			Evenly	May 26	Sept. 12	Hand pulled	Flail	15
13	No				June 6	Killed by frost			
14	Yes	12,800			May 16	Killed by frost			
15	Yes	20,000	6,400	Evenly	May 27	Sept. 12	Cut with binder	Flail	21
16	Yes (relished)				May 30	Killed by frost Sep. 12			
17	No			Evenly	May 31	Oct. 17	Hand pulled	Flail	30
18	Yes	5,920			June 14	Killed by frost			
19	No			Evenly	May 28	Oct. 25	Hand pulled	Flail	18
20	No				May 15	Killed by frost Sep. 10			
21	Yes (relished)	12 800	4,960	Evenly	May 17	Oct. 11	Hand pulled	Separator	25
22	No			Unevenly	June 1	Sept. 30	Corn knife	Separator	19
23	Yes (relished)	13,440	5,600	Unevenly	May 31	Oct. 7	Hand pulled	Flail	
24	No				May 25	Did not blossom			
25	No			Evenly	May 25	Sept. 12	Hand pulled	Separator	20

Average yield per acre, 20.8 bushels.

THE IMPROVEMENT OF PLANTS.

BY W. M. HAYS, PROFESSOR OF AGRICULTURE IN THE UNIVERSITY OF MINNESOTA.

Members of the Wisconsin Agricultural Experimental Association:—The breeding of those staple crops which feed us and give us a large part of our wealth is coming into prominence. This is a practical world and the question is, How can we so improve the hereditary tendencies of our corn, wheat, oats, barley, timothy, etc., that they will yield us a larger value per acre? We find that some kinds of seed corn give us a better stalk with a larger ear. Some kernels of wheat stool out strongly and give a larger number of heads. Some kinds of timothy grow taller, have more abundant leaves near the base of the stems and give us more hay per acre. The question is, How can we separate the blood lines and by propagating those that are the best, increase the yields and quality of our crops? Growing our seeds under favorable conditions of soil, cultivation, and separating out the best seeds by means of a fanning mill do not result in a satisfactory rate of progress. True, we gradually improve our varieties of corn by the system of selecting the best individual ears, but we have not even as good a method as this for selecting the best individual wheat plants or clover plants, or plants of field peas. The question has arisen and is being in part answered, Can we not find methods of selecting plants so as to test their breeding power as we test the breeding power of dairy sires and propagate those which give us the best results?

The Wisconsin, Minnesota, Iowa, North Dakota and South Dakota Experiment Stations, acting in co-operation, have attacked this problem in a broad way and have already made some progress. In the first place, the individual variety was considered a unit and a large number of each of the leading field crops was collected from all sections in the world where the climate was somewhat similar to that of this group of five states. After these varieties were tested for a number of years, experiments

were begun with those which proved best to make them better. In breeding these varieties, the individual plant became the unit of interest. The seeds were planted so that the product of each seed stood out as an individual where it could be compared with the product of each other seed. In this way considerable progress was made and varieties were produced, some of which yielded 10 and even 20 per cent more than the varieties begun with. It was found that some large yielding plants when multiplied, making of them varieties, did not show breeding power equal to their individual appearance and yield. This discovery led to the plan of devising simple methods of testing the breeding power of each of a large number of mother plants, chosen originally for their superior individual excellence.

Thus the breeding of a new variety of wheat was begun by first planting 5,000 seeds in hills 4 x 4 inches apart, one seed in a hill, and when ripe selecting 300 of the best plants. After weighing and grading the grain of each of these plants, 50 standing highest in the test were retained. The second year the seeds of these plants served to plant a plot 10 hills square. At harvest-time the plants are counted, several heads from the best plants are saved for seed, and the crop from the entire plot is weighed. After adding in the weight of the several heads selected for seed, the weight of the whole is divided by the number of plants. This gives the average yield per plant of the progeny. The third year a similar plot is planted with seeds from the choice heads and the yield per plant is again secured. In like manner, a plot is planted from each of the 50 plants the fourth year. Now the yields per plant, the grade and other qualities, as rust resistance, ability to stand erect, etc., are averaged for the three trials for each of the 50 plants. The five best stocks from the fifty mother plants are now chosen for field trial.

A pound or so of seed from each of these best breeders is sown in a separate plot and the seed so multiplied the 5th year that by the 6th year there is sufficient to plant a plot of 1-20 acre among the variety tests, where the grain is sown in a practical field way. Before harvesting these plants, the best heads are picked out by hand and in sufficient quantity to plant a 20th acre plot the 7th year. In like manner, seed is saved for the

8th year. After testing these varieties for three years beside the parent varieties and beside any other superior varieties of wheat under test, these varieties are compared with all other kinds. The milling quality of each wheat is also determined. Any new wheat which is a remarkable yielder of values per acre is rapidly multiplied up to one or two thousand bushels. This grain is sold for seed to farmers who are picked out in each county throughout the state as being adapted to growing seed grain. These farmers are encouraged to hold up the price of their grain, to advertise in the newspapers, and in every legitimate manner to sell their crop of seeds at a profit, that the new wheat may be widely disseminated. The first new wheat thus distributed by the Minnesota Experiment Station has already covered about 60,000 acres of land and yields 8 per cent. more than the wheats it is displacing, as shown by the actual average record of many farmers. The second new wheat thus distributed was first introduced in 1902, in sufficient quantity to seed about 1,200 acres. The many reports received from farmers show that this wheat averages 18 per cent. better than the wheats it is displacing throughout the entire state.

Thus is told in a very brief way the general plan of attacking the problem of increasing the values per acre of one of our field crops without increasing the cost of cultivation. Better cultivation will, of course, increase the yield also, but the total expense per unit of increase will be far more through methods of better cultivation than through breeding. At the same time, better methods of rotating crops, better tillage of the soil and better handling of the crop will pay a very good profit.

It is necessary to devise somewhat different methods for each species of crop and in some species the breeding is comparatively difficult. For example, experiments with red clover, now carried on for fourteen years, to increase the hardiness of that plant in the northern zone of the clover belt, have given very good results. Better methods of doing the breeding have been devised, however, and it is hoped that under these methods results will now be brought forward more rapidly.

Extensive experiments are being undertaken in this group of states with some of the crops which are new to the farmers of this northern climate. For example, there is an effort to breed

hardy forms of alfalfa so that they will successfully produce seed in this region, that they may be practically cultivated. The soy bean is being bred to better adapt it to our short summers. Corn is being pushed to the northward by this form of scientific work. The effort is being made to adapt varieties of the sugar beet to our peculiar environments. Brome grass has already gained a permanent foothold northwest of St. Paul, and is being bred so as to adapt it to the whole of the upper Mississippi Valley region. Numerous new varieties of timothy have been produced and are now under field trial. The effort is being made to extend the field pea out toward the somewhat arid regions where field peas have not generally succeeded.

As an example of the immense values at stake, an increase of one and one-half bushels per acre of wheat may be taken. This amount of wheat is worth practically $1.00 per acre in the state of Minnesota. Since there are six million acres of wheat grown in the state, an increase of a dollar per acre would add six million dollars to the annual amount received by the farmers for their crop of wheat. Increasing the yields of the leading crops of a state only a few per cent. increases the annual production by several millions. The practical business point in this connection is that experiment stations, special stations and private individuals co-operating together, can increase the crops of a state many millions of dollars at a cost much less than ten per cent of the value of the increase.

In the breeding of plants, the principle has been thoroughly demonstrated that there is one individual in many thousands peculiarly strong in its power to transmit qualities increasing the value of the variety. This same principle holds true in animal breeding. As these experiment stations are testing many thousand plants of each species so as to find those peculiarly valuable individuals, so the states should devise systems of breeding animals that would lead to the discovery of the one animal in thousands which is peculiarly prepotent, or as some one has said, has "projected efficiency" in improving the breed. As the plant breeders are finding it necessary to especially push new things that are in appearance not different from the parent varieties, so as to get farmers to use them instead of the old kinds, so even greater attention than at present should be paid

to the distribution of the most valuable blood used to form new families or new breeds of animals.

The Minnesota Experiment Station and the Minnesota Agricultural College are very glad, indeed, to co-operate with similar institutions in Wisconsin. Minnesota has also formed a co-operative organization called the Minnesota Farmers' Club, similar to your association now in session. I am sure that club will be glad to have me extend its greetings to you and will be pleased at any time to hear of your good work and to co-operate with you in your efforts to build up the country life and the agriculture of your great state.

PAPERS AND ADDRESSES BY MEMBERS OF THE ASSOCIATION.

SOY BEANS.

BY BERT JOHNSON, VIROQUA, VERNON COUNTY:

This experiment was carried on at my home in Vernon county. I planted the seed as directed, four or five inches apart in rows which were thirty inches apart. They were planted on a sandy slope lying toward the south. The ground was not plowed but cultivated just before planting. The soil should be well prepared and after planting should be well firmed over the seed to promote germination. The seed should be planted shortly after plowing; this gives the beans a chance to start before the weeds get too large. I planted the seed on the 26th of May, the ground having by that time become warm enough to insure rapid growth. The seed germinated quickly, and I had an even stand. The ground had grown a crop of tobacco the previous year and had received no fertilizer for several years. As this was a small plot, about one-eighth of an acre, I cultivated it by hand. The beans were harvested September 12th, having been frozen the previous night. Most of the beans were ripe and some of the beans had fallen off. On account of the wet weather in the fall, about one-third of the beans were moldy so that they were not fit for seed. I did not cut any beans for hay, but the horses ate the leaves when ripe, leaving the stalks and beans. I threshed the beans with a flail, but as I had to use an open box, I wasted some. Allowing for the wasted and moldy beans, I calculated fifteen bushels per acre. Considering the condition of the soil this was a fair yield. I tested the seed and eighty per cent. of the seeds which were not moldy, grew. I think

soy beans would be a good crop for hay because they make a rank growth and are well covered with large leaves. The beans although not ripe at cutting were well filled. They will probably be very useful as a green forage crop for hogs. The soy beans have an advantage over many other plants in as much as they seem to be hardy and easily grown. They appear to stand drought well even on sandy soils. Besides producing good feed the soy bean enriches the soil. By the aid of the micro-organisms in the nodules on their roots, the bean plants are said to be able to take free nitrogen from the air and convert it into available plant food.

Shoats made very rapid growth when pastured on soy beans, just as they were forming and they ate all but the stalks. Soy beans are as rich in protein and twice as rich in fat as old process oil meal. Here is a good chance to raise protein in Wisconsin. At the Kansas Station an experiment was carried on with hogs averaging 126 pounds each. Half of the hogs were fed on kaffir corn meal ration and the others were fed on a ration consisting of 4–5 kaffir corn meal and 1–5 soy beans. Those fed soy beans made twice as much gain per bu. of feed as those fed kaffir corn meal alone. Why cannot the farmers of Wisconsin get just as favorable results?

BY JOHN P. BONZELET, EDEN, FOND DU LAC COUNTY:

Soy beans can be successfully grown in Wisconsin. They should not, however, be planted until the ground has become well warmed in the spring, which is about the time for planting corn. They should be planted on well drained soil as they stand drought better than excessive moisture. The best results are obtained from soils of medium fertility. The root system of the soy bean is very extensive, striking deeply into hard subsoil and spreading widely near the surface. Not only are they supported by their extensive root system, but being a legume the nodule forming micro-organisms on the roots are said to enable the crop to get part of its nitrogen directly from the air, and leave in the soil a store of nitrogen which benefits succeeding crops.

The soy beans that I grew the past season were planted on the 31st of May, on spring plowed ground. The soil is clay with a red clay subsoil, upon which corn had been grown the previous year. They were planted in rows three feet apart. Within the rows I planted them in three different ways: The first, about one plant every four or five inches; the second, about one plant every two or three inches; the third, as thick as they could be drilled with a garden drill. All were sown with a garden drill, but a corn planter could have been used.

