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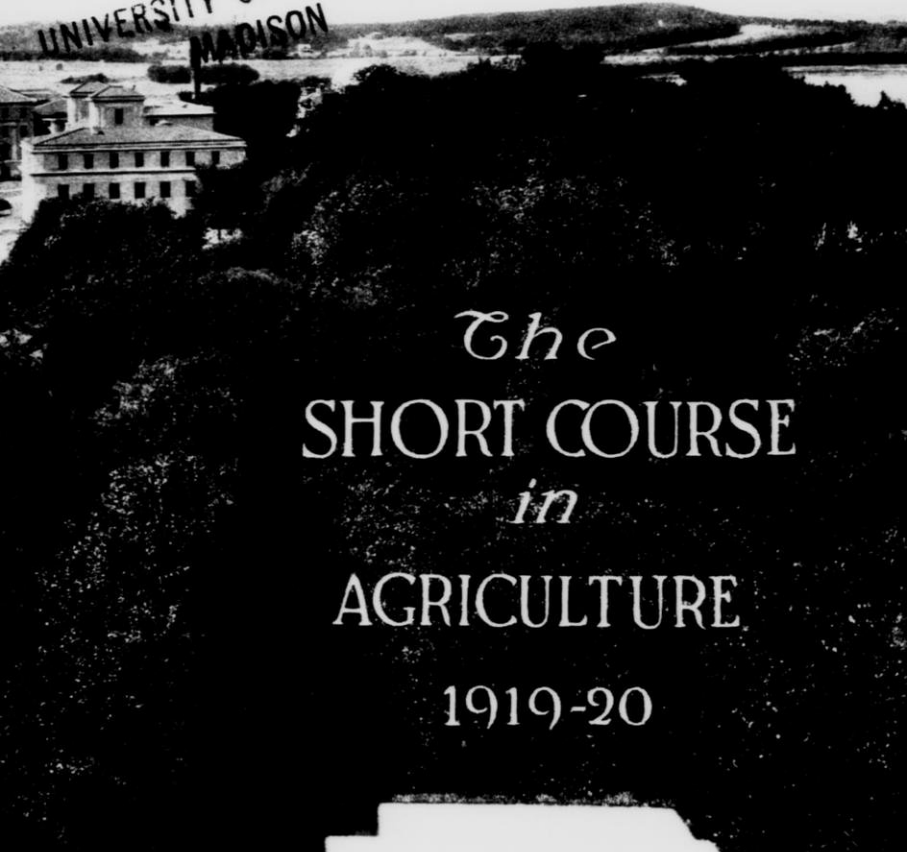
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BULLETIN OF THE UNIVERSITY OF WISCONSIN

Serial No. 985 General Series No. 769

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UNIVERSITY OF WISCONSIN
MADISON



The
SHORT COURSE
in
AGRICULTURE
1919-20

COLLEGE OF AGRICULTURE
OF THE
UNIVERSITY OF WISCONSIN

MADISON
Published by the University

CALENDAR

1919

Registration days	Tues.-Wed.	Nov. 11-12
Recitations begin	Thurs.	Nov. 13
Thanksgiving Day—legal holiday	Thurs.	Nov. 27
Make-up examinations	Sat.	Dec. 13
First term closes	Fri. (4:30 p. m.)	Dec. 19
Christmas recess begins	Fri. (4:30 p. m.)	Dec. 19

1920

Second term begins	Tues. (8 a. m.)	Jan. 6
Make-up examinations	Sat.	Feb. 7
Second term closes	Tues.	Feb. 10
Third term begins	Wed.	Feb. 11
Livestock trip (required of all second year students)	Mon.-Tues.	Feb. 23-24
Washington's Birthday — legal holiday	Mon.	Feb. 23
Make-up examinations	Sat.	Mar. 13
Closing Day exercises	Thurs.	Mar. 18
Third term closes	Thurs.	Mar. 18

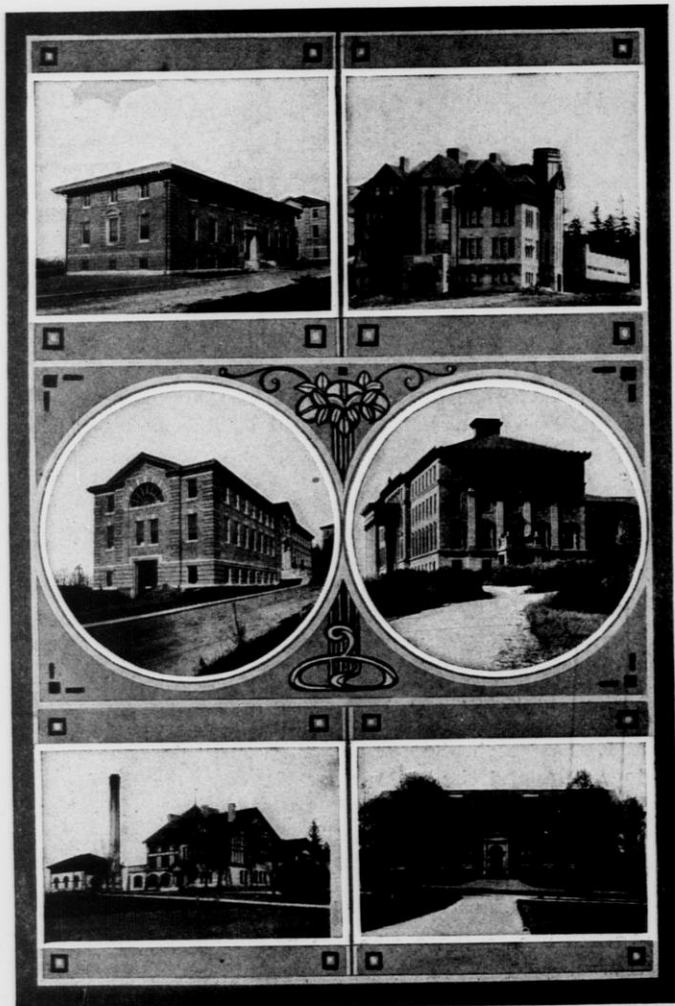
THE SHORT COURSE IN AGRICULTURE

"If you count up the ten most successful farmers in your county, there is little doubt that you will find that at least six or eight, and possibly all of them, are graduates of the Short Course. If you take up the directory of the Wisconsin Live Stock Breeders' Association and check off the names of the men who are today Wisconsin's leading breeders of purebred livestock—many of them national leaders in this line—you will find that at least nine-tenths of them are graduates of the University of Wisconsin Short Course." Those are the statements of one who is a leader in Wisconsin agriculture and education.

Most of the young men who take the course realize that the two winters of training, fifteen weeks each winter, offer them the supreme opportunity of their lives; and they are taking advantage of that opportunity, as have those who have graduated before them, to become the seedsmen, the breeders of better livestock, and above all, the home-builders, of the state.

