

# CORNELL UNIVERSITY OFFICIAL PUBLICATION

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Volume XXV

Number 21

## Announcement of Winter Courses for 1934-35

New York State  
College of Agriculture

Ithaca, New York  
Published by the University  
June 15, 1934

## CALENDAR, 1934-35

Oct.	31	Wednesday	Registration in winter courses, beginning at 9 a. m., at the office of the Secretary, Roberts Hall.
Nov.	1	Thursday	Instruction begins in winter courses.
Nov.	12	Monday	Fee cards issued at office of the Secretary.
Nov.	17	Saturday	Last day for payment of fees at office of the University Treasurer, Morrill Hall. (Before 1 p. m.)
Nov.	29-Dec. 2		Thanksgiving recess.
Dec.	22	Saturday, 1 p. m.	Instruction ends. } Christmas
Jan.	7	Monday, 8 a. m.	Instruction resumed. } recess.
Feb.	8	Friday	Instruction ends in winter courses.
Feb.	11-16		Twenty-eighth Annual Farm and Home Week.

### SPECIAL UNIT COURSES

June	25-29	Short course in poultry judging and poultry breeding.
Sept.	17-21	Short course in egg grading and marketing.
Nov.	13-15	Short course in poultry incubation.
Jan.	21-Feb. 16	Short course for missionaries.
Jan.	22-24	Short course for florists.

Dates for other special short courses will be announced later.

# NEW YORK STATE COLLEGE OF AGRICULTURE

## THE WINTER COURSES

The winter courses will begin on October 31, 1934, and will close on February 8, 1935. Instruction will begin at 8 a. m. on November 1. The Thanksgiving Day recess includes November 29 to December 2, and the Christmas vacation extends from December 22, at 1 p. m., to January 7, at 8 a. m.

Correspondence concerning these courses and other instruction in the College of Agriculture may be addressed to the Secretary, College of Agriculture, Cornell University, Ithaca, New York.

There are no examinations for admission. However, in order that the student may be able to make the best use of the instruction, it is necessary that he should have had a good common-school education.

Tuition is free to those who are, and have been, bona-fide residents of New York State for one year previous to registration. Non-residents pay a tuition fee of \$25.

### DESCRIPTION OF THE WINTER COURSES

The six twelve-weeks courses given are as follows:

1. General Agriculture.

For those who are interested in general crop growing and dairy farming (page 4).

2. Dairy Industry.

For those who wish to operate milk plants (page 8).

3. Poultry Husbandry.

For those who wish to operate poultry plants (page 12).

4. Fruit Growing.

For those who wish to engage in commercial fruit growing (page 13).

5. Flower Growing.

For those who wish to engage in commercial flower growing and flower marketing (page 14).

6. Vegetable Crops.

For potato growers and market gardeners (page 15).

## 1. COURSES IN GENERAL AGRICULTURE

Those persons who expect to engage in general farming or hope to work as hired men, herdsman, or managers on dairy farms, or on farms on which diversified agriculture is practiced, usually choose the courses in general agriculture (pages 7 to 8). Persons who plan to specialize in milk-plant operation, poultry husbandry, fruit growing, flower growing, or vegetable crops, will register in one of the professional courses (pages 8 to 16).

In planning his schedule, each student should examine the following courses with great care and should choose those which will best meet his needs in the light of his interest and experience. The schedule determined upon should be submitted in the student's application. No student may take less than twelve hours nor more than eighteen hours without permission of his faculty adviser.

## AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

2. **Farm Management.** Three hours a week. Lectures, M T 3. Agricultural Economics Building 325. Laboratory, W Th 3. Agricultural Economics Building 201. Mr. \_\_\_\_\_.

Farming as a business; types of farming; balance and size of business; rates of production; farm records and accounts; farm layout; building arrangement; ways of starting farming; choosing and buying a farm; use of capital and credit; planning, organization, and management of specific farms. Fee for materials furnished, \$2.

## AGRICULTURAL ENGINEERING

1. **Farm Mechanics.** Three hours a week. Lectures, T Th 4.30. Dairy Building 119. Practice, S 10-12.50. Agricultural Engineering Laboratory. Assistant Professor WRIGHT.