About the fifth day after planting some of them began to appear above ground, and the sixth day after planting they were practically all up. The number, time and manner of cultivations were the same for all the soy beans. In all, they received six cultivations with a sulky corn cultivator. There were no weeds pulled out by hand and no hoeing was done. The weeds that grew in the rows with the beans were allowed to remain there, my idea being to determine which thickness of planting would permit the least growth of weeds and the most beans, or in other words which thickness would be most profitable to plant under field conditions.

The result was that those planted four to five inches had the most weeds, and every thing taken into consideration they were not as profitable as those planted two to three inches apart in the rows. From the stand point of quality of seed produced, those planted four to five inches apart were ahead as the beans were larger and a little more uniform in size, but in quality, they did not yield enough to make them as profitable as those planted two or three inches apart. Those drilled in thickest did not yield as many beans as either one of the other plots, but the forage was better on account of its fineness.

From the experience I have up to this time gained, I would, if planting for seed, have the rows about thirty inches apart, and the plants two to four inches apart in the rows. For forage, I would sow them broadcast. The amount of seed required if drilled in rows, as stated above, would be about thirty pounds per acre, if sown broadcast from one to one and one-fourth bushels per acre. I do not believe it is absolutely necessary to plant soy beans in rows if grown for seed. My opinion

is, that, if the land to be planted to soy beans were plowed in the fall and thoroughly cultivated as soon as the ground becomes dry enough the following spring, no other preparation would be necessary. By cultivating several times before the time of planting all weeds or nearly all would be killed. I think on ground prepared in this way, soy beans can be sown broadcast for seed as well as in rows, and harvested with an ordinary grain binder thrashing the same as oats or other grain. Those that I grew yielded at the rate of thirty bushels per acre. At the present time soy beans are selling at three dollars per bushel. At this price the total amount received from one acre planted to soy beans would be ninety dollars. The cost of growing soy beans as given in the Year Book of the Department of Agriculture for 1901, is fifty-five cents per bushel which on the above yield would amount to $16.50, total cost of producing thirty bushels, which if sold at the present price would be worth $90.00 less the cost of producing would leave a net profit of $73.50 per acre planted to soy beans. This shows their value as a market crop.

Soy beans have a high feeding value as they contain a large per cent. of protein. If fed to fattening hogs at the rate of one-fifth soy beans to four-fifths corn the gain per bushel of the mixture will be greater than if corn were fed alone. Another use for soy beans might be to plant them with corn intended for the silo. Besides improving the quality of the silage, I believe that the beans would tend to keep the weeds down. If the corn were not put into the silo, but fed from the shock as a great deal of corn is in my section, the beans would not be as hard on the fertility of the soil, as the weeds would. The soy beans would tend to balance the corn ration to some extent. As most of the corn crop is harvested now with corn harvesting machines there would be no extra trouble in harvesting the beans planted with corn. I consider this plan worthy of a trial, at least.

BY RUFUS GILLETT, FITCHBURG, DANE COUNTY:

I secured one-half bushel Ito San soy beans the spring of 1902 and planted them May 15, at the rate of about one-half bushel per acre in drills two and one-half feet apart, using the common grain drill. In using the drill I took two one quart cans and melted the bottoms out so that they would set close down over the spouts I wished to use and then put the beans in the cans, which would hold enough to sow a row forty rods long.

The soil on my farm is a prairie loam and was a clover field the season before, the clover dying out during the winter. The ground was plowed quite early in the spring about six inches deep and was fitted the same as for corn. I would advise a more thorough fitting as you cannot drag soy beans as much after planting as you can corn.

I planted sixteen rows two and one-half feet apart forty rods long and then I went once across the field with the drill using all of the spouts open as an experiment.

My experience leads me to believe that you want to have ground well prepared before planting and that you can harrow them lightly till they come up after that I believe the drag will do more harm than good.

I cultivated them the first time with a one horse walking cultivator, but think the corn plow is better. I believe that if you cultivate them at the right time and do a good job there will not be much hand weeding to be done.

This variety grew very erect and was not affected by winds or any pest that I could notice. The vines blossomed very full and were well filled with pods and were fit to turn into about August 20. I did not pasture any of them as my fences were not convenient, but did pull some by hand and feed to the pigs to see how they liked them. The pigs did not take to them at first as they were running in a corn field, but later when they had got used to the corn they would look for the beans regularly, and would eat the pods with relish. Those beans that I sowed close by, using all of the drill holes, grew as tall as those sowed two and one-half feet apart, but the weeds pre-

vented them from doing their best and as I did not want the weeds to go to seed I mowed them before they were fit to be fed. There was a great deal of pigeon grass and rag weed in my beans owing to the wet weather, which prevented proper cultivation, but in an ordinary season with good tillage, I believe that very little hand weeding would be necessary. As to harvesting them a binder was out of the question as lots of the pods were within three inches of the ground and a mower would not work as some of the beans would fall sideways into the sickle and get threshed so I had to resort to hand labor, but instead of pulling them I used a scythe as I could do it much faster. Considerable difficulty was experienced in threshing, the pods seemed tough and hard and would not open readily. Not more than seventy-five per cent. of the beans could be secured by threshing with a flail. I shall try a thresher next year. For next year's crop I intend to sow two acres for seed and at least one acre for hog pasture, as I have a lot containing two acres that I will plant to corn and soy beans that I can turn into. I planted a few rows about June 15 that ripened up well. I also noted the effect the frost had on them as compared to corn that was growing beside them and I think they will stand more frost than corn. Some of the beans I neglected to pull and my late fall calves have stripped all the beans off above the snow. I intend to try some better method of harvesting them next year.

BY JAMES NELSON, WAUPACA, WAUPACA COUNTY:

This experiment was carried on in Waupaca county. The beans were planted on a moderately high, well drained sandy loam soil. The soil was spring plowed and well prepared before planting. The beans were planted in rows three feet apart, the hills from eight inches to one foot in the rows. Within five days after planting the beans were most all up, but cold weather came on and they did not grow much for a couple of weeks. After the weather had warmed up again the beans started into growth and about the twentieth of July they meas-

ured two feet six inches in height and were about the finest crop on the farm.

They received the same cultivation as corn and potatoes up to the tenth of July, when it was impossible to get through between the rows with a cultivator. The beans were ripe and ready for harvest the tenth of October.

Some of the top shoots and a few of the leaves were frozen before they were ripe, but this did not seem to affect them as to ripening. In fact, I believe that if they had not been stopped in growth by freezing they would not have ripened until very late in the fall and probably not at all. The harvesting of the beans with a binder, which I had heard recommended by some, proved with me to be very unsatisfactory as I found that I could not run the binder low enough to get anywhere near all of the beans. They yielded at the rate of about twenty-five bushels per acre of good, well developed beans; tried feeding a few hills of the green beans about the tenth of July and found that the cows ate them in preference to green corn. I also tried feeding the beans to hogs. They ate them with relish.

I noticed that in one end of the piece where the rows ran down into a little hollow the beans did not do very well. I think they will be a great crop on the high sandy soil of some parts of Wisconsin.

BY O. G. MORRIS, DOUSMAN, WAUKESHA COUNTY:

My experience with growing soy beans is very limited. Those which I grew were planted on ground that had been prepared for corn. It had been manured in the fall and plowed about the middle of May. On May 28th the seed was planted in hills two and one-half feet apart one way and three and one-half feet apart the other. About eight or ten seeds were put in a hill. I used a hand corn planter, and planted about one-third of an acre. They germinated readily and in about a week were visible. They grew quite readily through the summer, reaching a height of two and one-half feet. As it was a wet and cold summer they ripened late, but were not harmed

by the early frost, and ripened quite evenly. I left them in the field until quite late in the season. The leaves had by this time all fallen off, and the pods and stalks were well dried. On October 25th, I pulled them and hauled them to the barn, where they were stored away to dry. About three weeks later I threshed them with a flail. Soy beans are not readily threshed with a flail, as their stems are coarse and pods somewhat flat. I would advise any one to have them threshed with a threshing-machine where it is possible. I secured about six bushels of well ripened seed. I believe if the season had been less wet, they would have done better. I have had no experience in feeding them, but expect to next year. It will not be known to what extent they may be grown, until further investigations have been made in feeding them.

BY P. A. DUKLETH, BIG BEND, WAUKESHA COUNTY:

I believe the soy bean will come the nearest to a protein producing plant that can be grown successfully with corn for the silo. On account of being a stiffer and taller plant than the cow pea, field pea and any of the other nitrogenous plants, it is not as badly effected by rain and wind. The soy bean plant reaches a height of from two to three feet and more if the soil upon which it grows is in a high state of fertility and well cultivated, for these reasons it can be cut with the same machine and at the same time that the corn crop is harvested for the silo.

A trial was made last year with soy beans of the Ito San variety on my farm in Waukesha county. The beans were drilled in with Red Cob ensilage corn, in the proportion of one quart of beans to four quarts of corn. The beans grew very nicely, podded well and stood up perfectly, reaching the height of from two to over three feet. The stiffness of the plants enabled them to stand erect with the corn without lodging. The beans were cut along with the corn, using a corn binder and tied very firmly into bundles.

The objections I found with this variety was that the beans matured too early and practically all the leaves dropped off before the corn was sufficiently matured to be cut for the silo.

This may not be the case if this variety were planted with an earlier corn, as the red-cob ensilage is a late variety of corn and matures very late in the season.

From this experiment I concluded: first, that a later variety than the Ito San would be a better bean for our locality; second, that corn can be planted or drilled as thickly in the row with as without the bean; third, that it was by far a better way to get the bean uniformly mixed in with the silage than by planting in separate rows in the corn field as practiced by some growers.

BY JESSE PHILLIPS, ELIZABETH, ILL.:

It was during the winter of 1901–1902 while attending the Wisconsin College of Agriculture that I became interested in soy beans and procured a quantity of seed for the purpose of carrying on a cooperative experiment. I at once set to work to accomplish the best results by following the directions closely outlined by the Wisconsin Experimental Association. I selected a fairly rich plot of ground with a well drained porous clay subsoil. May 25th I plowed and harrowed the ground to a good seed bed then the ground was marked off in rows thirty inches apart and the seed planted five inches apart in the row and covered with about two inches of soil. In a few days the young plants were out of the ground and grew strong and vigorously from the start. The ground was cultivated and harrowed frequently to keep down the weeds and to keep the soil in good condition. By the latter part of July the space between the rows was completely covered with a mass of green herbage to a height of nearly three feet. When in the fullest leaf a part of the plot was cut and fed green. It gave a cutting of nine tons of green forage per acre. Another part of the field was cut and dried for hay and gave a yield of three tons per acre. The remaining part was left to ripen for seed giving a yield of nearly twenty bushels per acre when threshed. Some single plants were noticed that contained over one hundred seed pods with an average of three beans in a pod. This alone makes an increase of three hundred fold in seed production.

It makes a good crop to cut and feed green to stock as it gives a large yield of forage and comes at a time when other fields are shriveled and wilted. Although soiling is not practiced to any great extent as yet in any section of the country, still, with the more intensified methods of farming the soy bean is sure to come more and more into use by the stockmen and dairymen. It makes an excellent hay when properly cured and is greatly relished by the different kinds of stock. Like all leguminous seeds, the soy bean is rich in protein, standing perhaps at the head of the list. It is also rich in oil content and can be ground into meal making a rich food and a substitute for the often very high priced oil meal.

The soy bean is a nitrogen gatherer and through the agency of bacteria on its roots fixes the free nitrogen of the air in root, stem and leaf. This one of a group of agricultural plants should have a double interest with the farmer and stockman, who looks to the welfare of both fields and stock. As these crops enrich the soil on which they are grown I see no reason why they should not be grown more in the future, thus assisting in maintaining the fertility of the soil and supplying the wants of live stock men with a very desirable food.

RAPE AS A FORAGE PLANT.