The purposes of the Short Course are:

1. To teach the fundamental scientific facts necessary to understand the reasons for the common farm practices, and to give a thorough training in practical agriculture.
2. To give this information at the season of the year when the work on the farm is the least pressing, to permit the students to complete the course in the shortest possible time, and to offer the advantages of the College of Agriculture to those who are unable to complete a longer course.
3. To study the problems involved in successful farm management, including the cooperative buying of supplies and marketing of farm crops, the employment of labor, and the organization of the farm as a business enterprise.
4. To create an interest in rural life, to bring the stu-



SOME OF THE AGRICULTURAL COLLEGE BUILDINGS

Agronomy Building
 Agricultural Engineering Building
 Dairy Building

Soils Building
 Agricultural Hall
 Horticultural Building

dent to realize the possibilities and opportunities of the farm as a social factor and his relations to the community and society, and to train young men to make an intelligent study of the problems affecting the agricultural interests of the state and to become better farmers and more intelligent and useful citizens.

5. To help young men to secure desirable positions for which they have been fitted by training and experience and where they can increase their store of practical farm knowledge.

6. To enable young men from the various sections of the state to come to know one another and to form acquaintances which will last through life, and to meet and listen to lectures by men prominent in the agricultural world from this and other states and from foreign countries.

Definite Opportunities for Graduates

During the past year the employment bureau of the College of Agriculture has been unable to meet the rapidly increasing demand for students to work on farms in this and other states. Many of the students have returned to the home farms.

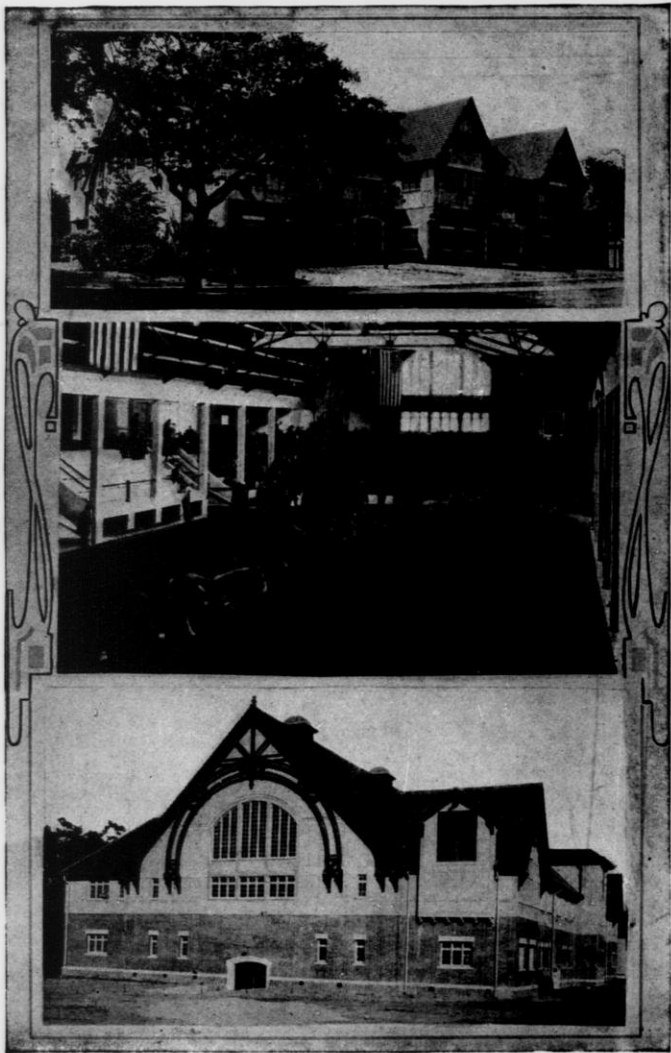
The nature of the positions which are open to Short Course students is shown by the following:

General Farm Laborer. The opportunity for farm positions on general farms, other than the home farm, is exceptionally good. These positions pay experienced men from \$40 to \$75 a month with board.

Cow Testing Work. This type of work offers good opportunities for students, in this and other states. The work pays from \$60 to \$75 a month and includes living expenses.

Herdman, Foreman. Many enterprising and successful farmers need trained men to assume the responsibility of the management of the herds. This is a responsible position that pays from \$50 to \$75 and sometimes \$100 or more a month with board. This type of position serves as a stepping stone for something better; it frequently leads to a managerial job.

Some farms with a large amount of business require the



THE STOCK JUDGING PAVILION

Three views of the big pavilion where the classes in stock judging meet.

services of a foreman who looks after certain parts of the work of the farm under the direction of a manager. These positions are not as common as those of herdsman, but the pay is about the same or perhaps a little better.

Farm Managers. The demand for men to manage farms is on the increase. The compensation offered for such positions ranges from \$75 to \$100 and more.

Share Renters. Young men with some capital in addition to their training and experience may find opportunities for renting farms on a share basis. This may serve as a stepping stone to farm ownership.

Return to the Home Farm. The majority of the students who take the Short Course find it to their advantage to return to the home farm. Many of them enter into partnership with their parents or brothers and soon become real farm managers.

The real value of the Short Course is well demonstrated in the results that the boys have been able to secure after leaving the college. Figures obtained by the Agricultural Experiment Association (composed of former agricultural students) show that the yield of corn obtained for a 5-year period by 1550 former students, averaged 62 bushels an acre, while the best corn in the same community for the same period of time, averaged 49 bushels an acre. This is a difference of 13 bushels an acre, a year, in favor of the improved varieties of corn and the improved methods introduced and practiced by these former students.

Distribution of Graduates and Former Students

Since it was established in 1885, 5,125 students have attended the Short Course in Agriculture. Every county in the state has been represented in the course at some time.

Graduates of the Short Course are now successful farmers in many parts of the United States and in several foreign countries. Many of these students have returned to pursue advanced studies and are now holding prominent positions in agricultural colleges and experiment stations.

Does Education Pay on the Farm?

That Short Course training pays is shown by the fact, based on 825 records, that the Short Course graduates are making labor incomes—the amount left over to pay for the farmer's labor after paying all expenses and deducting 5 per cent interest on the total investment—of \$739 a year, as against only \$632 made by common school graduates; and the Short Course men live in more expensive houses; more often have modern bath equipment, lighting systems, and furnace heat; and one-fourth of them, as against one-fifth of the grade school graduates, have automobiles.

The equipment of the College of Agriculture is thoroughly modern and practical. The buildings stand for the best types of farm architecture and the ideas represented in their construction can be readily adapted to the average farm. For years attention has been given to securing breeds of live stock that will be representative and true to type. The instruction in the short course is given by the regular members of the staff of the university, and the students have every advantage offered the students in the other courses.

The Plan of the Short Course

The Short Course consists of three terms of five weeks each. Students may enter at the beginning of any term. The course is so planned that a definite unit of work is completed during each five-week period. The course will start the middle of November and the studies for the first term (five weeks) will be completed at the time of the Christmas holidays. The second term will start after the vacation and the work of this term will close at the end of the first week in February. The third term will begin the second week in February and close the middle of March. The course will be completed in good time to permit the student to return to the farm to begin the spring work.

Under this new plan Short Course students will concentrate upon a few subjects for each term and complete them

before taking up other subjects. Instruction is given by means of lectures, recitations, laboratory practice, demonstrations and conferences. Opportunity is given for students to secure answers to individual questions, which makes the work practical and helpful to them.

The course of study is so arranged as to give the students an idea of the fundamental sciences which underlie successful agriculture. The principles and approved prac-



WHERE THE COWS ARE ON PARADE

The university dairy herd includes good representatives of all the leading breeds

tices of profitable farming based upon these fundamental sciences are explained.