A course dealing with shafts, pulleys, belts, and pulley speeds; gasoline engines; pumps and water systems; knots and splices of ropes; care and adjustment of farm machinery. Laboratory fee, \$2.

4. **Poultry Farm Shop Work.** Two hours a week. For students of professional poultry only. See announcement on page 13.

5. **Farm Shop Work.** Two hours a week. Lectures, demonstrations, and practice, T F 10-12.50. Agricultural Engineering Laboratory. Professor ROEHL and Mr. \_\_\_\_\_.

Practice in carpentry, saw filing, tool sharpening, fitting handles, soldering, and cold-metal work. Study is made of the plan and interior arrangement of the farm shop and of the selection, care, and use of the tools necessary for farm construction and general repair work. Laboratory fee, \$2.

## AGRONOMY

4. **Soil Fertility.** Three hours a week. Lectures, M T W Th 2. Caldwell 100. Professor BUCKMAN.

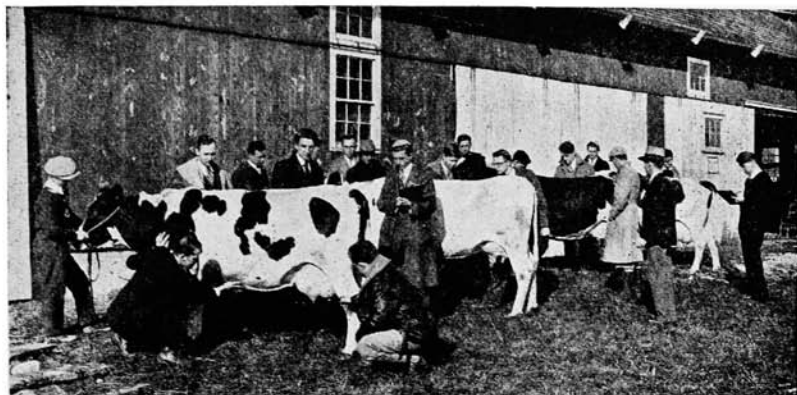
An elementary course dealing with those physical, chemical, and biological properties of the soil that have special practical applications. The use of lime, manures, and fertilizers is an important phase of the work.

5. **Field-Crop Production.** Four hours a week. Lectures, M W F 8. Caldwell 143. Laboratory, M 11-12.50. Caldwell 250. Assistant Professor HARTWIG.

A course dealing with the principal field crops grown in New York State. Cultural methods, crop rotations, fertilizer practices, soil and climatic adaptation, and the better varieties of the important field crops are considered. Laboratory fee, \$1.

## ANIMAL HUSBANDRY

1. **Feeds and Feeding.** Three hours a week. Lectures, T Th 9. Animal Husbandry Building C. Practice, T 11-12.50. Professor SAVAGE and Mr. WORK. The principles and practices of compounding rations and of feeding farm animals.



A CLASS JUDGING HOLSTEIN-FRIESIAN COWS

2. **Principles of Breeding Dairy Cattle.** Three hours a week. Lectures, M W 9. Animal Husbandry Building A. Practice, Th 11-12.50. Assistant Professor HARRISON and Mr. WORK.

Origin and development of the dairy breeds of cattle; care and management of the dairy herd; milk production; practice in judging and scoring.

3. **Horses, Beef Cattle, Sheep, and Swine Production.** Four hours a week. Lectures, T Th 8. Animal Husbandry Building. Livestock-judging laboratory, S 8-10. In addition, one two-and-one-half-hours practice period by arrangement, in the actual feeding, care, and management of stock. Professor HARPER and Assistant Professors HINMAN and WILLMAN.

Types, breeds, judging, and management of horses, beef cattle, sheep, and swine.