BY O. E. SETTE, JUNEAU, DODGE COUTY:

Rape as a forage crop should be more extensively grown by farmers and stock raisers for furnishing succulent forage for feeding stock during the summer and autumn months when the supply of grass and other pasturage is often limited. Succulent crops can usually be grown on land that has already produced an early maturing crop of some sort such as oats, barley, or some of the winter crops. One of the best of those succulent crops is rape.

The rape plant is much like the turnip, or rutabaga, in appearance, but the root is more like that of cabbage. The leaves are large, smooth and spreading, the nourishment is in the stem and leaves. The plant reaches a height of from one to four

feet and the strong roots penetrate the soil to a considerable depth. Rape is best adapted to rather cool, moist climates, such as prevail in our own state. It can, however, be successfully grown as a forage crop in warmer and dryer sections. The kind of soil it requires, for its best development is a rich, moist, loamy, black soil, it will grow on low land and in general does well on any but light sandy and stiff clay soil.

The time of seeding:—The sowing may take place from early spring until the last of July. When it is grown as a primary crop of the season, the land should be prepared by deep and thorough plowing. Whatever treatment the land is given in preparation for this crop it should be such as to afford a deep, mellow seed-bed, as free as possible from noxious weeds. The best crop can be secured by growing the rape in drills, though this way is somewhat more expensive. Sow two or three pounds of seed per acre in drills wide enough to cultivate. Rape plants do not need to be thinned like root crops, but will grow thick in the row. Two or three cultivations are needed, by which time the plants will shade the ground so that the weeds will not grow. If sown broadcast, sow three or four pounds of seed per acre and harrow it lightly. Land on which rape is sown broadcast should be comparatively free from weed seeds and in good condition generally. The rape seed can be sown with oats or barley, but if this is done the growth of rape is liable to become so rank, especially if the season is a wet one, that the plants will grow above the barley or oats. When this happens trouble occurs at harvest time owing to the green rape plants cut and bound in the sheaves, which may cause them to rot under bands. The following is a better plan: Seven or eight days after sowing the oats or barley, when the young grain plants are two or three inches high, run a slant-tooth harrow over the field to loosen the soil. Then sow two or three pounds of rape seed per acre and harrow lightly again. By sowing this way the grain crop has so much the start of the rape that the latter is kept small and spindling until the grain is harvested. After harvest the rape plants, getting the benefit of sun and moisture, begin to grow, and in a few weeks the field will be covered with green forage. This method is especially satisfactory when succulent forage is desired for fall feeding.

The kind of seed:—Be sure to order Dwarf-Essex forage rape. If one asks for "rape seed" he may get bird rape seed, which is of no value for forage. Rape is ready for feeding from eight to ten weeks after seeding, or when the plants are twelve to eighteen inches high.

Harvesting and utilizing the crop:—The general practice is to use it as a soiling crop or as pasturage. Sheep and swine may be turned into the field and allowed to remain there until the rape is pastured off. Cattle may also be allowed to run in the field, but as they waste some of the forage by pulling the plants and trampling them down, there is some loss. This loss may be prevented by cutting the rape and feeding it to the cattle. With sheep and cattle, care should be taken at first, never to turn into the rape field for the first time when hungry or when the dew is on the plants. Fill up the cattle and sheep with other feed and then turn into rape field on a dry day after the dew is off. Bloating may occur if these precautions are not followed. It is a good plan to have the field so arranged that the sheep and cattle have access to an open pasture as well as to the rape field. Animals should have free access to salt at all times when being pastured on this crop.

Feeding value:—Rape has a high feeding value. It makes an excellent feed for fattening sheep and swine and for producing an abundant flow of milk, in milch cows. There is some danger of tainting the milk, but it has been fed with good results to dairy cows as a part of the ration. Rape can be used to good advantage as a part of the ration for hogs that are being fed in pens for market or for the show ring. It is also a valuable feed for young lambs at weaning time. By beginning as early as practicable in the spring and sowing at intervals of two or three weeks, a continuous succession of rape can be produced through the period when the permanent pastures are most likely to be short. Rape will endure quite severe cold weather and then will last a long time after the ordinary pasture grasses succumb to the frost. By the use of this crop, stock can be gotten into good condition for holiday markets or for winter, and there need be no check in growth, fat and milk production, through insufficient succulent food during the late summer and autumn months as is too frequently the case.

Under favorable conditions two or three cuttings may be made in a single season from a field of rape grown as a primary crop. It yields as much as ten or fifteen tons per acre to a single cutting. It cannot be utilized to advantage as dry forage, nor as silage owing to its large water content. The rape crop was first prominently brought to the attention of the Wisconsin farmers through the Wisconsin Agricultural Experiment Station. Rape is now extensively grown in Wisconsin and its use is rapidly spreading. It does not take the place here of any other crops, but is simply one of much feeding value to farmers.

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

My experience with rape as a forage plant the past five years has been both pleasant and profitable. The first plot I sowed to rape was very small and no stock of any kind was allowed to feed on it, so that I could study its natural growth during the entire season. I was very anxious to know if what my neighbors said was true in regard to rape killing sheep, or whether they refused to eat it, so I turned the flock into the rape plot and to my surprise they left nothing but the stalks in a short time, and seemed to have a good appetite for more. The year following I put in an acre of rape, sown the early part of April. It was sown in rows 30 inches apart.. The rape attained the height of two feet in six weeks, being cultivated twice with a small tooth cultivator during that period of growth. The sheep and hogs were then turned in to help themselves, and as the rape was sown in rows, running east and west, there was furnished an abundance of shade for both sheep and hogs during the hot days of summer, which I think is quite an important item to be considered in raising these classes of stock. My experiments show that rape will grow best on a moist and fertile soil. An old barn-yard or an old hog lot plowed deep and the ground worked up fine makes an ideal plot for rape, and brings good returns to any farmer in the saving of more costly feeds.

During the season of 1902 I had one-half an acre of rape sown April 12th, and on this plot I kept twenty-two hogs. Fif-

teen of these were from three to five months old, the rest being matured hogs. The only feed supplied in addition to the rape was good flour middlings, which cost eighty cents per one hundred pounds. The cost of feeding these hogs was $1.60 a week for a period of three months, not taking the rape into account. The hogs, as one might suppose, were always ready for their feed, yet they made a good growth and satisfactory gains, dressing on an average of 170 pounds at six months old.

I was anxious to convince my neighbors of the value of rape as a hog feed, so I asked one of them to prepare a small plot of ground, and I offered to sow the seed for him. It took me about one hour to put the seed in with a small garden drill; size of plot was one-half acre. The next fall when he had sold the hogs that were fed on this rape, he told me that the rape saved just one-half the feed, and that he would not be without a plot of rape for his hogs again. It has given me great pleasure to show visiting neighbors my rape plots, and as a result many farmers are now growing it that had not seen it before they came to my farm. Yet, what surprises me most, is that so many farmers will read about rape as a forage plant, and still are afraid to grow it until they see it growing on some other farm.

The past season I was very much surprised to see a one-eighth-acre plot of rape, sown April 2d, go to seed. The seed was fully matured by the 1st of August. I sowed some of this seed, and it produced strong, vigorous plants, the seed being of a high germinating power. From this observation I am led to hope that the Dwarf Essex rape plant will some day so adapt itself to our conditions as to enable us to raise our own seed with fair success.

I have had more or less success sowing rape with small grain such as oats and barley, when grain was about one and one-half to two inches high. I would not advise anyone to sow rape in this way if the roller or planker has been used to crush the clods, as then the seed cannot be covered enough, even though the light slant-tooth harrow is used. This is particularly true after a few showers of rain have packed the ground. If the ground is not rolled or planked after seeding small grain, a good catch may be secured by sowing rape just before a rain,

when the grain is about two inches high, as the rain washes the clods of soil apart and over the rape seeds, sufficiently covering the seed without harrowing and also making a saving of labor and of young grain plants that would be torn out by the harrow. I consider this method very simple and much more profitable than to have a large crop of weeds which no kind of stock relish, spring up after the grain is cut. All things considered, I prefer to sow rape by itself in rows, as it produces much more forage and is more convenient to feed, enough so as to pay for the extra land occupied by sowing it in this manner.

Death or disease due to mistakes in feeding rape is seldom found on the farms of the successful stockman who attends strictly to his business, and who uses judgment in feeding the rape plant.

BY H. E. ROSENOW, OCONOMOWOC, WAUKESHA COUNTY:

Last year I carried on under direction of the Wisconsin Experimental Association, a series of experiments with rape, to determine its relative value for soiling purposes and as a forage plant.

I tried several acres,sowing rape broadcast on the grain field and dragging, several weeks after seeding with grain. The soil was a clay loam, fall plowed, and as it worked up in fine condition last spring, it was only cultivated once before seeding and then again when the barley was sown, which was on April 12. After seeding with the grain, the land was harrowed and rolled, and as it was quite dry at this season the rape was not sown until twenty-three days after seeding the barley, which was about two inches high at this time. I used the Dwarf Essex variety at the rate of two pounds per acre and dragged it in. The dragging did not seem to injure the barley any, but rather to benefit it, as it broke up the crust somewhat and formed a mulch. The rape plants were noticeable eight days after the seed was sown. The barley was harvested on July 20th, and there was practically no difference in yield as compared to land on which no rape was seeded. As

the rape plants were quite small when the grain was harvested they were not fit for feeding purposes until about two months after the barley was cut, when it was used as a pasture for dairy cattle which were fed no grain ration except what they found in the field, which was considerable last summer, as the eason was very wet nearly all the grain lodged. I did not weigh any of the green fodder, but the plants were about twelve inches high and covered the ground completely at the time the cattle were turned in upon it. They did well on the feed and no detrimental effects were noticeable.

I also tried sowing rape with the drill, using the same variety, and drilling it on May 19th, having the rows twenty-four inches apart. The soil on which rape was grown was a peat soil on which rape had been grown the previous year with success. The land was fall plowed and was prepared in the spring by cultivating, harrowing, rolling, and then sowing the rape. The rape plants were noticeable in three days and were fit for feeding purposes in less than three months. It was fed to dairy cattle as a soiling crop with good results.

In the experiments with sowing rape broadcast, without dragging, when the grain is two to four inches in height, immediately before or after a shower: Barley was sown April 13th and rape was sown immediately after a shower on May 13th at the rate of four pounds per acre. This experiment was tried on one acre which lay adjoining the land on which the first experiment was tried, and thus the soil and preparation and all conditions were exactly alike. I did not have any success with this trial because very few of the plants grew, either because they did not get rooted well or that the seed, which had been purchased the year before, failed to germinate.

In another experiment, the rape was sown at the same time as the barley; about fifty acres were sown in this way. The soil was a clay loam which had been fall plowed and in the spring it was cultivated and then sown, on April 9th to the 12th. The Dwarf Essex variety was used, sowing from one-fourth to one-half pounds per acre. The rape seed was mixed with the grain in the seeder and sown at the same time. After sowing, the land was harrowed and rolled. The rape plants

were noticeable within sixteen days. They did not interfere in any way with the growth of the barley, neither did it cause any trouble in cutting and binding the grain, nor in the drying out of the bundles, because they were small and shocked up well in long shocks. The rape was fit for feeding within three or four weeks after the barley was cut.

After trying these different experiments with rape seeding, I am led to the opinion that sowing rape at the time of sowing barley or oats is the most preferable, but care should be taken that only a small quantity of rape seed is used per acre and, when harvesting the grain, the bundles should not be made too large, as some of the rape leaves are often tied in, and if the bundles are made small and set up well they have a better chance to dry out. We have been sowing rape in this way with nearly all the grain, except when seeding with clover, on our farm in Waukesha county for the past six years with good results. We mix the rape seed with the grain in the seeder and thus save time and labor. Perhaps all the seed does not grow because some of it is covered too deeply and we do not have as many plants per acre, but they are larger and are fit for feeding purposes much sooner, and this with hardly no extra labor.