The lectures proper occupy about 2 to 3 hours a day and the remainder of the time is devoted to laboratory practice and demonstration work.

Text books are used as an aid to understanding the lectures and laboratory exercises. In the laboratories, students are given practice in such subjects as stock and grain judging, grafting, budding and pruning fruit trees, testing seeds, laying tile drains, operating farm engines and machines, mixing rations for animals, examining of horses for soundness. Classes begin at 8 a. m., continuing until 4:30 or 5:30 p. m. with a noon intermission from 12 to 1:30 p. m. No classes are held on Saturday afternoon.

SHORT COURSE SCHEDULE—FIRST YEAR

Hour	FIRST TERM Nov. 13—Dec. 19	SECOND TERM Jan. 6—Feb. 10	THIRD TERM Feb. 11—Mar. 18
8-10 Lab.	Sec. 1 Agr. Engineering A Sec. 2 Agronomy A Sec. 3 Soils B	Sec. 2 Agr. Engineering A Sec. 3 Agronomy A Sec. 1 Soils B	Sec. 3 Agr. Engineering A Sec. 1 Agronomy A Sec. 2 Soils B
10-11	Soils A	Plant Life—First half term Breeds A—Last half term	Dairy A—First half term Vet. Science A—Last half term
11-12	Chemistry	Feeds and Feeding C	Horticulture A
12-1:30	Inter mission		
1:30-3:30	Sec. 1 Stock Judging B Sec. 2 Dairying B	Sec. 1 Dairying B Sec. 3 Stock Judging B	Sec. 2 Stock Judging B Sec. 3 Dairying B
1:30-5:30 M. W. F. and 1:30-4:30 Tu. Th.	Sec. 3 { First half term Div. A Gas Engines B Div. B Shop Work A or B Last half term Div. A Shop Work A or B Div. B Gas Engines B	Sec. 2 { First half term Div. A Gas Engines B Div. B Shop Work A or B Last half term Div. A Shop Work A or B Div. B Gas Engines B	Sec. 1 { First half term Div. A Gas Engines B Div. B Shop Work A or B Last half term Div. A Shop Work A or B Div. B Gas Engines B
3:30-5:30 M. W. F.	Sec. 2 Bookkeeping	Sec. 1 Bookkeeping	Sec. 3 Bookkeeping
3:30-4:30 M. W. F.	Sec. 1 Poultry A	Sec. 3 Poultry A	Sec. 2 Poultry A
4:30-5:30 M. W. F.	Sec. 1 Library	Sec. 3 Library	Sec. 2 Library
3:30-5:30 Tu. Th.	Physical Education	Physical Education	Physical Education

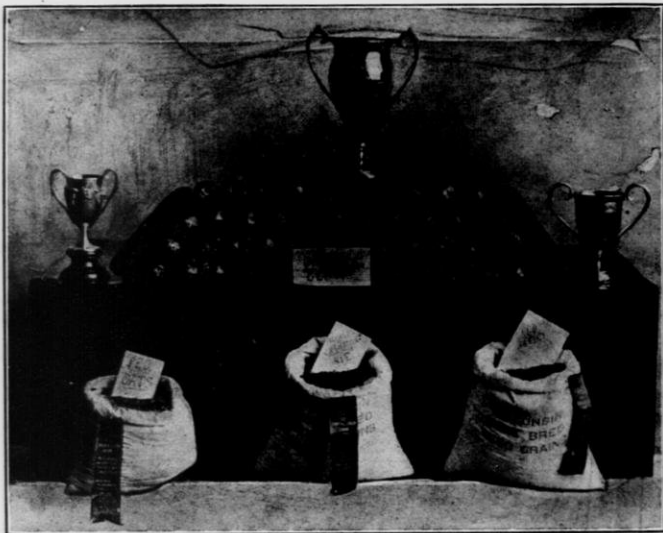
SHORT COURSE SCHEDULE—SECOND YEAR

Hour	FIRST TERM Nov. 13—Dec. 19	SECOND TERM Jan. 6—Feb. 10	THIRD TERM Feb. 11—Mar. 18
8-9	Stock Feeding D	Bacteriology	Farm Management
9-10	Vet. Science B	Agr. Economics C	Breeding and Management E
10-12 Lab. Select one each term	Stock Judging F Agr. Engineering E Shop, A, B, C, or D	Stock Judging G Agr. Engineering E Shop, A, B, C, or D	Agr. Engineering E Shop, A, B, C, or D Plant Diseases
12:00-1:30	Inter mission		
1:30-3:30 Lab. Select one each term	Horticulture B Land Drainage D Rural Institutions D Poultry B	Agronomy B Soil Management C Entomology A Poultry C	Beekeeping D Soil Management C Adv. Farm Dairying C Poultry D
3:30-4:30	Agronomy B	Live Stock Management H	Road Construction C or Farm Woodlot and Grounds D
4:30-5:30 Tu. Th.	Physical Education	Physical Education	Physical Education

If a subject is elected by a student it cannot be dropped unless permission is secured from the Short Course committee.

A standing of 60 or over in every subject is required for a Short Course certificate.

Make-up examinations shall be held on the last Saturday afternoon of the term.



FARMING FOR LARGER PROFITS

Sowing pure-bred, high-yielding corn and seed grain is a sure way to increase the returns.

On the last Tuesday afternoon of the third term candidates for certificates may take examinations for the removal of any failure.

A candidate for a certificate having three or fewer failures on Closing Day may, after a lapse of three months, be granted his certificate on passing an examination, to be arranged by the Assistant Dean.

Students having more than three failures upon Closing Day can remove them only by repeating in class the work in which such failures were incurred.

Requirements for Admission

No entrance examination is required. Students should be at least 16 years old and should have a common school education to pursue the studies of the Short Course to the best advantage. Persons who have not completed a common school education, but who are by age and experience



STUDENTS COMPARING DIFFERENT BRANDS OF SEPARATORS

In the dairy classes the repairs and adjustments are made on the leading machines.

fitted for the work may be admitted to the course by special permission. Experience has shown that the young men at least 20 years of age who have a general knowledge of farming are able to secure the greatest benefit from the course.

Students Who Enter From Other Schools

County Short Course. The county agricultural representatives give courses to boys in their counties. Gradu-

ates of these county short courses are admitted to the second year of the Short Course upon their diploma and evidence of having done sufficient supplementary work on their own farm problems, but all are required to take in class at least chemistry and library practice of the first year schedule, omitting elective work of the second year conflicting therewith. Those not having completed sufficient supplementary work are required by the Short Course committee to take several of the first year studies in class. This may prevent the completion of their second year studies in one year.

Colleges, Normals, High Schools, County Agricultural Schools. Students will be given credit for work which corresponds with required work of the Short Course.

Persons intending to enter the second year of the Short Course should make application and present qualifications to the chairman of the Short Course committee not later than September 1, so that there will be time to investigate each application.