## APICULTURE

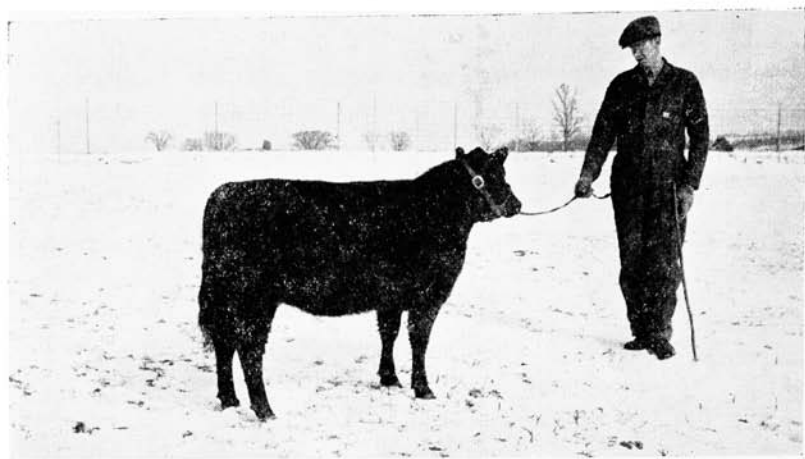
1. **Beekeeping.** Elective by students in all courses. Two hours a week. Lectures, discussions, and demonstrations, M 10, F 10-12. Dairy Building. Professor PHILLIPS and Mr. WOODROW.

This course includes a general discussion of the work of handling bees during each of the seasons, and of the necessary seasonal operations, such as preparing bees for wintering, wintering methods, building up colonies in the spring, swarm control, supering, and disease control. It includes also a discussion of the chief characteristics of honey as a food.

## DAIRY INDUSTRY

*Students wishing to specialize in the operation of milk plants should enroll in the professional dairy course outlined on pages 8 to 12.*

8. **Farm Dairying.** For students in general agriculture only. Four hours a week. Lecture and recitation, F 11-12.50. Dairy Building 120. Laboratory practice, F 2-6. Dairy Building 139. Professor GUTHRIE.



GRAND CHAMPION BEEF ANIMAL AT THE STUDENT SHOW, FEBRUARY 1934

This animal was bred at the University and was fitted and shown by Harold Hamilton, of Millerton, New York, a student in the winter course of 1933

Composition of milk; the Babcock test for fat in milk and its products; the care and handling of milk; the manufacture of farm dairy products, including the operation of cream separators, the making of butter, starters, some of the farm cheeses, and ice cream; dairy arithmetic; judging dairy products. Laboratory fee, \$5.

### ENTOMOLOGY

**1. Injurious Insects.** Two hours a week. Lectures, T Th 9. Stone 102. Professor HERRICK.

The common insect pests of farm, garden, orchard, and greenhouse, and of farm animals are discussed, and measures of control are carefully considered. Specimens of the insects discussed, together with examples of their work, are shown to members of the class whenever possible. Opportunity is given for questions and discussions, with the hope of clearing up obscure points and the various phases of the problems. The lectures and discussions are illustrated by lantern slides and by charts.

### EXTENSION TEACHING

**1. Public Speaking.** Two hours a week. Lectures and discussions, T Th 8. Roberts 292. Criticism by appointment, daily 8-12.50 and 2-4. Assistant Professor PEABODY.

Practice in oral and written presentation of topics in agriculture, with criticism and individual conferences on the technic of public speech. The course is designed to acquaint students with parliamentary practice, to encourage interest in public affairs, and to train for effective self-expression in public. Open to all students in the winter courses.

### FLORICULTURE

**6. Gardening and Garden Flowers.** Three hours a week. T Th 10, Plant Science 37; W 9, Plant Science 40. Assistant Professor MINNS.

A course designed to study the methods of propagation and growing of outdoor annuals and herbaceous perennials. Studies are made, so far as possible, of individual garden problems. The culture of outdoor roses, asters, peonies, phlox, iris, and bulbous plants is considered.

## FORESTRY

1. **The Farm Woodlot.** One hour a week. Lecture, laboratory, and field trips, F 1.40-4. Fernow 126. Mr. POND.

A course to present the most important phases of woodlot forestry; characteristics of the principal trees of New York State woodlots; the methods of measuring standing timber; the care and improvement of the woodlot; forest planting; the preservative treatment of farm timbers.

## HYGIENE AND PREVENTIVE MEDICINE

[1. **Rural Health.** One hour a week. Lecture, W 10. Roberts 392. Dr. GOULD.] Not given in 1934-35.

This course aims to acquaint the student with certain of the factors influencing the personal and community health of rural dwellers; also the possible effects of ill health of a dairyman or other producer on the consumer of his products.