Rape is also beneficial in another way besides pasturage, as it will cover the ground in a short time after the grain is harvested and thus prevent the loss of nitrogen from the soil. Of course legumes are the best cover crop, but the difficulty in dry seasons is to get them to grow well at this time because they do not get well enough rooted. Rape is generally used as a pasturage for sheep and swine, but it also furnishes an excellent feed for dairy cattle as it increases the yield of milk, and if fed properly it will not impart any perceptible taint to the milk.

In feeding rape to dairy cattle, it is best given in limited quantities at first, immediately after milking; and under these conditions, the taint produced is usually eliminated before the next milking.

BY B. S. HILLIER, WAUNAKEE, DANE COUNTY:

After carrying on two experiments with growing rape this past summer, I report as follows:

Sowing rape for hog pasture.—March 25th I plowed three-fourths of an acre, which was then harrowed until fine. The soil was a rich clay loam. Dwarf Essex rape seed was sown broadcast, at the rate of three pounds per acre and the land harrowed and rolled. The rape grew fine, making a growth of six inches by May 25th, at which time the hogs were turned in. There were over one hundred sows and pigs feeding upon it, and they could not consume it as fast as it grew. The milch cows were then turned in and they preferred it to good grass pasture. The cows were turned in just after being milked, and were allowed to feed an hour. It did not taint the milk so that it could be noticed. The cows gained in milk when feeding on the rape. Grain was fed to both cows and hogs while they were feeding on the rape.

Sowing rape with oats.—The land was somewhat sandy and had been fall plowed. The oats were sown April 9th, at the rate of two bushels per acre, and about two weeks later the rape was sown at the rate of two pounds of seed per acre. The land was then harrowed once, which did not seem to hurt the oats at all. The rape made a start but was almost all smothered out. This experiment was a failure, but I think it would be all right in a year when it was not so wet as it was the past season.

ALFALFA.

BY FRED RABELER, NEBRASKA:

Your secretary has asked me to write a paper on alfalfa, the wonderful plant that puts the money into the pockets of many a western farmer. Now, I do not know of anything new concerning this plant; will therefore simply state briefly some of its important points, to be observed in growing and using it.

We started growing alfalfa in the spring of 1897, when we put in 42 acres to give it a trial; we had good success, and this field is still in fine shape. Our alfalfa is all grown on "upland" where it is about 30 feet to permanent water level. We now have about 130 acres in alfalfa; also have 1½ acres of Turkestan alfalfa, sown for trial, but can as yet not form an opinion as to its comparison with the common kind. All alfalfa is used for hay and seed with the exception of a few acres which are put into hog pastures. We sowed 20 acres in spring of 1898 which resulted in a failure, the cause of which I do not just exactly know. We sowed a piece of 60 acres in spring of 1902, and part of this,—about 15 to 17 acres—is a failure, cause being: the soil too dry at time of sowing; balance of the same field is a splendid stand. If we had waited a week or ten days with sowing, all would have been a good stand, for we then had plenty of rain.

Soil.—Our alfalfa is being grown on a black loam soil with clay subsoil, containing much lime in the shape of many small limestones. We always give it the best soil we have, as there it will bring the most profit; it is much easier to get alfalfa started on rich land than on poor, because the young alfalfa plant is very weak and needs a good supply of *easily available* plant food. After the plant is once well established on poorer soil, it will grow all right, even if soil is tough, hard or light. It will not grow on swampy land, does not like to have its feet in water; seems to grow best where permanent water level is at least 10 feet down; makes good growth even where permanent water level is over 100 feet down. Do not sow any

on land that ever stands under water more than two or three days, as this will surely kill it; where water stands for less than a day, it does not seem to hurt it. I do not think it would grow where a layer of rock is close to the surface; it needs a soil where the plant can send its roots down to a great depth.

The Seed Bed.—The preparation of seed bed needs careful attention; this is an important factor. We prepare our seed bed by plowing at ordinary depth in early spring. Fall plowing in many localities may be better; then the disk should be run over the field a time or two to conserve moisture and to kill weeds. Then, when time to sow arrives, give it a thorough harrowing to make a smooth, even surface; if your land is too mellow, pack by using a heavy roller; land that is hard and tough, make mellow by deep plowing and repeated disking. Have field as clean of weeds as possible. Time spent in securing a good seed bed is well spent.

Sowing.—Alfalfa is generally sown the last ten days in April or first week in May, depending on the weather; in other words, we sow alfalfa just before corn planting.

Conditions we want for sowing are: A well prepared seed bed with a good supply of moisture in it, so seeds may germinate quickly and the plants get an even start. If seed is sown on dry soil, some plants will grow up and some seed may lie in the ground for two or three weeks before germinating; then it is very hard to get ahead of the weeds. Another thing young alfalfa plants are very weak and cannot stand much drought. Whenever your conditions are right sow your seed, about 20 to 26 lbs. to an acre. If you have a good seed bed, favorable conditions and good seed 20 lbs. is easily enough. This I mean, if sown broadcast; if you use a press-drill less seed is needed. I am told that drilling is the best way, but we have no drill, therefore sowed all of ours broadcast, and had good success.

After seeding cover seed lightly with harrow. With alfalfa a good stand must be secured at the start, since the number of plants in an alfalfa field always decreases and never increases as in the case of red clover. The number of stems to a root may be largely increased but never the number of roots itself.

Care of the young plant.—If it happens that right after sowing a heavy rain causes a crust to be formed so that the young

plants cannot well penetrate the same, we take a harrow and go over it lightly.

After the young plants and weeds are up about 6 to 8 inches we run the mower over the field, leaving the weeds and alfalfa on the field as a mulch. This may need to be repeated several times the first season. This repeated cutting seems to stimulate the growth of the young plants. Don't run your mower too close to the ground. We do not figure on any hay the first season, unless weather is favorable, such as we had the past season.

Hay.—We aim to commence cutting when about one-tenth is in bloom; after it has lain in the swath for about one day or so depending on the weather, we rake it up with a *Side-Delivery rake,* then leave it this way a short time, say a few hours to half a day and then commence loading it on wagons by hayloader. We commence hauling when hay is dry enough so you cannot wring out any sap by twisting a handful of stems.

When taking care of only a small field, putting the hay in cocks is probably better, but in a large field and with high priced labor we do not think it pays. We have been successful in getting our alfalfa cured pretty good that way.

We like to put up the hay as green as possible; this keeps green all through the winter and the leaves lost is reduced to a minimum. The first crop is generally hard to cure because of the yield being so heavy. Two years ago our first cut averaged nearly 4 tons to an acre. The second and third cuttings are easy to cure, they being much lighter in yield and stems are finer.

The alfalfa field has not come to its best till its third or fourth year.

In handling alfalfa hay we use wagons equipped with two hay slings each, one sling is put on wagon before commencing to load and the second is spread out when you have a half load on; thus you can unload a load in two drafts into a barn or on a haystack and have no cleanings left on wagon. This is way ahead of the old fashioned horse fork. At the stack we use a single pole stacker about 35 to 38 feet in length. By handling hay with slings and pole stacker, hand labor is reduced considerable, the only handling being leveling it out on

the wagon and spreading the hay on the stack, thus with a small force of men a large amount of hay can be handled in a day. Some makes of hayloaders will not work in alfalfa successfully. Alfalfa does not shed water well, therefore, should be stored in a barn. We have barn room for only a small amount of hay and put up most of it in large stacks, made by the aid of a pole stacker. We make these stacks about 25 feet wide, nearly 30 feet long and about 25 to 30 feet high. A cover of long prairie hay, quite green, is put on as a cap. This sheds water very nicely.

Alfalfa seems to keep far better in large stacks than in small ones, there being less proportionate outside surface.

We generally sprinkle a little salt over the hay while stacking, say, about 5 to 7 pounds to a ton; this seems to keep it from getting moldy or dusty when put in a little green, but I am told that lime is better as they say it does not reduce feeding value, which salt does to some extent.

When cutting, run the mower quite high. Close mowing seems to injure the plants. We do not take off a crop of hay too late in the season because the plant should go through winter with a good growth for protection. The third cutting makes splendid hay for the hogs, if cured nicely, the stems being fine they eat nearly every bit of it. We feed it just as it comes out of the stack, as you would feed cattle. We do not know much about putting up alfalfa and curing yet; we are just beginning to learn.

Pasture.—Alfalfa is more of a hay plant than for pasture. If allowed to be pastured a little close, stock is liable to eat the crown off the plant and this surely kills it. Hogs are especially liable to eat the crown. Some farmers have success in pasturing their hogs on alfalfa by fencing in a large field, so that the hogs will probably eat only half of the crop and then in season cut balance for hay; this way is proving successful. Hogs do well on it.

There is much danger, in grown cattle, to bloat if allowed to pasture on alfalfa; however, calves make good use of it without any danger of bloating.

Failures.—Poor success in getting a "catch" may be due to various causes. Poor judgment in selecting seed is often the cause.

In making a trial of alfalfa in a locality where possibly the environments are not very favorable, we should select seed of known origin, and if possible seed grown not far from home, or if you have to ship in seed, buy it from a locality where conditions are nearly the same as yours. Buy hardy seed, this means seed grown on "upland" and not too far south. Seed grown by irrigation or too far south as a rule is not hardy. Plants from this seed may grow all right for awhile until adverse conditions present themselves, such as a severe drought or a hard winter, often not living through the first winter.

In trying to get alfalfa started in a country where it is not grown much as yet, the soil may be deficient in the special kind of bacteria that grow on the roots of this plant to help to gather nitrogen for its successful growth; if this is the case the plant may thrive all right for awhile and then gradually dwindle away. By examining such a field you may find that the nodules on the roots are nearly or totally absent. If this is the cause of failure it may be remedied by innoculation, i. e., sowing a quantity of soil of a well established old alfalfa field soon after you sow your seed.

If you get a poor stand do not try to thicken it by sowing on it more seed. This is not a success because the old plants spread out and shade the young alfalfa, and so get choked by it and the weeds springing up. The best way is to plow the field and sow again; it often happens that the second sowing on the same field is more successful.

Another cause may be covering the seed too deeply. If covered deeply especially on a heavy black soil many plants never make their appearance, and many of those that do come up look weak and sickly.

In localities where freezing heaves the ground, much alfalfa is not a success, as this is liable to sever the roots.

BY CHELSEA E. JONES, DOUSMAN, WAUKESHA COUNTY:

My experience in growing alfalfa has been limited to the past season. For the experiment we took a two acre field and seeded it to alfalfa using oats as a nurse crop. The soil is a

sandy loam with clay sub-soil of average fertility. Oats and peas were the crop grown upon the field the previous year. The ground was fitted for sowing as soon as soil was in tillable condition in the spring and was thoroughly worked by a disk pulverizer going over good depth and lapping half first time and shallow depth second time. I finished with a smoothing-harrow. Alfalfa was sown at the rate of two pecks per acre; oats one-half bushel per acre. The ground was well harrowed after sowing. The common variety was the kind of alfalfa used and the plants made their appearance about two weeks after sowing and grew rapidly. The nurse crop was cut for hay July 1st. The following September we went over the field with the mower, the sickel bar raised slightly so as to clip the tops off the alfalfa, and we left this as a mulch. It is claimed that alfalfa should be clipped off as soon as tops begin to get yellow. This strengthens the roots and branches. Do not pasture first year. Last fall when winter began we had a good average stand of alfalfa. It did not look as thrifty as it might, but I attributed this to the wet season. With what little experience I have had with alfalfa I find it requires a well drained soil, loose sub-soil, and good average fertility. Please bear in mind that it is a great drought resisting plant after it has got a permanent foot hold.

Much of our farming lands are scant in nitrogen and it is the most expensive fertilizer we can buy. So, in order to fix a balanced ration for our soil, we must grow alfalfa or some other legume. It will also help to fix balanced rations for our live stock upon the farm. Allow me to urge upon every farmer to make a study of the alfalfa plant. If it does happen to fail the first time, try again.