Expenses

	For residents of Wisconsin	Students not residents of Wisconsin
Tuition—		
Tuition	Free	\$51.67
Incidental fee for all students..	\$6.50	6.50
Laboratory fee	7.00	7.00
Breakage and key deposit (un- used portion returnable).....	2.00	2.00
Total.....	\$15.50	\$67.17
Other Expenses—		
Room		\$30 to \$40
Board		75 to 90
Books, supplies, etc.....		15 to 25
Miscellaneous		10 to 20
Total.....		\$130 to \$175

Books Required for Short Course

A number of books will be needed by Short Course students. It is impossible to state in advance what books will be required and we would, therefore, advise prospective students not to attempt to buy any text books until they are instructed to do so in the various classes.

Medical Supervision

Special attention is given to the health of the student-body. The health of the students will be cared for by the clinical department of the School of Medicine. The students will be given a medical examination on entrance, and any student feeling indisposed will be at liberty to consult the physicians in charge of the university clinic free of cost at any time. The university puts forth every effort to safeguard the health of the student-body.

General Information

The Y. M. C. A. secretary secures a list of rooms and boarding places which will be available for Short Course students and a representative of the organization will be in attendance during registration days to aid the students in getting located. This person will maintain office hours during the Short Course for the purpose of being of service to the students while in the course. A series of Sunday morning meetings for the Short Course students was held during the last winter and a number of interesting excursions were made to various points of interest in and about the city, under the charge of the Y. M. C. A. representative.

Students should not carry large sums of money in currency or checks, but should place their surplus money in a bank and draw upon it from time to time by check or certificate. Bring post-office money orders instead of checks or drafts to avoid the necessary identification at the bank.

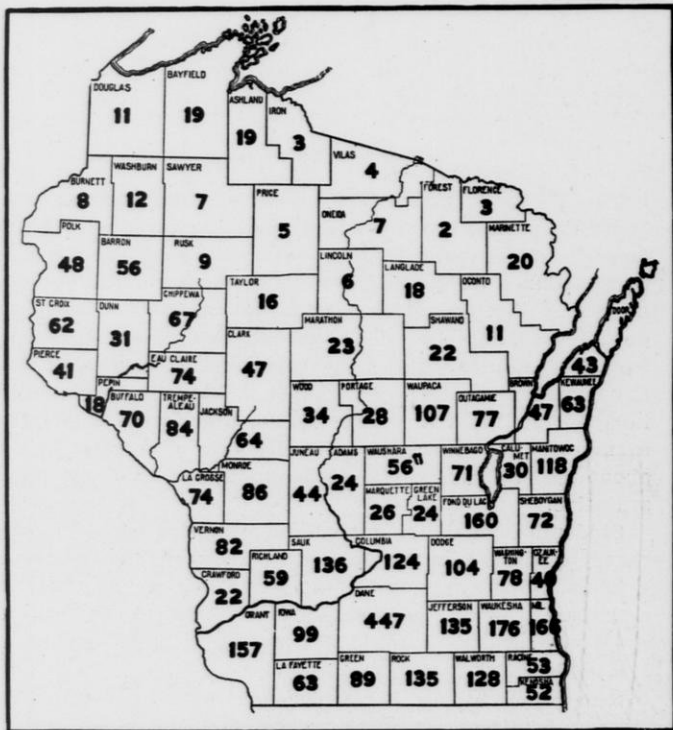
Someone will be in attendance at the registration counter to answer inquiries at any time.

Student Activities

The Literary Society is conducted every Friday night by the students in the Short Course. At the weekly meetings members of the society participate in parliamentary drill, debating and public speaking. These meetings are frequently addressed by prominent agriculturists and mem-

bers of the faculty. Social features are often included.

A special feature in the nature of an oratorical contest or class debate is introduced each year. Contestants from both classes enter this contest.



WHERE THE SHORT COURSE MEN COME FROM

Every county in the state is represented in the list of graduates.

The Short Course students also have a glee club and orchestra under the faculty direction, and furnish music for Farmers' Course meetings and other meetings during the winter, as well as for the Literary Society. All students

in the Short Course are eligible to compete for places in these organizations.

The Agricultural Experiment Association. The association is an organization of former students of the College of Agriculture who are interested in introducing improved methods and practices upon their farms. The work includes field tests in the study of soils, crops, livestock, and the business management of the farm.



KEEPING FIT

The gym class is a great place to "let off steam" and to keep in shape to do justice to studies.

This association has been especially helpful in conducting field tests with grain and forage crops and the growing and disseminating of purebred seeds.

The annual meeting of this association occurs during the second term of the Short Course and the students are given an opportunity to attend the meetings and to become members. The membership is now about 1550. R. A. Moore is secretary of the association.

Closing Day Exercises

Students who complete the studies of the Short Course in a satisfactory manner will be granted Short Course certificates duly signed by the Dean of the College of Agriculture. Certificates were first granted in 1895, 16 in number.



STUDYING IN THE AGRICULTURAL LIBRARY

The college has one of the largest and best equipped agricultural libraries.

For the last seven years the certificates have been presented at the Closing Day exercises held on the last day of the course. Some prominent speaker is procured to give the address and special music is furnished for this occasion.

AGRICULTURAL BACTERIOLOGY

ASSISTANT PROFESSOR W. H. WRIGHT

The relation of bacteria to agriculture. The main purpose is to acquaint the student with those phases of bacteriology which he should take into account in his daily life. Especial attention is devoted to such subjects as nitrification, nitrogen fixation, and the inoculation of legumes; the contamination of milk and the influence of its bacterial content on its value as food and for butter and cheese making; the preservation of foods and fodders. In the case of the transmissible diseases of animals, those that are of greatest importance to the livestock industry of the state are studied, especially as to their prevention. The relation of bacteria to the health of the farm home is considered in a discussion of farm water supply and sewage disposal. Mr. Wright.

AGRICULTURAL CHEMISTRY

ASSOCIATE PROFESSOR W. E. TOTTINGHAM

It is the purpose of this course to show how the principles of chemistry operate on the farm. Among the subjects discussed in the lectures are the following: The chemical elements in the air and soil and their relations to plant growth; processes of growth of crops and their relation to animal feeding; the composition of domestic animals at various stages of growth and the processes involved in their use of the nutrients of feeding materials.

Special attention is given to the composition and conservation of farm manure. The sources, composition and use of commercial fertilizers are discussed and also the composition of common insecticides and fungicides. Attention is given to the commercially important constituents of milk and their relation to dairy by-products.

Experiments and demonstrations are presented to show the properties of common chemical elements and compounds of plants and animals, with the aim of interpreting agricultural chemistry in the language of farm practice.

AGRICULTURAL ECONOMICS

PROFESSORS B. H. HIBBARD AND D. H. OTIS; ASSOCIATE PROFESSOR C. J. GALPIN*; INSTRUCTOR O. JUVE*

The work given by this department is designated to improve the business ability of the farmer by teaching methods of keeping accounts, managing farms, selling the produce, and

* Resigned.

to point out means of improving the conditions of living in the country.

A. Methods of Farm Bookkeeping. The elements of bookkeeping applied to the farm. Methods of taking farm inventories and the keeping of cash accounts, and accounts with livestock, farm crops etc. Mr. Juve.

B. Methods of Farm Management. The aim is to show the student how the various farm operations may be organized and correlated so that the entire farm may be handled successfully and economically. The location and size of the farm and its adaptability to the raising of crops and livestock, and the lay-out of the farm, the capital and equipment necessary for the various types of farming and*to the question of farm help. Trips will be taken to various farms to study their lay-out, equipment, and methods of management. Mr. Otis.