Rural sanitation, the hygienic production of milk, meat, and their products, the county health unit, and home nursing, are among the subjects discussed.

## METEOROLOGY

1. **The Weather and Weather Forecasting.** Two hours a week. Lecture, M 11. Laboratory, W 11-12.50. Plant Science 114. Professor MORDOFF.

The principles and methods of practical weather forecasting from weather maps and local observations, and the more essential phases of meteorology and climatology and their relations to agriculture, are considered.

## PLANT BREEDING

1. **Plant Breeding.** Three hours a week. Lectures and discussions, M 9-11 and F 9. Plant Science 146. Professor BUSSELL and Research Assistant Professor LIVERMORE.

The better-known facts of variation and heredity are considered. Methods of practical plant breeding, including selection and hybridization, are discussed. A part of the time is devoted to practicums. Greenhouse material is used to acquaint the student with methods and results of plant-breeding work.



THE SHEEP WINNERS IN THE STUDENTS' LIVESTOCK FITTING AND SHOWING CONTEST, FARM AND HOME WEEK, 1934

## PLANT PATHOLOGY

1. **Plant Diseases.** Three hours a week. Lecture, S 9. Plant Science 336. Practice, T 10-12.50 or W 9-11.50 and Th or F 10-11.50. Plant Science 342. Extension Assistant Professor FERNOW.

A course designed to give the student a better understanding of the nature and cause of plant diseases and how these are related to intelligent control. Certain typical diseases of economic importance are studied in detail, and the student is then given the opportunity of applying what he has learned to the study of diseases in which he is especially interested. Laboratory fee, \$1.50; breakage deposit, \$3.

## POMOLOGY

2. **General Fruit Growing.** Four hours a week. Lectures, M W F 9 and S 8. Plant Science 114. Professor MACDANIELS.

This lecture course is designed for students who desire a general knowledge of fruit growing, and who cannot schedule the laboratory work. Whenever possible the student is urged to register for course 1, as the laboratory work will aid greatly in getting an understanding of the lecture material.

## POULTRY HUSBANDRY

11. **Farm Poultry.** Four hours a week. Lectures, M W F 4. Poultry Building 174. Laboratory practice, M 10.30-12.50. Poultry Building. Professor HEUSER, Assistant Professor HALL, and Messrs. BRUCKNER, VAN WAGENEN, and DAVISON.

A discussion of the domestic breeds of poultry; hatching and rearing; the principles of breeding, feeding, and management; marketing; diseases of poultry; poultry houses; related matters. Laboratory fee, \$3.

## VEGETABLE CROPS

1. **Commercial Vegetable Crops.** Four hours a week. Lectures, M W F 4. East Roberts 222. Laboratory, S 10.30-12.50. Vegetable Greenhouses. Professor WORK.

A comprehensive survey is given of the vegetable industry of New York State. The problems of the market gardener, the vegetable forcer, the truck grower, the muck-land farmer, and the producer of canning crops, are taken up. Climatic adaptation, soils and soil management, varieties, seed, plant growing, cultivation, irrigation, grading, handling, and packing, are all considered in general, and with reference to the special crops.

The laboratory work includes exercises in plant growing, vegetable-variety studies, hotbed and coldframe construction and management, and the grading and handling of important vegetable crops. Laboratory fee, \$1.50.

## VETERINARY MEDICINE

1. **Diseases of Dairy Cattle, and Veterinary Hygiene.** One hour a week. Lecture, F 9. Veterinary College, Large Lecture Room. Dr. HAYDEN.

This course includes a discussion of the commonest diseases of dairy cattle, the prevention and cure of these diseases, ventilation of stables, and general questions of animal hygiene.

## 2. COURSE IN DAIRY INDUSTRY

The course in dairy industry is intended especially for persons who plan to work in commercial dairy plants. It is *not* intended for persons who plan to follow dairy farming, nor for those preparing to occupy positions as herdsman, or as testers in advanced registry work. Students wishing to qualify themselves for such work should enroll in general agriculture, taking Dairy Industry 8 (page 5), and such other subjects as may be recommended by the faculty adviser.



Enrollment is limited to thirty-six. Early application is therefore desirable.