BY H. E. ROSENOW, OCONOMOWOC, WAUKESHA COUNTY:

Last spring, after returning home fom the Short Course and having heard Supt. McKerrow's talk on alfalfa at the closing institute at Oconomowoc, I decided to try an acre or two with it to determine whether I could grow it successfully or not, as I knew of its great feeding value and the benefits to be

derived from it, if it could be grown with success. The success of the experiment still remains to be determined by its results.

The field in which the alfalfa was sown is on the southeast slope of a hill, the soil is a clay loam and it was spring plowed after which the seed was sown on March 29th. I sowed one and one-half bushels of oats per acre to act as a nurse crop and then the alfalfa was sown, using the common variety and sowing eighteen pounds per acre. After sowing, the land was harrowed, rolled and then harrowed again, so as to leave a loose, dry mulch.

As we had some snow and cold, wet weather after the field was seeded, the alfalfa plants were not noticeable until April 22d. The oats were cut on July 11th and yielded one and one-half tons of oat hay per acre. On account of the heavy rains last summer, the oats were lodged shortly before they were cut, and I believe that this was harmful to the young alfalfa plants; and, as the soil was also packed considerable by the continuous rains, the plants did not make quite as much growth during the summer as they otherwise would have done.

I did not try to get any alfalfa hay this year. Some weeds started up along the latter part of the summer, and were cut on September 17th, and the cutting left on the ground for a mulch. Along in the fore part of October, there was a good, thick stand of alfalfa plants which were several inches high. On several spots in the field where the soil was slightly sandy and of a lighter texture, the plants made a much better growth.

Last fall the field was covered with a light coat of straw manure so as to insure better winter protection for the plants, and if they come out all right this spring we expect to get several crops of good alfalfa hay the coming season.

O. G. MORRIS, DOUSMAN, WAUKESHA COUNTY:

I used the Turkestan variety of alfalfa. The land upon which the seed was sown was a sandy loam with a clay subsoil. Previously it had been a timothy sod. I plowed it about

the first of April and harrowed it several times, until it became a very fine seed bed. On April 14th the alfalfa was sown at the rate of fifteen pounds to the acre, with oats at the rate of one bushel per acre as a nurse crop. It was then harrowed and rolled. On April 25th the alfalfa plants were noticeable. They grew quite rapidly until July, when the wet weather began to interfere with their growth. The oats were cut in July, and by fall the alfalfa had grown to a height of about six inches, apparently in good condition to stand the winter.

WILLARD A. ABBOTT, WAUSAU, MARATHON COUNTY.

My experiment was tried on a sandy loam soil with clay subsoil, the ground lying rather high. It had been in clover and timothy sod the year previous and was plowed early in the fall, well worked in the spring, and then replowed. It was then worked with a harrow and planker until the surface was as fine as these tools could make it, using the plow last. The seed was clean, bright and plump, but the dealer was unable to tell me whether it was the Turkestan variety or not. It was sown without a nurse crop at the rate of twenty-five pounds per acre, with a common broadcast grass seed sower.

I did not fear the weeds, as the frequent cultivation during the spring had destroyed most of them.

The seed was covered with the planker care being taken not to allow the soil to be pushed into ridges before it, as this would make the sowing patchy.

We were favored with frequent showers, and the seed germinated immediately, and was up in four days. It seemed as if every seed must have germinated, so thick did they stand. It was allowed to grow until the first of August, when it was clipped, and made a ton to the acre of very nice alfalfa hay, with some weeds, but the cattle ate everything greedily. We intended to cut it again in about six weeks, but owing to the coolness of the fall, and the lateness of seeding, we were afraid it would not make sufficient growth to stand the winter, so did not cut it, and it went into winter with from eight to ten inches growth.

I noticed that there were certain spots in the field that looked much more thrifty, and deeper colored than the rest of the field. I think this was where manure was left in piles for sometime before spreading, and showed that a liberal dressing of manure would have given better results. I also noticed that where one stem had stood at the first cutting, several started, making the second stand thicker than the first.

In conclusion, I would say that in my opinion, there are no set rules to be followed, but each must study his own peculiar conditions and be guided by them.

This much, I think can be said in general, however, first, use from twenty-five to thirty pounds of seed per acre; second, use plenty of good manure, and third spend plenty of time and labor in the preparation of the seed bed.

Do not be discouraged with one or even two failures, but try again for the results after success is attained are well worth the cost.

THE FORMALDEHYD MEHOD FOR TREATING SEED OATS FOR PREVENTION OF SMUT.

BY D. L. COWGILL, DOYLESTOWN, COLUMBIA COUNTY:

I selected a piece of land containing two acres, moderately rich in fertility, and divided it in the middle. On one half of the field I sowed two bushels of treated oats. On the other half I sowed the same amount of seed, not treated with the formaldehyd. This was on April 4th. On the treated half, the seed germinated at once and came up evenly all through the plot, while on the other half of the plot about seven per cent. of seed came up promptly, the remaining coming very slowly. and weakly.

During the month of June the grain on the treated plot stood from two to four inches higher than did the grain on the untreated plot. The latter had finer straw with less uniformity in length, the plants ranging from six inches upward in height.

On the treated plot the plants stood uniform in height with a much coarser and stronger straw. In July, during the heavy rains and wind storms, the untreated grain went down, and did not have strength enough in the straw to straighten up again.

I also tried the treatment by spreading the grain on the barn floor and sprinkling the solution upon it. By this method I found it almost impossible to get the solution to penetrate each kernel, and succeeded in saving only about seven per cent. In the use of the immersion method, it is necessary to keep the seed in the solution for fifteen minutes at least, but would prefer twenty minutes.

Reducing the proposition to figures, we might have something like the following: Figuring on treating 80 acres of grain yielding 55 bushels per acre, would bring 4,400 bushels; 21 per cent. of 4,400 bushels would be 844 bushels, which, at 35 cents per bushel, would amount to $285.40. Conceding that the grain will weigh from ten to forty pounds more per bag, and figuring the feeding value of the oats at ten per cent. more, we add another $84.40 to the total saving. This brings our total to $370, enough money to hire two men eight months in a year, or enough to carry a person through two winters in the Short Course in Agriculture, with some left to start a pure bred herd of hogs, sheep and pountry.

BY C. A. KOLL, EAU CLAIRE, EAU CLAIRE COUNTY:

Last year we sowed eighteen acres of oats with treated seed and twenty-one with untreated seed. At harvest time the field of which the seed had not been treated showed about one per cent. of smut. The other fields showed no smut at all. The grain yielded an average of forty-nine bushels per acre. With so low a percentage of smut, the value saved by treatment does not amount to very much; still, it pays more than for the trouble of treating, and then one has the clean, smut-free seed. In my case, I should have saved about $4.75, after deducting for labor. How valuable, then, would this treatment be for farmers who sow a larger acreage and who have seed infected

to the extent of twenty-five per cent. or more, as so many farmers have. Apart from all money considerations, the added quality of the oats should fully pay for the expense and trouble of treating.

BY CONRAD J. SCHLOTTLER, SOUTH GERMANTOWN, WASHINGTON COUNTY:

I treated the seed by immersing for twenty minutes in a solution consisting of one pint of formaldehyd to fifty gallons of water, after which I spread it on the barn floor to dry. The seed was dry enough to sow in about thirty-six hours. I sowed about three acres with treated seed and sowed the rest of the field with untreated seed. The oats on the two plots sprouted at the same time and grew up the same so that there was no difference to be noted until they had headed out. After heading the difference was plainly seen. In the plot sown with the treated seed there was practically no smut, while in the plot sown with untreated seed, considerable smut was present.

I have no figures to show how much more per acre the treated plot yielded, but I know that my time and trouble was well paid for.

BY J. V. NICHOLS, WALWORTH, WALWORTH COUNTY:

Last season I hired out to a farmer in southern Wisconsin and when time came for the oats to be sown he said he would try treating them with formaldehyd to prevent smut. As he had never seen any treated he left it with me. I placed two barrels at one end of the barn floor and put twenty-five gallons of water in each barrel, then added one-half pint of formaldehyd to each twenty-five gallons of water. Then I took two gunny sacks and put as many oats in each sack as the formaldehyd solution in each barrel would cover well and left them there for twenty minutes, then raised them over the barrel and allowed them to drain for a minute or two, and spread them out on the barn floor to dry. About thirty-six hours after the oats were treated they were ready to be sown.

We found that oats treated in this way had practically no smut in them while those not treated contained at least fifteen per cent. smut and in some cases nearly thirty per cent. We also found that oats so treated yielded much more per acre and were somewhat better in quality. We found this way of treating oats a perfect success. I do not believe any one can afford to sow oats without treating the seed with formaldehyd.

TRIALS WITH SWEDISH SELECT OATS.

BY M. ROOD, SOUTH WAYNE, LA FAYETTE COUNTY:

The spring of 1902 I received from the Wisconsin Experimental Station a supply of the Swedish Select oats which I sowed at the rate of 1½ bushels to the acre. The ground was carefully prepared and the oats were sown with a broadcast seeder, April 9, and then rolled. The oats sprouted nicely and came on vigorously. During the entire growing period a marked difference could be noticed between the Swedish oats and other varieties that we had growing in close proximity, in favor of the Swedish oats. The oats stood up evenly, and ripened several days in advance of the other varieties, and were cut the latter part of July. On Aug. 10 the oats were threshed and yielded at the rate of 58 bushels to the acre by measure weighing 40 lbs. to the measured bushel or 75 bushels per acre by weight.

We consider the Swedish oats the best variety of oats grown in our section of the state and expect to sow all oats of that variety the coming spring so as to furnish our neighbors with seed after next season.

BY A. D. LARSON, WAUPACA, WAUPACA COUNTY:

TheSwedish oats (Wisconsin No. 4) were given a fair trial in so many counties of this state during the summer of 1902, that little needs to be said in regard to its good qualities.

Nevertheless great care should be taken as to the time of harvest, and manner of handling thereafter, because it shells quite easily.

Last spring I secured one bag full of this variety from the Wisconsin Agricultural Experiment Station and sowed this amount, April 15, with a broadcast seeder, on one acre of well prepared clay soil. After sowing, the ground was well rolled, and then given a light harrowing. It germinated quickly and after coming out of the ground grew quite rapidly. The straw being stiff prevents it from lodging, although about one-third of this laid down. It was only a small per cent. compared with that of other varieties. These oats were harvested August 2nd and threshed soon after. The yield by weight from that one acre was seventy-five bushels.

BY EDW. F. HEUER, WAUTOMA, WAUSHARA COUNTY:

During my attendance in the Short Course in Agriculture the winter of 1902, I learned of a new variety of oats that had been grown successfully on the Experiment farm. I was informed that the seed had been secured from the U. S. government which had imported the same from Russia and that of the many varieties tested at the University farm none had equalled this variety.

I secured a sack of these oats and sowed the same on my farm in Waushara Co. in comparison with the Welcome oats, the variety we had been growing for several years.. The soil on which the oats were sown is a loose sandy loam with a gravelly subsoil. This soil does not grow very large cereal crops and we have considered it rather poor for oats. The field had raised a crop of potatoes the year before and was not plowed but merely disked and harrowed before putting in the oats.

I sowed the two bushels of Swedish oats across one end of a five acre field and finished sowing the field with the Welcome oats for comparison. Both varieties of oats were sown on the same day with a drill. The Swedish oats appeared first above ground and had much larger leaves and looked much more thrifty during the entire growing period.

The Swedish oats had good stiff straw, were not near as rusty and from 6 to 8 inches taller with larger, heavier heads than the Welcome oats. There was a little smut in the Swedish oats and they were ripe and cut 4 days before the Welcome oats. I sowed the sack of Swedish oats on one acre, from which I got 45 bu. of the nicest oats I have ever raised. They were big, plump, thin hulled, bright, heavy oats weighing 40 lbs. to the measured bushel. They yielded me about 10 bu. per acre more than the Welcome oats. This is quite an item for the farmer for every bushel of grain he can raise on an acre above the amount required to pay the expense of production is clear profit.

The feeding value of these oats I consider the best on account of having a very thin and soft hull with large, plump, meaty berry.