C. Agricultural Economics. The conditions and forces which determine the prices of farm products, methods of marketing cooperative and independent, and methods of renting farms and securing farm loans. Mr. Hibbard.

D. Rural Institutions. The peculiar problems of country life. Methods of improving the conditions of life in the farm home and in the farmer's community. Mr. Galpin.

AGRONOMY

PROFESSOR R. A. MOORE; ASSISTANT PROFESSORS A. L. STONE,
B. D. LEITH, G. B. MORTIMER; ASSISTANT L. R. ZERBEL

The work in agronomy will include a study of the culture and management, methods of improvement, and systems of rotation for farm crops suitable for Wisconsin conditions.

A. Small Grains. The cultivation, harvesting, marketing, testing, uses, habits of growth, manufactured products, rotations, and fertilizers for the small grains. The laboratory work of this course aims to give the student a knowledge of the structure of the small grains, the points of distinction between the different varieties, and an intelligent understanding of the principles and practices of judging. Mr. Mortimer.

B. Forage Crops, Weeds, and Seeds. Lectures and laboratory work on corn, alfalfa, clovers and other forage crops. The lectures include a discussion of the best methods and practices in sowing, handling, testing, selection and improvement of the forage crops. The laboratory work will consist in type study and judging of corn.

Weeds in reference to their introduction, classification, dissemination, identification and eradication will be given to second year students. The purity and germination of farm seeds as related to weed introduction and the farm profit will also be discussed. Field and weed seeds will be studied under the

microscope and their characteristic shapes and markings noted. The student will also be taught to identify the weeds from which the seeds come and to associate the weed and its seed. Mr. Moore and staff.

AGRICULTURAL ENGINEERING

ASSOCIATE PROFESSOR E. R. JONES; ASSISTANT PROFESSOR L. M. SCHINDLER, E. C. SAUVÉ; INSTRUCTOR F. W. DUFFEE

The Department of Agricultural Engineering has unusual facilities for giving practical instruction to students. Thousands of dollars worth of tractors, engines, machinery, tools and farm-building equipment are loaned to the department by manufacturers each year for the use of students in the lecture room and laboratory.

A. Farm Buildings and Equipment. Lectures and laboratory work in the planning and arrangement of farm buildings. The lectures include a discussion on silos, concrete construction, ventilating systems. The laboratory work will be practical instruction in useful farm practices, such as soldering, rope tying and splicing, belt lacing, babbling and concrete construction. Mr. Schindler and assistants.

B. Gas Engines. Demonstrational lectures supplemented by laboratory work. Construction and operation of gas engines. Fuel consumption tests. General study of the farm tractor. Mr. Sauve.

C. Country Roads. The location, construction and maintenance of country roads. Mr. Smith and Mr. Donaghey.

D. Land Drainage. Exercises both in and out-of-doors with the surveyor's level, plane-table, drain tile and tiling tools. Planning drainage systems from topographic maps of typical areas and from sketches of particular areas furnished by students. Superintending the installation of farm drainage systems. Mr. Jones and Mr. Zeasman.

E. Farm Tractors and Machinery. Engine and tractor troubles. Practice with different types of tractors. Construction and operation of the different types of farm implements such as plows, binders, corn-planters, cultivators, etc. Mr. Sauve and Mr. Duffee.

ANIMAL HUSBANDRY

PROFESSORS G. C. HUMPHREY, J. G. FULLER, F. B. MORRISON;
ASSOCIATE PROFESSOR R. S. HULCE; ASSISTANT PROFESSORS
G. BOHSTEDT, FRANK KLEINHEINZ; ASSISTANTS O. J. DEL-
WICHE, E. KIRST

The courses in animal husbandry given in the Short Course include livestock breeding, judging, feeding, care and man-

agement. The extensive herds and flocks of the University farm are supplemented by prize winning animals loaned by breeders of the state.

A. Breeds of Livestock. The history, characteristics and utility of the leading breeds of livestock.

B. Elementary Stock Judging. Score card practice in the study of marked classes and breeds of livestock. Mr. —

C. Feeds and Feeding. The study of feeding stuffs, principles of feeding and rations. Mr. Bohstedt.

D. Advanced Feeds and Feeding. A continuation of the study of feeds and feeding begun the first year with special application to practical problems. Mr. Morrison.

E. Breeding and Management. Lectures on the general principles of breeding, farm animals and the care and management of swine and dairy cattle. Mr. Humphrey, Mr. Hulce.

F. Judging Swine and Dairy Cattle. Mr. Bohstedt, Mr. Fuller.

G. Judging Beef Cattle, Sheep and Horses. Mr. Fuller, Mr. Hulce, Mr. Kleinheinz.

H. Livestock Management. Lectures on the breeding and production of beef cattle, sheep and horses. Mr. Fuller, Mr. Kleinheinz.

ECONOMIC ENTOMOLOGY

PROFESSOR H. F. WILSON; INSTRUCTOR C. L. FLUKE

The importance of insect control on the farm is always recognized by the farmer but his opportunities for study are limited, and the occasional information which he picks up is usually gone from his mind before he has an opportunity to apply it.

A. Injurious Insects and Methods of Control. This course is planned to meet that need and the more important insect pests of farm, garden and orchard crops will be considered in sufficient detail to admit of ready recognition and treatment where known. The principles of insect control will be studied and applied to individual insects according to the best known methods. Six two-hour periods each week during the second term of the second year. Mr. Fluke.

B. Beekeeping. A course of lectures on practical beekeeping for those students who desire to study the elementary principles of this subject. Lectures and demonstrations in modern beekeeping will be given and each student will have an opportunity to familiarize himself with up-to-date methods and equipment for the handling of bees, and the production of comb and extracted honey. Bee diseases, their recognition, and treatment will also be studied. Five two-hour periods each week during the first term of the third year. Mr. Wilson.

FARM DAIRYING

ASSISTANT PROFESSOR G. H. BENKENDORF; ASSISTANT CARL
VILBRANDT

In Farm Dairying, students receive instruction in the general principles which are involved in the production, testing, and handling of milk and cream for city markets, creameries and cheese factories, and the making of butter on the farm.

A. Farm Dairying. Lectures on the composition of milk and other dairy products; the production of market milk and the handling of milk and cream for factory purposes; care and ripening of cream for farm buttermaking; and marketing of dairy products. Mr. Benkendorf.

B. Farm Dairy Practice. The new Dairy Laboratory is equipped with the most approved apparatus for the testing of milk, the separation of cream and the manufacture of butter. Practical instruction in all branches of farm dairying, including the testing of milk and cream, the detection of the more common adulterants of these products and the operation of hand separators, churns, butter workers, and other appliances of the dairy. Mr. Vilbrandt.

C. Advanced Farm Dairying. A supplementary course to Dairy A and B. Designed for training men in cow testing association work, the operation of milking machines, the commercial handling of milk and other advanced farm dairy operations. Mr. Benkendorf.

HORTICULTURE

PROFESSOR J. G. MOORE; ASSOCIATE PROFESSOR J. G. MILWARD;
ASSISTANT PROFESSORS F. AUST, J. JOHNSON, G. F. POTTER,
R. H. ROBERTS.

The horticultural work in the Short Course is designed to give the student a knowledge of the principles and practices underlying successful fruit and vegetable production.

A. Farm Orchard and Gardening. Lectures on the selection of site, planting, soil management, pruning, spraying, varieties, and other orchard problems with special reference to the farm orchard. The farm garden, and methods of making it of greatest service on the farm. Mr. Moore.

B. Horticultural Practice. An elective course designed for those desiring more detailed work in horticulture than is given in Horticulture A. Demonstration lectures and laboratory exercises on spraying, preparation of spray materials, grafting, pruning, fruit identification and judging, tree planting, hotbed construction, potato identification, judging and culture; propagation of plants by sexual and asexual means;

tobacco culture; truck crops. Students taking this course will have an opportunity to elect the special lines in which they are most interested. Mr. Johnson, Mr. Milward, Mr. Moore, Mr. Potter, Mr. Roberts.

C. Plant Life. The principles of plant reproduction and growth underlie the culture of all plants. One cannot grow plants most successfully and intelligently without knowing how they secure their food and the factors influencing its conversion into plant tissue. Lectures will be given on life processes of the structure of plants, plant processes, how plants reproduce, effects of external influences, methods of propagation, and ways of improving plants. Mr. Potter.

D. Farm Woodlot and Grounds. The work given is designed to show the relation of forestry to agriculture. The care of the woodlot, windbreaks, shelter belts, tree planting, selections of species for planting, and methods of propagation, planting, and protection. Mr. Aust.

LIBRARY WORK

LIBRARIAN C. S. HEAN

The aim of this course is to teach students to use books, papers, and bulletins as tools. Lectures will be given on classification and other library methods, and on the literature of agriculture, including books and serial publications. These lectures will be supplemented by practical work in the library. Special attention will be given to the best ways in which to read and study newspapers, farm papers and bulletins, methods of keeping files and records of valuable articles read, how to get government as well as state bulletins and reports, how these may be filed and indexed so as to be a ready and valuable reference for the busy farmer. Mr. Hean.

PHYSICAL EDUCATION

DR. J. C. ELSOM, EXAMINER, AND ASSISTANT

First year Short Course students will be given a thorough physical and medical examination, and will be required to take one one-hour period a week of development exercises, athletics and recreational games under capable direction. An opportunity for voluntary exercise and for the organization of basketball and other teams and the holding of athletic contests between classes, will be given. These activities are carried on in the Stock Pavilion which has been equipped with facilities for this purpose, including gymnastics and athletic apparatus, lockers and shower baths. Lectures on hygiene and the laws of efficient living will be given by members

of the Department of Physical Education. The course is closed by an indoor track meet, with track contests between teams representing the first and second year classes. Dr. Elsom.

PLANT PATHOLOGY

ASSISTANT PROFESSOR R. E. VAUGHAN; INSTRUCTOR J. BRANN

Owing to the demand for instructional work in the control of diseases of farm crops, the following course is offered:

Plant Diseases and Their Control. A general introduction to the subject. This will include such an acquaintance with the symptoms of the common and more important plant diseases of Wisconsin crops that one may recognize them on sight. Special attention will be given to the diseases of field crops and grains, and those of fruits, potatoes, and other horticultural crops. Control measures and their application will be emphasized, and such use made of experiment station bulletins and other timely publications as will enable the student to read them understandingly thereafter.

Lectures, demonstrations, and individual laboratory work aiming to give first hand acquaintance with the symptoms of the diseased plants and the characters of the parasitic fungi and bacteria causing the diseases, including methods of overwintering, spread and control. Six two-hour periods each week during the last third of the second year. Mr. Vaughan, Mr. Brann.

POULTRY HUSBANDRY

PROFESSOR J. G. HALPIN; ASSISTANT O. N. JOHNSON

The Poultry Department is equipped with modern poultry buildings, colony houses, a very complete line of incubators, brooders, and other poultry apparatus, such as cramming machines and bone cutters. In addition, some twenty-six varieties of chickens, five of geese, and six of ducks, furnish ample material for poultry judging. These will be used to help the student to become familiar with general poultry raising. An extensive file of poultry journals and books is to be found in the Agricultural Library.

A. Poultry Raising. The breeding, feeding and management of poultry under farm conditions with special reference to the keeping of fowls for meat and eggs. Breeding and feeding for winter egg production, poultry house construction, incubating and brooding, both natural and artificial, killing and marketing dressed poultry, the common poultry diseases. Mr. Halpin.

B. Poultry Judging. The judging of poultry for fancy and utility values. A brief history of some of the more important varieties. Mr. Halpin, Mr. Johnson.

C. Demonstrations and laboratory work in feeding for egg production, packing and marketing eggs, killing and dressing market poultry, caponizing and house construction. Mr. Halpin, Mr. Johnson.

D. Incubation and Brooding and a study of some of the common diseases of poultry. Mr. Johnson.

SHOP WORK DEPARTMENTS

SUPERINTENDENT A. L. GODDARD; INSTRUCTORS R. N. SCHUMANN, BLACKSMITHING, H. A. BRUNSELL, FARM CARPENTRY AND BUILDING CONSTRUCTION; ASSISTANT C. F. PETERS

A. Elementary Carpentry. Instruction in the use of wood tools, how to sharpen and keep them in order, how to make and use such fixtures as the bench hook and miter box, making tool box, knife box, book rack, model hay rack, or other articles that may be selected to illustrate various types of joints. Instruction is also given in reading the steel square and its use in building operations. Mr. Brunsell.

B. Elementary Forging. For first year students. Instruction in the essential operations of forging, such as drawing out, upsetting, pointing, bending and welding mild steel, leading to the application of these operations in making useful articles such as bolts, chain links, rings, cleaves of various forms, cold chisels, metal and stone drills, hammers, knives. Instruction in hardening, tempering, drilling, riveting and soldering. Mr. Schumann and Mr. Peters.

C. Advanced Carpentry. More advanced work to suit the needs of the individual student. The construction of stairs, window and door frames, cupboards, the making of models of houses, barns, and portable pens, and framing for concrete construction are among the subjects that may be selected. Advanced instruction in the use of the steel square as applied to the cutting of rafters and other complex framing. Mr. Brunsell.

D. Advanced Forge Work. A continuation of first year work including more advanced practice. Welding steel of various grades, pointing and sharpening picks, plow shares, etc., brazing, welding, forging and tempering springs is included in practice work as time permits. Mr. Schumann and Mr. Peters.

SOILS

ASSISTANT PROFESSOR W. W. WEIR AND ASSISTANT ———

The following courses in soils include lectures supplemented by laboratory exercises which demonstrate the principles taught in the lectures.

A. Soil Fertility. Twenty-eight lectures on the soil and its relation to crop production. The principal subjects studied are the soil, its origin and relation to plants and animals; conditions affecting plant growth; plant-food elements and crop needs; importance of water and tilth in agriculture; land drainage; liming; relation of manure, and commercial fertilizers to crop yields and soil improvement. Mr. Weir.