There was a great demand in my community for those oats; everybody who saw them wanted some for seed, but I decided to sow all of that variety the coming year, so did not dispose of any.

EXPERIMENTS ON THE TREATMENT AND CULTIVATION OF SOILS.

PROF. A. R. WHITSON, DIVISION OF AGRICULTURAL PHYSICS.

The state of Wisconsin has a greater variety of soils than any other state of the northern Mississippi valley and there is much still to learn before we can get them to produce the maximum crops of which they are capable. Since it is necessary in studying the various soils to carry on experiments in different parts of the state where they occur it will be readily seen that the members of the experimental association can be of great aid in this work. Among the lines of experiment and observation which are of great importance and promise are the following: (1) the application of potash fertilizer to the marsh soils; (2) the cultivation of the soil to conserve moisture; (3) the methods of increasing the humus in the very sandy soils; (4) the

use of lime on the soils in the southwestern part of the state particularly when seeding to clover and (5) the relation between the protein content of fodder crops and the fertility of the soil on which they are grown.

APPLICATION OF POTASH TO MARSH SOILS.

Experiments have been made in this and adjoining states which show that many crops growing on this soil are greatly benefitted by potash in moderate amounts. At the University farm the yield of corn has been from two to four and a half times greater where treated than where untreated.

The past season Mr. T. A. Strande of Taylor carried on an experiment on the influence of potash on this soil growing timothy and reports that the yield was three times as large where treated.

Mr. A. P. Lalk of Koshkonong in an experiment made in 1901 found that the yield of oats was increased two and a half times. In this case the fertilizer was applied broadcast May 22, after the oats were well up but were light and yellow. This year experiments will be carried on in several different parts of the state on a larger scale with the hope of determining (1) the best form of potash fertilizer to use (2) the best means of applying it to the different crops and (3) the smallest amount needed to produce satisfactory results.

THE USE OF LIME ON SOILS IN THE SOUTHWESTERN PART OF THE STATE.

From considerations of the origin of soils in the southwestern part of the state including Grant, Iowa, La Fayette, Green and the western part of Rock and Dane counties, it is quite probable that the use of lime will be found helpful particularly in the growth of legumes. This will be especially true on hilltops and high lands generally.

A moderate application would be 1,000 to 1,500 pounds of slacked lime per acre.

RELATION BETWEEN PROTEIN CONTENT OF FODDERS AND FERTILITY OF SOIL ON WHICH THEY ARE GROWN.

During the past year it has been found that there is quite a variation in the per cent. of protein in such crops as corn, oats and rape due to the fertility of the soil. These results are given in the annual report of the Experiment Station for 1902.

It is desirable that this matter be studied on the different soils of the state. In this work members of the association can be of great help by cooperating with the Experiment Station. Samples of fodders from the same variety of seed, grown on different soils and sent to the Experiment Station will be analyzed and the results published in the report.

CULTIVATION OF THE SOIL TO CONSERVE MOISTURE.

It is desirable that during dry seasons members of the association make observations as to the influence of cultivation to develop a mulch on the growth of such crops as corn and potatoes. This can be done by allowing a few rows to remain uncultivated especially after light showers have made a crust. The difference may not be large but it is desirable that the crop be harvested separately and weighed or measured to compare with the cultivated rows adjoining. Often a profitable difference will be found in this way where no difference is apparent to the eye.

The writer will be glad to communicate with members of the association on any of the above mentioned subjects.

PLANT AND ANIMAL BREEDING.

J. D. CLARK, JOHNSTOWN, ROCK COUNTY.

This society was formed for the purpose of extending the work of the Eperiment Station, thus carrying the good work over as wide an area as possible and to learn the value of new things under the practical farming methods in use in different sections.

But this experimental work is of greater value to us than to the Station because it keeps us in touch with up-to-date methods and helps to prevent our drifting back to indifferent ways.

It keeps up our interest aud leads us to investigate and study to understand many things in our work.

The breeding of plants and animals is one of the fields in which intelligent study and labor will bring the greatest returns.

As Dr. Alexander, Prof. Hays and others are to address you on breeding I will devote my time to the part that intelligent feeding and developing plays in affecting inheritance.

We generally value plants for the nutriment in roots, seeds, bulbs or tubers that the plant has stored either to complete its own development or to nourish its offspring during their early growth.

It seems to be a sort of instinct of the plant to store this nourishment and when an abundance of proper food is furnished by careful culture, the plant responds by storing up greater quantities of nutriment.

Experiments with the wild carrot and parsnip have shown that the roots enlarge greatly under careful culture and what is more important to us: that the increased size is strictly inherited.

On the other hand you all know the results from a lack of plant food and proper culture. Here we find that plants when requiring careful culture on rich soils are grown on barren soils for a few generations that they lose much of their size and vigor of growth.

When seeds from these dwarfed plants are again grown under favorable conditions that it takes several generations for them to regain their former excellence.

Darwin writing of the little change in the productiveness of wheat since the time of the Egyptians says: "The state of agriculture and the quantity of manure supplied to the land will have determined the maximum degree of productiveness.

"For it would be impossible to raise a highly productive variety unless the land contained a sufficient supply of the necessary chemical elements."

With animals probably the most striking example of the inherited effects of feeding is found in the hogs of the corn belt.

You are all familiar with Prof. Henry's pig-feeding trials in which he proved the differences in bodily structure produced by different feeds.

Sixteen years ago he warned swine breeders against the use of a ration lacking in flesh and bone building elements.

Today, the evils that he found in the pigs upon which he experimented are so strongly inherited that they are the curse of the swine breeders of the corn belt.

The dairy cow is the product of breeding, feeding and developing. Milking ability is strongly inherited, but much of the future milking ability of the best bred cow depends on the way in which she is prepared for her first milking period, and the manner in which she is fed and handled while she is maturing. The best authorities believe that the increase of the milk flow due to proper feeding and handling of the udder, is inherited. It is certain that for many generations, in their native homes, they have been fed and handled to increase the milk flow, and the cows that have responded the most readily have proven to be the best breeders.

With our meat producers, the tendency to inherit the heavy flesh due to feeding is so strong that we have the saying, "Thick fleshed cattle breed thick fleshed cattle." But the breeder is usually afraid to risk the breeding powers of valuable animals by keeping them in heavy flesh. In Great Britain, where most of these breeds were developed, you will find them breeding regularly in heavy flesh, but their flesh is built from succulent

pastures and soiling crops in summer and from roots in winter, with plenty of peas, oats and oil-cake. These feeds, and shepherds and herdsmen who thoroughly understand their use, have made Great Britain the source of our best mutton sheep and beef cattle. While many of our breeding animals are overfat from oily, starchy foods and lack of exercise, the females still lack the protein to thoroughly develop their unborn young and supply their needs, while the males grow impotent from the lack of proper exercise and food.

Is the breeder right when he lays the results of these things and of the forced feeding for shows to the proper developing of healthy flesh?

The thoroughbred horse is an example of muscle, endurance and courage that can be developed by centuries of training and racing and the selection of the greatest racers for breeding purposes. It is a remarkable fact that some of the greatest racing stallions never afterward sired as great horses as they did during their first year. Then their muscles, wind and racing spirit were at their highest development from the training and victories that had given them their position. But when the changed life caused a degeneration of these things, it was marked by a decrease in their value as sires.

In all of these cases we find that where we change a plant or animal by affecting its nutrition, or developing some part, that the effect is readily inherited. The possibilities from a combination of proper feeding and developing with the principles of selection and breeding should appeal to every thoughtful breeder. The successful breeders of the past have been the men that have handled their stock to develop by feeding and care the same things for which they bred.

By selecting and breeding for a definite purpose, we outline a plan to direct the form and qualities of the animal just as truly as an architect plans the constuction of a building. But, if we fail to furnish the proper materials and workmen to build the animal according to the plan, we need never expect to create our ideal animal.

DAIRY RECORDS.

PROF. E. H. FARRINGTON, DIVISION OF DAIRYING.

At the February, 1902, meeting of this organization I suggested that student members should make observations in two lines of dairying. The records to be made at the farms where the students worked. It seems best to limit these observations to a few subjects and to obtain as much information as possible about them before spreading out in many directions. The undertaking, however, of some other kind of farm dairy records will be arranged for if any member of the association will write me about them.

This opportunity to study farm dairy practice and to compare the work of one dairy with another is still open to the members of this organization and I shall be pleased to correspond with any one wishing to begin a systematic record of his cows' milk production or of his cream skimming and churning.

MILK PRODUCTION RECORDS.

The work which was planned in milk production includes records of both single cows and of dairy herds. The milk to be weighed at the two milkings of one day in each week or oftener if the observer has time for more weighing. A test of a mixed sample from the two milkings will increase the value of these records if a Babcock milk tester is available.

The feed record may be estimated if exact weights cannot be obtained but it should include everything that the cow or cows are given to eat and the price of these feeds in the locality where the record is made.

A short description of the herd or of each cow tested should be written and kept with the milk records. It is also well to describe the system of watering the cows and the general routine of daily work at the farm, sending monthly reports to me.

Record blanks will be furnished for keeping the observations at each farm. A sample blank for each of the two kinds of records is here given.

SINGLE COW RECORDS.

Milk record of single cows owned by
Mr. .....
P. O. .....
State .....
Record made by Mr. .....
.....

Weight of milk and tests.

Date.	Cow No.			Cow No.			Cow No.		
	A. M.	P. M.	Test or Total.	A. M.	P. M.	Test or Total.	A. M.	P. M.	Test or total.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

DAIRY HERD RECORDS.

Milk records of a dairy herd owned by
Mr. .....
P. O. .....
State .....
Record made by Mr. .....
.....

Date.	Weight of Milk.			How many cows.	Test of milk.	Feed Record.
	A. M.	P. M.	Total.			Grain, hay, fodder, acres of pasture, etc.
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....

CREAM SEPARATING OBSERVATIONS.

These may be made with either the gravity or the hand separator methods of skimming. Blanks to be used in each system will be furnished for these records.

Tests of the whole milk may be made of composite samples as often as convenient. The skim milk sample may be taken from the hand separator by making a small hole through the under side of the skim milk spout and catching the drip through it during the entire time the separator is running. This will

give a fair sample of the skim milk for each run and these may be combined into a composite sample for testing.

If cream is raised by gravity, composite samples of the skim milk may be tested as in other cases.

Blanks for keeping churning records will be furnished if a student is in a position to use them.

CREAM SEPARATION BY GRAVITY METHODS.

Record made at farm of .....

P. O. .....

State .....

Observer .....

.....

Breed of cows ..... Mostly fresh or old milkers .....

Feed of cows .....

How is skim milk sample taken .....

Date	No. of cows	Total milk, lbs	Total cream, lbs.	Test of milk.	Test skim milk.	Temp. of Milk when Skimmed.		Gravity Skimming	
						A. M.	P. M.	Temp. of room or water	No of hours milk set.

CREAM FROM HAND SEPARATOR.

Record made at farm of .....

P. O .....

State .....

Observer .....

.....

Method of skimming .....

Breed of cows ..... Mostly fresh or old milkers .....

Feed of cows .....

How is skim milk sample taken .....

What kind of power used to run separator .....

Date.	No. of cows.	Total milk, lbs	Total cream, lbs.	Test of milk.	Test skim milk.	Temp. of milk when skimmed		Hand separator.		
						A. M.	P. M.	Milk skim per hr.	Speed of bowl.	No. times milk flow stopped.

This brief outline of the dairy work will give an idea of the information which we hope to obtain by such observations as may be made on the different farms. The keeping of such records will not only show the cost of producing a quart of milk and a pound of butter but will furnish the owner with an exact knowledge of the different cows in a herd and also the economy of his methods of cream separation and of butter making.

During the spring of 1902 several students wrote for information regarding the dairy records. Prompt replies were made to all of them and blanks sent for keeping such records as they indicated would be needed.

One man only filled out the blanks and his report for the year is here given.