B. Laboratory Practice and demonstrational exercises planned to aid the student to apply the principles discussed in Course A. Assistant ———

C. Soil Fertility. Lectures on the management of special soils, crop rotation in relation to farm management, systems of farming in relation to soil fertility, determining the needs of soils, profitable crop production, and soil erosion. Laboratory work is given in connection with these lectures.

VETERINARY SCIENCE

PROFESSOR A. S. ALEXANDER; ASSOCIATE PROFESSOR B. S. BEACH

The Animal in Health. In this course first year students study the principles of anatomy and physiology to become acquainted with the normal structure and functions of the animal body. Mr. Alexander.

The Animal in Disease. In this course second year students study the causes, symptoms, and methods of preventing the common diseases of animals. Practical demonstrations also are given, as opportunity offers, the better to enable students to recognize diseases and unsoundness and give first aid treatment. Mr. Alexander and Mr. Beach.

SHORT COURSE—1918-19

Second Year

Arnold, ArthurHolcombe
 Barland, Charles H.....Eau Claire
 Bast, Arthur P.....Appleton
 Beach, Vernon V.....Melrose
 Concannon, Emmett M.Chicago, Ill.
 Dobbe, Edward J.....Rosholt
 Foister, Leslie L.....Elkhorn
 Geister, Raymond G.....Juneau
 Granum, Edwin C.....Chetek
 Gross, Raymond C.....Rhineland
 Hanson, Wilbert E.....Denmark
 Hartsel, Roy M.....Edgerton
 Haville, Lloyd F.....Bagley
 Hooper, George W.....Palmyra
 King, Morris L.....Spooner
 Murphy, John P...Clearwater Lake
 Olsen, Carl L.....Warrens
 Phillips, Ralph W.....Freeport, Ill.
 Pingel, William G.....Withee
 Portz, Harry L.....Chili
 Frescher, Constantine.....Madison
 Renovetz, Alex.....Rice Lake
 Schoeninger, William J.Chicago, Ill.
 Schrank, John F.....Lomira
 Tennermann, William A.Florence
 Webster, Clair S.....Plainfield

First Year

Aarness, John C.....Cashton
 Arneson, Edgar.....Barneveld
 Baker, Jennie.....Prairie du Sac
 Bauer, Armand W.....Grand Rapids
 *Bentheimer, E. W..Johnson Creek
 Biddick, Roscoe O.....Livingston
 Bird, Bennett S.....South Byron
 Blaney, William E.....Madison
 Blonien, Phelix P.....Peebles
 Brereton, Dow A.....Lodi
 Bresette, Leonard F.....Odanah
 Brewer, Bernard A.....Muscoda
 Brown, Kenneth A.....Spring Green
 Bungert, Roy.....Hortonville
 Canby, Joseph O.....Hulmeville, Pa.
 Carew, Rexford J..Chippewa Falls
 Carey, Walter E.....McHenry, Ill.
 Conlin, Bernard A.....Columbus
 Crapo, John W.....Oshkosh
 Crosby, Ralph E.....Madison
 Davies, David R.....Picketts
 DiVall, Percy H.....Lancaster
 Ender, Frank J.....Nelson
 Ewald, John F.....Chicago
 Falck, Gerhardt M.....Morrison
 Flack, Frank L.....Stockton, Ill.
 Frank, Russell O..Scioto Mills, Ill.

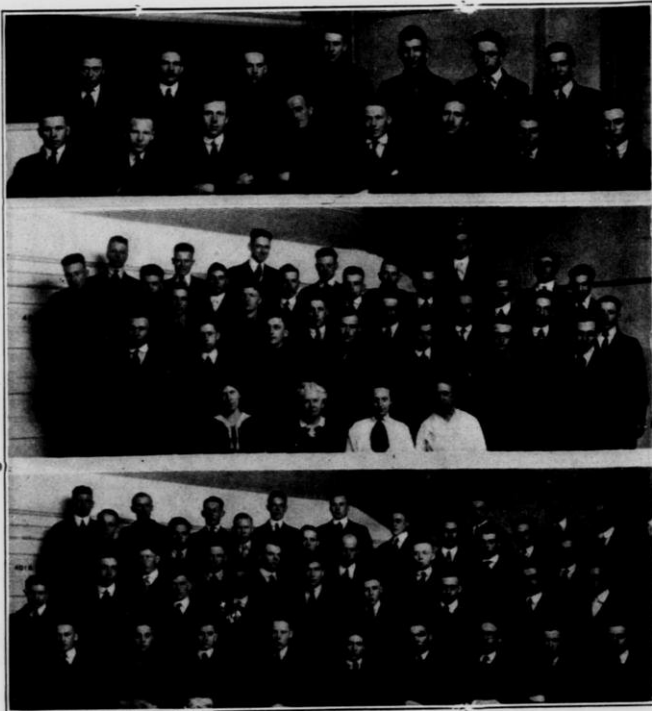
Fraust, Edison A...Prairie du Sac
 Fried, Clifford E...Fountain City
 *Gage, Lynn.....Endeavor
 Gavol, George.....Prairie du Sac
 Gilkey, Roy.....Shiocton
 Gugis, Marcell.....Waukegan, Ill.
 Hall, George W.....La Moille, Ill.
 Hall, Sam.....La Moille, Ill.
 Henshue, Stanley.....Madison
 Heyer, Hartwick T.....Chetek
 Hill, Milo L.....Tomah
 Hoefer, N. R.....Freeport, Ill.
 Holloway, Clyde C..Hoopeston, Ill.
 *Hovre, Helmer M.....Colfax
 Howard, Warren.....Janesville
 Huggett, B. R.....Fall River
 Huset, Leonard.....Chetek
 Iliff, Robert W., Jr..Alma Center
 Jacobson, Gordon.....Taylor
 Jellema, Charles.....Milwaukee
 Jilek, Joseph G.....Antigo
 Jones, Laurence F..Grand Rapids
 Jorgenson, Victor D.....Wyeville
 Kaun, William.....Hales Corners
 Ketchum, Fred.....Osseo
 Kindschi, Elmer D..Prairie du Sac
 Kittel, Maurice P.....Amery
 Klose, Charles P..Mt. Kisco, N. Y.
 Knowlan, Leland G.....Green Bay
 Kropf, Wilhelmina B.....Madison
 Lange, Gus B.....Stanley
 Lawton, William W..Hinsdale, Ill.
 Lockwood, Willis E.....Racine
 Lowe, Willard A.....Mt. Horeb
 McClain, Robert B..Winnetka, Ill.
 McKen, John C..Bear Lake, Mich.
 Marking, Edmund L.....Onalaska
 Martin, Edward H..Sturgeon Bay
 Medeiros, Joaquim da Rocha..
 Alcobaca-Estado de Bahia, Brazil
 Merriam, Lela.....Grand Rapids
 Moore, Beecher.....Madison
 Mueller, Arthur W.....Madison
 Muir, George B.....Arcadia
 Mullen, Herman J.....Bloomer
 Murat, Raymond L.....Scandinavia
 Ness, Clarence E.....Mondovi
 Olbrich, Harold.....Harvard, Ill.
 Oleson, Roy J.....Palmyra
 Paul, August J.....Milwaukee
 *Perkins, Harold E.....Princeton, Ill.
 Phillips, Arthur B.....Spencer
 Pierce, Leland W.....Stockton, Ill.
 Prochnow, Clayton W..Luxembourg
 Rabe, William J.....Black Creek
 Raetzman, John P.....Baraboo
 Richards, Arthur W.....Lodi
 Richardson, Carl A.....Steward, Ill.
 Ristow, Minnie M..Mt. Vernon, Ia.

* Deceased.

Rodiger, Fred, Jr..Chippewa Falls
 Rowlands, Morris J.....Cambria
 Rumpf, F. J.....So. Langhorne, Pa.
 Sabin, Dewey J.....Hayward
 Schaller, David A.....Barneveld
 Schink, Myron H.....De Pere
 Schroeder, Edgar W.....Flymouth
 Smith, Robert H.....Seward, Ill.
 Smith, Earl F.....Gotham
 Smith, Mildred E.....Chicago
 Suttie, Laurence A.....Galesville
 Tellock, Albert C.....Appleton
 Thew, Jarvey E.....Ashland
 Thiede, Leroy R.....Columbus

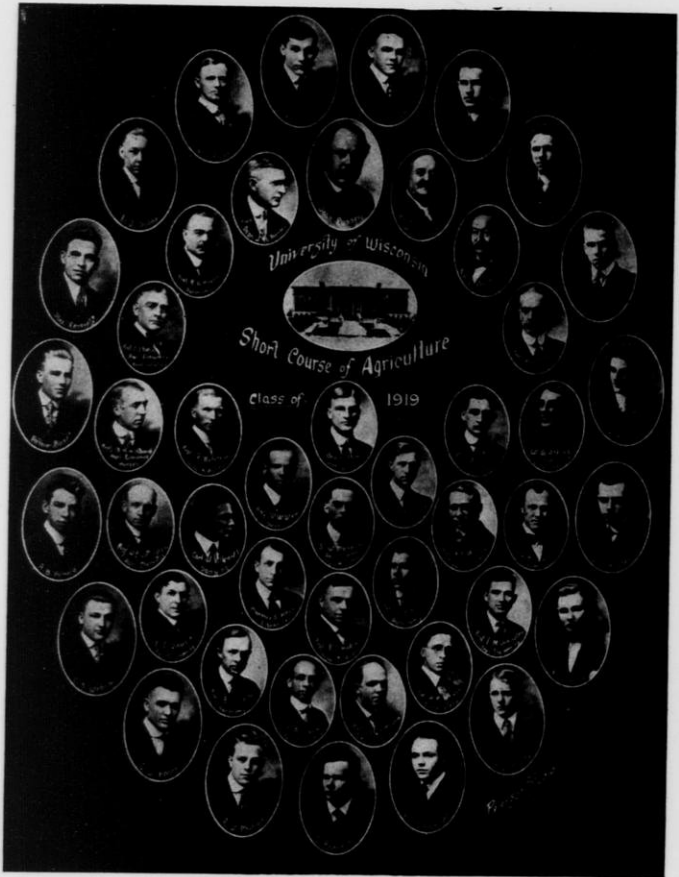
Thiem, Walter A.....De Pere
 Thomas, Earl W.....Ringwood, Ill.
 Thompson, James E.....Earl
 Veek, Myron C.....Brodhead
 Weihsing, Gilbert W...Black Creek
 Wegwart, Edgar W.....Woodland
 White, Glen A.....Dixon, Ill.
 Williams, AlwinPoynette
 Wise, Henry H.....Platteville
 Wittenberg, H. T...San Juan, Tex.
 Woodward, Ira T.....Wild Rose
 Young, Ralph E.....Galesville
 Zirberl, Wm. O.....De Pere

* Deceased.



SECOND YEAR SHORT COURSE CLASS

These boys have completed two years and are ready to return to the farm to render expert service in producing larger and better crops.



FIRST YEAR SHORT COURSE CLASS

These farm boys have been preparing themselves for greater usefulness on the farm.

POST CARD

PLACE
TWO CENT
STAMP
HERE

THIS SPACE FOR THE ADDRESS ONLY

DIRECTOR OF SHORT COURSE

College of Agriculture

Madison

Wisconsin.

SHORT COURSE IN AGRICULTURE

Application for Admission

To the Manager of the Short Course,
University of Wisconsin, Madison.

I hereby apply for admission to the Short Course in Agriculture for the term beginning Nov. 11, 1919. I have had----- years experience on a farm.

Should I change my address before Nov. 11 or should anything occur which will prevent my attendance, I will at once notify you, so that my place can be filled by some other applicant.

Name----- Age-----

Post Office-----

County----- State-----

Rural Route No.----- or Street and No.-----

Dated-----

Fold here

I have been induced to take the Short Course by-----
(kindly indicate by an X what influenced you to take the Short Course)

His name-----

(Give name of the former Short Course student who influenced you to take this course)

Address-----

The Short Course Circular-----

Influence of school teacher-----

Announcements of farm papers-----

Influence of county superintendent-----

Announcements in local papers-----

Influence of college instructor-----

Exhibits at county or state fair-----

Influence of some friend-----

Other influences, and remarks-----

SHORT COURSE FACULTY

CHARLES R. VAN HISE, President of the University
HARRY L. RUSSELL, Dean of the College of Agriculture

J. A. JAMES, Assistant Dean, in Charge of the Short Course
A. S. ALEXANDER, Veterinary Science
F. A. AUST, Farm Forestry
B. A. BEACH, Veterinary Science
G. H. BENKENDORF, Dairy Husbandry
G. BOHSTEDT, Animal Husbandry
E. J. COOPER,
J. C. ELSOM, Gymnastics
J. G. FULLER, Animal Husbandry
A. L. GODDARD, Shop Work
J. G. HALPIN, Poultry Husbandry
B. H. HIBBARD, Agricultural Economics
R. S. HULCE, Animal Husbandry
G. C. HUMPHREY, Animal Husbandry
JAMES JOHNSON, Horticulture
E. R. JONES, Drainage
L. R. JONES, Plant Diseases
F. KLEINHEINZ, Animal Husbandry
B. D. LEITH, Agronomy
J. G. MILWARD, Horticulture
J. G. MOORE, Horticulture
R. A. MOORE, Agronomy
F. B. MORRISON, Animal Husbandry
G. B. MORTIMER, Agronomy
D. H. OTIS, Farm Management
G. F. POTTER, Horticulture
R. H. ROBERTS, Horticulture
E. C. SAUVÉ, Agricultural Engineering
L. M. SCHINDLER, Agricultural Engineering
A. L. STONE, Agronomy
W. E. TOTTINGHAM, Agricultural Chemistry
R. E. VAUGHAN, Plant Diseases
W. W. WEIR, Soils
H. F. WILSON, Economic Entomology
W. H. WRIGHT, Agricultural Bacteriology
W. G. ATKINS, Military Training
J. BRAUN, Plant Pathology
H. A. BRUNSELL, Carpentry
E. W. DUFFEE, Agricultural Engineering
O. J. DELWICHE, Animal Husbandry
C. L. FLUKE, Economic Entomology
C. S. HEAN, Library Practice
O. N. JOHNSON, Poultry Husbandry
E. KIRST, Animal Husbandry
S. W. MENDUM, Agricultural Economics
R. N. SCHUMANN, Forge Work
L. R. ZERBEL, Agronomy