REPORT OF BERL ARRIES.

During the recent summer I had occasion to work on one of the leading dairies of Illinois.

There was a foreman and four other men employed; they were not expected to do any work outside of the dairy and everything was kept in first class condition; the cream being shipped to the "Walker Gordon Dept." of the St. Louis Dairy Co., St. Louis, Mo.

The barn is 100 ft. long, 32 ft. wide, 14 ft. joists and a gambrel roof; it holds sixty cows in two rows, facing each other.

On one side we used a strap on the cows' neck, with snap, and ring to slip on vertical rod. On the other side we used the "Wilder Swing Stanchion" which proved much more satisfactory.

The manure, by the use of carriers, is loaded on a wagon and immediately hauled to the field.

Every man is up and moving at 4 o'clock A. M. Next the cows are fed grain, then their udders are brushed and washed.

Milking begins at 4:30, each man always milking the same cows.

The milk from each cow is carried to the center of the barn, where it is weighed and recorded on blanks for that purpose. It is then strained in an eight gallon can, which, as soon as full is carried into the milk-room, and an empty one brought back.

Soon as there is milk enough to keep the separator running, until the milking is finished, it is started.

Immediately after milking the cows are fed hay, the young calves fresh whole milk and the older ones fresh skim milk.

After breakfast the stable is cleaned.

About noon, during good weather, cows are turned out for exercise and fresh air.

After dinner they are groomed, fed grain, and udders washed.

Milking begins at 4 P. M., after milking cows are fed hay and calves are fed milk.

Plenty of salt is always at hand.

Water is constantly before the cows in small tanks placed between each alternate cow, so that two can drink from one. These are filled by pipes leading from a large round tank, set about 15 ft. above ground, near the well, and filled by windmill or gasoline engine.

CONCERNING FEED AND RECORDS.

When I arrived, in March, the cows were receiving 6 lbs. corn and cob meal, 6 lbs. bran, and 1 lb. cottonseed meal; what hay they would eat in form of timothy and bluegrass, also about 3 lbs. oat straw per day.

From Apr. 1 to 14 they averaged 15.5 lbs. of milk per day, cost of production per qt. 3.86 cts.

On Apr. 15 the cows were turned on bluegrass pasture and not given any feed in barn.

From Apr. 15 to 30 they averaged 21.7 lbs. of milk and from May 1 to 31, 21.7 lbs. at an average cost of 1 ct. per qt.

During the month of June the cows held up fairly well averaging 21.2 lbs. of milk per cow per day; cost per qt. 1.3 cts.

From the above we see that there was a marked difference in cost of production while on dry feed as compared to pastures.

During first half of July we used a fly repellant, but on the 17th stopped. On July 28th cows were turned on 10 acres of rye and wheat stubble for night pasture.

Average for first half of July 17.9 lbs. milk per cow; for second half 16.5 lbs., cost per qt. 1.6 cts.

From Aug. 1 to 24, cows were pastured exclusively on rye and wheat stubble, part being seeded to clover.

Average from Aug. 1 to 24, 17 lbs. milk per cow; cost per qt. 1.7 cts.

On Aug. 25th they were turned on second crop timothy meadow; average per cow, 20.8 lbs. milk; cost per qt. 1.4 cts.

In the herd was a grade Holstein cow which produced in 6 mos. 221.4 lbs. butterfat, an average of 1.23 lbs. per day.

A grade Short Horn in 6 mos. produced 214.2 lbs, average 1.19 ibs. per day; also a grade Guernsey which produced in 6 mos. 203.4 lbs., an average of 1.13 lbs. per day.

The herd was tested two or three times per month and the average for each month was 3.9% butter fat.

A composite sample of each cow's milk was taken once a month, by placing in a pint bottle one of "Farrington's Bi Cromate of Potash Tablets," and then placing the bottles in the barn behind the cows; at each milking, a sample of each cow's milk is put in her special bottle.

Then at the end of a week they were taken to the milk-room and tested in a Babcock Turbine Tester.

The average composite test of Ester was 3.9% butter fat; of Big Guernsey, 3.7% butter fat; of Strawberry, 4% butter fat.

METHOD OF CALCULATING COST OF MILK PER QUART.

The men who milked and cared for the cows did no other work so their wages should be all charged to the cost of milk.

Land rents for $5.00 per acre in this locality and two acres of pasture will support one cow for eight months. From this it is calculated that the pasture feed per cow is worth 30 cents per week. The cost of labor and of feed to produce the milk each month is shown in the following statements.

During the first fourteen days of April the herd of 72 cows was in the barn and given dry feed. The wages of the men taking care of them was: foreman, $50.00 per month; two men at $33.00 each; two at $20.00 each and one at $35.00.

Bran cost $18.00 per ton; corn, $16.00; cottonseed meal, $26.00; hay, $10.00 and oat straw, $6.00.

From these figures it is calculated that the cost of labor and feed was as follows:

Labor	89.10
Bran	54.43
Corn	48.38
Cottonseed Meal	13.10
Hay	61.62
Oat Straw	9.07
Total	$275.70

The milk produced by the 72 cows was 15,624 lbs. which divided into the cost of feed, etc., $275.70, gives 1.77 cents as the cost of one pound of milk, and since one pound equals .47 quarts, the cost of one quart of milk was 3.8 cents.

From May 14 to June 1st, 17 days, the cost of labor was $282.90 and of pasture $165.04 making a total of $447.94. During this time 78,554 lbs. of milk were produced by from 70 to 80 cows; no grain was fed and the cost of one quart of milk was one and one-tenth cents. In June the cost of one quart of milk was 1.5c., in July 1.8c. and in August 1.8c. During these months the cows did not receive anything but pasture feed. The labor, pasture and milk records were as follows:

	June.	July.	August.
Cows milked	60.	60.	60.
Cost of labor	$181 00	$181 00	$181 00
Cost of pasture	81 00	83 70	83 70
Milk produced, lbs	38,297.	31,992.	32,178.

The average test of the herd's milk was 3.9% fat each month.

CO-OPERATIVE EXPERIMENTS IN LIVE STOCK

PROF. W. L. CARLYLE, DIVISION OF ANIMAL HUSBANDRY.

The following outline of proposed investigation work with live stock for members of the association during the year 1903 is submitted. We trust that those students interested in the care and management of live stock will select one of these outlined experiments and will notify the secretary of their choice when full directions for carrying on the work will be at once sent.

EXPERIMENT NO. 1.—*Treating Lambs for Stomach Worms.*

The farmers and flock masters of Wisconsin and northwest generally have suffered severe loss during recent years from the stomach worm (Strongylus) which affects young lambs during the summer months. For the past two years we have had very gratifying success in the university flock by feeding tobacco powder in the grain feed as a treatment for this trouble in young lambs. The tobacco is much more easily fed to the lambs and has given us better results than any other treatment and we earnestly recommend a trial of it by all ex-students having sheep on their farms.

EXPERIMENT NO. 2.—*Blood Meal for Calf Feeding.*

We have had much inquiry from dairymen of the state as to the value of blood meal or blood flour for feeding young calves. This feed has been very highly recommended as a specific in treating scours in calves, and it appears to be a very valuable food when fed with skim milk for calf rearing.

EXPERIMENT NO. 3.—*Soy Beans for Pig Feeding.*

We presume that very many of the members of the association will be raising soy beans this season and we would like to suggest a uniform experiment in testing the value of this plant for feeding hogs in conjunction with corn. At least one acre should be reserved for this purpose. The two varieties

recommended for pig feeding are the Ito San and the Medium Early Green, one-half of the plot to be sown with each variety. As the beans should be sown from May 16 to May 20, preparations should be made early.

Experiment No. 4.—*The Value of Sorghum as a Soiling Crop.*

For the past four years we have been planting sorghum and using it as a supplementay food to the pastures for dairy cows during the months of August and September. We believe it is more valuable than many of the varieties of corn for this purpose and we get a much larger yield. Our success with the Early Amber variety has been phenomenal and we would like to have a number of experiments undertaken in various parts of the state the coming season.

Full directions for carrying on each of these experiments will be mailed to members of the association who will notify the secretary that they wish to undertake any of this work.

TESTS WITH GRAIN AND FORAGE PLANTS.

R. A. MOORE, DIVISION OF FARM CROPS.

Approximately 200 members of the association signified a desire to carry on experiments with grains and forage plants and were furnished outlines and report blanks.

To give all members of the association a knowledge of the scope of the work copies of the outlines given those members desiring to cooperate are herewith published. Several of the experiments outlined for this season will be continued next year and members wishing to aid in the work will be furnished information sheets and report blanks by addressing the secretary of the association, R. A. Moore, Madison, Wis.

Reports on the various experiments should be sent to the secretary promptly in order to be compiled for the next annual report.

EXPERIMENT I.—*Trials with alfalfa to determine if it can be grown in Wisconsin successfully as a forage plant and the relative value of the Turkestan compared with common variety.*

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 Experimental Association, it will be well for the farmers of the state to refrain from sowing it in large quantities.

'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; the richer the soil the better will be the growth of 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 as a nurse crop and cover as usual; then sow alfalfa broadcast at the rate of 20 pounds of seed per acre, and drag once. If the season is very wet and the nurse crop lodges, cut the crop for hay and give the alfalfa a better chance to grow. The alfalfa springs up readily after the nurse crop has been removed and if the season is favorable, in from thirty to forty days it will be fit to cut and should yield from one to one and a half tons per acre. 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 the first year as it injures the young 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 alfalfa

plants will not be crowded as they would be if the ordinary amount of oats were sown per acre.

The Turkestan alfalfa is said to have special drought and frost resisting qualities, but the price of seed is considerable more than that paid for the common variety, consequently it remains with the Experiment Station with the assistance of the Experimental Association to demonstrate the relative value of each.

A small plot of each variety of alfalfa should also be sown *without* a nurse crop, and the merits of the method compared with that sown *with* a nurse crop.

Report on Getting a Stand of Alfalfa, Turkestan vs. Common Variety. Experiment I.

To be sent to secretary by Oct. 1, 1903.

Name of experimenter .....

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

1. Date of sowing oats and alfalfa.....
2. What varieties were used? .....
3. Nature of soil. .....
4. How prepared? .....
5. When were the alfalfa plants first noticeable?.....
6. Were the oats cut green or left to ripen? .....
7. Amount of oat hay per acre if cut (estimated). .....
8. How long after the oats were cut was the alfalfa cut?.....
9. How much alfalfa hay did you procure per acre (estimated)? .....

   Turkestan ..... Common .....
10. Did you experience any difficulty in curing it? .....
11. Did the stock as a rule relish the hay? .....
12. Did you feed any green? .....
13. How did the stock relish the green feed? .....
14. Have you a good, thick stand of alfalfa? .....
15. How high is it? .....
16. At what rate did you sow the oats per acre? .....
17. At what rate did you sow the alfalfa per acre? .....
18. Which seem the best adapted for your locality, the Turkestan or the Common variety? .....

19. Which seems preferable: sowing with or without a nurse crop? .....
20. Did you notice any nodules on the roots of the alfalfa at any time during the growing period? .....
21. Date of making this report .....
22. Give in a brief way your opinion on growing alfalfa in Wisconsin from the knowledge you have thus far gained.

.....

.....

Alfalfa after First Year's Seeding. Experiment 2.

Encouraged by the ability of stockmen in the west to grow alfalfa, many of the former students of the Wisconsin College of Agriculture have been tempted to grow it in a small way. Through the encouragement of the Experimental Association, many of its membership sowed from one to two acres last year. 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 who will agree to send in report.

Report on Alfalfa after First Year's Seeding.
Experiment II.

To be sent to the Secretary, by October 1, 1903.

1. Name of Experimenter .....
   Post Office .....; County .....; State .....
2. Year and season alfalfa was sown .....
3. Was the alfalfa sown with or without nurse crop? .....
4. Variety of alfalfa seed used .....
5. Amount of seed per acre .....
6. Was crop cut for hay the year of sowing? .....
7. If so, the amount obtained per acre .....
8. Nature of the soil .....
   (Clay, muck, highland, lowland, etc.)
9. Was good stand noticeable before the fall frosts? .....
10. What per cent., if any, winter killed? .....per cent.

11. How many cuttings did you get the year after seeding? ...
12. Weight of hay from all cuttings for the season—
    (actual) ..... (estimated) .....
13. Did you experience any difficulty in curing the crop for hay? .....
14. 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.

Treating Potatoes with Formaldehyd Solution for the Prevention of Potato Scab.—Experiment 3.

The potato crop of Wisconsin in 1902 is estimated at 25,800,000 bushels, valued at $9,030,000. 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 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 at all scabby.

Report of Experimenter on Treating Potatoes for the Prevention of Scab.—Experiment III.

Name of Experimenter .....
Post Office .....; County .....
How much seed treated for the experiment? .....
How much seed untreated for the experiment? .....
Date of planting .....
Did you notice any characteristic difference in the growth of the potato vines during the growing period? .....
.....
.....
Date of digging potatoes .....
Yield from the seed treated .....
Yield from the seed not treated .....
No. of scabby potatoes found from the treated seed .....
No. of scabby potatoes found from the untreated seed .....
.....

The Formaldehyd Treatment to Prevent Oat Smut.—Experiment 4.

Smut on oats has become so prevalent in the state that in many localities fields are so badly affected that farmers lose from 10 to 30 per nent. of their entire crop. This is a serious matter when we consider that approximately 2,000,000 acres are annually sown to oats. A saving of the crop destroyed the past season by smut, which was estimated at 17 per cent., would mean five million dollars to the farmers of Wisconsin. Practically all this loss can be saved by treating the seed oats be-

fore sowing with a solution made of one pint of formaldehyd added to 36 gallons of water. After solution is made, proceed as follows: Pour the solution in a cask or barrel until about one-third full; place about two bushels of oats in a gunny sack and immerse in the solution for ten minutes, then let drain and empty on threshing floor to dry; spread the oats quite thin and shovel over once or twice a day until sufficiently dry to sow. Treat the seed oats three or four days previous to sowing, so ample time will be given to dry.

One pint of formaldehyd will treat about 40 bushels of oats. If desirable to treat a large quantity, three or four casks or a large tank can be used, thereby facilitating matters. The solution can be used until all is absorbed by the oats, using a less quantity of oats in the sack as the amount of the solution becomes less in cask or receptacle.

The oats in the sack should have sufficient freedom to enable the solution to come in contact with each individual seed. This can be readily accomplished by grasping the sack at each end and moving the contents to and fro within the sack once or twice during treatment.

Formaldehyd can be purchased at most any drug store for about fifty cents per pint. It is not dangerous to use and will not injure the seed in any way. When treating seed grain the solution can be kept for several days, but when so retained it is well to cover casks with a canvas or blanket, as the solution will gradually lose strength if exposed to the open air. The bottle containing the formaldehyd should be kept securely corked so as not to lose any of its original strength.

The great loss sustained by farmers by smut and the rapid increase of the smut area suggests that a remedy be found to stop this loss.

The accompanying sheets will give a 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 student has no oats, he probably can obtain some from a neighbor who 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 lot sown with the oats treated and that on which the oats are not treated.

4. After oats are fairly 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 hoop over the oats and counting all heads within the circle, and then note the number affected with smut, thus getting data to determine the percentage.

Report of Experimenter on Treatment of Oats to Prevent Smut.
Experiment 4.

Name of Experimenter, ...; P. O., ...
County, ...; State, ...
1. Did you treat oats according to directions? .....
2 How many bushels were treated for the experiment? .....
Size of plot .....
3. How many bushels were sown on experiment that were 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 effected with smut on plot where seed was treated to prevent smut? .....
7. What per cent. of oats were effected with smut on plot where seed was not treated? .....
8. Per cent. saved by treatment? .....

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

Send in this report as soon as experiment is completed.

Tests With Swedish Oats.—Experiment 5.

The test made during 1902 with the Swedish oats was very satisfactory and shows that the oats are adapted for Wisconsin conditions. The desire is now to have them grown as extensively as possible by members of the association so 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.
2. Must be sown on land that is free from Canada thistles, mustard 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 of Experimenter on Swedish Oats.—Experiment 5.

Name of Experimenter .....
Post Office, ...; 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 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 oats.

Rape as a Forage Plant.—Experiment No. 6.

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

Sheep and swine 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 wet with dew, or when they 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 experimental farm. This variety can be purchased from any good seed house, in five or ten-pound lots for about six cents per pound.

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 had 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 down 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 seed in about 30 inches apart so as to cultivate once or twice.

C. Sow one acre or more broadcast or with 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, the 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, four or five pounds should be used; when sown with oats at the time of seeding, use about one or two pounds 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 from next crop.

If season is favorable you will succeed in getting three cuttings of rape from the same plot, if it is sown alone and early.

Where the object is to fatten sheep and swine for market, a grain ration should be fed at regular intervals.

We wish to determine by the rape experiment the relative value of that plant for soiling purposes for the farmers of Wisconsin.

Reporting Member, ...

Post Office, ...; County, ...; State, ...

Experiment 6, A.—Sowing Rape Broadcast on Oat Field and Dragging ten or twelve Days after Seeding with Oats.

1. Date of sowing oats, ...
2. Date of sowing rape, ...
3. What variety rape seed 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. Approximately, how much green fodder did the rape produce per acre? .....
17. 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 6, B.—Sowing Rape with Drill.

Reporting Member, ...
Post Office, ... ; 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 grain 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. .....

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Experiment 6, C.—Sowing Rape on Plot with Oats in Accordance, with Directions Given in Information Sheet.

Reporting Member, ...
Post Office, ... ; 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? .....

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Experiment 1, D.—Rape Sown Broadcast Without Dragging when Oat Crop is from two to four Inches in Height, Immediately before or after a Shower.

Reporting Member, ...

Post Office, ...; 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? .....
17. Briefly give your opinion as to the value of rape as a soiling crop. .....
.....

Soy Beans.--Experiment 7.

The Soy bean was probably introduced into the United States from Japan about 50 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 experimental farm in 1900 and an early variety yielded 38 bushels of seed beans per acre in 1902. 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 gound 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 30 inches apart and about five 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 ground is cold; immediately after corn planting is a favorable time.

Experiment 7.

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 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.

Name of Experimenter, ...

Post Office, ...; County, ...; State, ...

Date of planting Soy beans, ...

Character of soil .....

What crop had been grown the previous year? .....

Was the land used, fall or spring plowed? .....

Give your method of planting. .....

How long after planting were beans first noticeable? .....

Give your method of cultivation. .....

Did you try a few square rods for forage? .....How many pounds of green forage did you cut from a square rod? ..... lbs. How many pounds of cured hay did you get from a square rod? ..... lbs. Did the stock eat the green and cured forage readily? .....

What kind of stock did you feed it to? .....

Did the beans left for seed ripen evenly? .....

Date of harvesting? .....

Manner of harvesting. .....

.....

Method of threshing .....

Yield per acre of marketable seed beans, ...

Date of sending report .....

Were nodules noticeable on the roots at any time during the growing period? .....

Give in a general way your opinion of Soy beans as a seed and forage plant for Wisconsin.

OUTLINE OF WORK IN HORTICULTURE FOR THE EXPERIMENTAL ASSOCIATION.

PROF. E. P. SANDSTEN, DIVISION OF HORTICULTURE.

Apple and Pear Blight.

Observe carefully whether the blight is more prevalent in wet seasons than in dry. Note if possible the time of the first appearance of the blight and the weather conditions at that time. On a few of the blight-infected trees, cut off the infected parts six to ten inches below the diseased parts. Note the effect of the cutting back on the trees at the end of the season.

Seedlings of Cultivated and Wild Varieties of Apples, Plums and Cherries.

Mark them carefully so as to be readily found if growing wild and when the fruit is fully ripe send specimens of fruit to the Wisconsin Experiment Station, Department of Horticulture.

Noxious Weeds.

Keep careful records of the appearance of noxious weeds in cultivated fields and along roadsides. If unknown and particularly noxious send specimens of the plant or plants in full bloom together with the roots. Send them while fresh. In sending specimens please state fully where grown and if the plant has been seen previously in that locality; also the full address of the sender. Full information in regard to the weeds will be given by the Department.

Injurious Insects.

Make note of the appearance of injurious insects and the crop or crops which they infest. Capture specimens and send the same to the Experiment Station in noncollapsible boxes having small air holes for the insect to breathe and a few leaves of the plant on which it was found. Note extent of injury caused on the plants where found. Send by mail.

BUSINESS MEETING.

Business meeting of the Wisconsin Agricultural Experimental Association, Friday, February 6th, 2 P. M., capitol.

Called to order by president; reading minutes, etc.

Reports on co-operative work were presented by Messrs. Moore and Carlyle. Professors Sandsten, Farrington and Whitson were absent, but sent word that work would be outlined in time to insert in annual report.

REPORT OF EXECUTIVE COMMITTEE.

The executive committee made several changes in the constitution regarding fees, membership and officers, which were unanimously adopted. Mr. Hatch moved that W. D. Hoard, Ft. Atkinson, J. Q. Emery, Madison, Prof. W. M. Hays, St. Anthony Park, Minn., Prof. L. D. Harvey, Madison, Prof. C. P. Cary, Madison, and W. D. Hitt, Oakfield, be made honorary members of the association. The motion was unanimously carried.

The following resolutions were read by R. C. Preston, and unanimously adopted.

WHEREEAS, There is now introduced in the legislature a bill providing for the appropriation of $1,000 to the Wisconsin Agicultural Experimental Association for the purpose of securing and testing new varieties of seeds and plants, securing and testing fertilizers, studying the best methods of cultivating and feeding crops, and promoting the agricultural interests of the state in general,

Therefore, be it resolved, by the Wisconsin Agricultural Experimental Association in convention now assembled, that we most earnestly urge upon our legislature their hearty support of this measure.

Be it further resolved, that the secretary of this association be instructed to transmit a copy of this resolution to each member of the legislature.

WHEREAS, The instruction and experimental work of our Agricultural College and Experimental Station has been greatly hindered by the lack of suitable equipment of live stock to adequately represent the various types and classes, and whereas, the live stock interests of Wisconsin are of paramount importance,

Therefore be it resolved, that the Wisconsin Agricultural Experimental Association in meeting assembled, do unanimously and earnestly request of our legislature the passage of the bill appropriating ten thousand dollars to be used by the regents of the university exclusively for the purchase of such live stock as may be needed for the proper equipment of the university farm and station.

ELECTION OF OFFICERS.

The following officers were elected for the ensuing year:

President—A. J. Meyer, Madison.

Vice-President—J. P. Bonzelet, Eden.

Secretary—R. A. Moore, Madison.

Treasurer—H. J. Renk, Sun Prairie.

TREASURER'S REPORT.

James G. Milward, treasurer of the association, made the following report which was duly adopted.

Treasurer's report as rendered by James G. Milward, February 6, 1903.

Receipts.

1902.		
Feb.	From Sec. R. A. Moore as fees	$26 00
Feb.	From members joining the association	41 05
1903.		
Jan.	From members as per tax levy	37 75
Jan.	From members joining the association	5 50
Feb.	From members as tax levy	43 00
		$143.30

Disbursements.

Feb., 1902, to E. Evans for soy beans	$15 64
Feb., 1902, to Hotel Van Etta for meals and lodging Miss Whitmore	2 00
Jan., 1903, to Racket for badges	1 80
Feb., 1903, to Groves & Barnes Music Co., for organ	4 00
Feb., 1903, to Democrat Printing Co., printing stationery, badges, etc.	33 25
Feb., 1903, to Tracy, Gibbs & Co., for printing	7 50
	$64.19

Feb., 1903.	Total receipts	$143 30
	Total disbursements	64 19
	Balance on hand	$79.11