A meeting of all winter-course students in dairy industry will be held at four o'clock on the afternoon of registration day, October 31, in the Dairy Building, room 119.

#### SPECIAL EXPENSES

In addition to the general expenses listed on pages 20 and 21, students in dairy industry have the following special expenses:

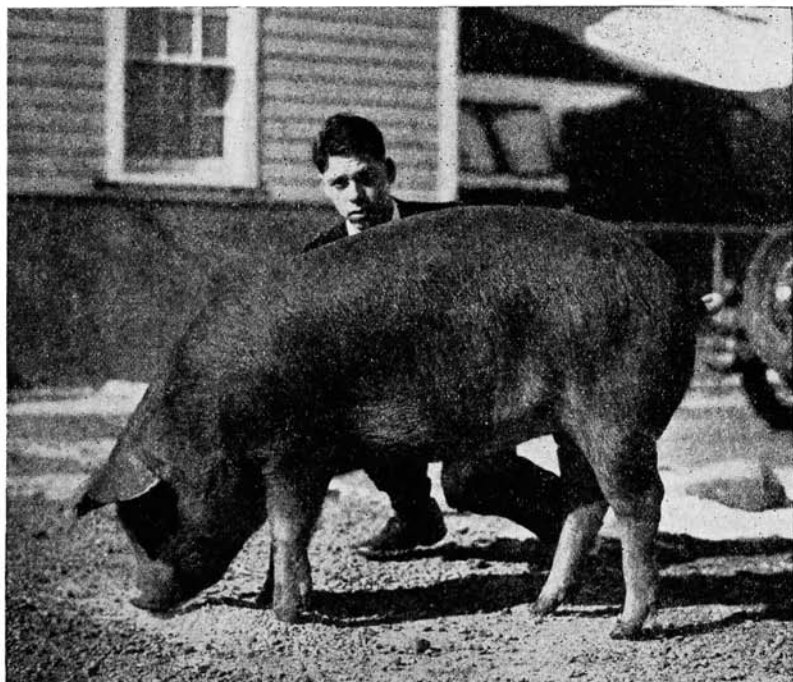
Laboratory fee, to pay for materials used and to cover laundry and breakage. . . . . \$35.00  
(Less than the full term: First period only, \$20; second period only, \$7.50 for each manufacturing subject taken.)

Books. . . . . \$25.00-\$30.00

One suit of overalls, about. . . . . \$3.00

One rubber apron, about. . . . . \$1.00

At least two white suits, with caps, will also be needed for the work of the second period. White shirts with short sleeves and soft



A DUROC JERSEY GILT SHOWN BY KENNETH COOMBS IN THE STUDENTS' LIVESTOCK FITTING AND SHOWING CONTEST, FARM AND HOME WEEK, 1934

collars, white trousers, and black belts, are preferred, though students already having white suits of a different type may wear them.

Waterproof footwear is necessary for work in the dairy laboratories. Books, notebooks, and the special clothing listed above can be purchased in Ithaca.

### METHODS OF INSTRUCTION

Instruction is given largely by means of actual practice in the different kinds of dairy work. This is supplemented by lectures, recitations, and reading assignments in dairy literature. Brief written examinations, and informal discussions of topics previously assigned for study, are frequently introduced.

The term is divided into two periods. The first is devoted to acquiring a knowledge of those subjects fundamental to a study of any dairy manufacturing process. On this foundation the student, during the latter half of the course, develops his understanding of the various factors involved in the actual making or processing of dairy products.

### FIRST PERIOD

October 31 to December 15 inclusive

The following lecture and practice courses are required during the first half of the term:

200. **Testing and Composition of Dairy Products.** Credit three hours. Lectures and laboratories, T W Th 1-5. Rooms 120 and 209. Extension Assistant Professor BRUECKNER and Mr. RISHOI.

This course involves a study of the composition of milk; laboratory practice in analysis, including the Babcock, Gerber, and Mojonnier methods; tests for acidity, salt, and moisture; use of the lactometer; calculating milk solids; some of the simple tests for preservatives and adulterants.

201. **Dairy Bacteriology.** Credit three hours. M W F 10-12. Room 119 Professor SHERMAN.

The course considers the relation of bacteria to dairy work, their action on milk and its products, and methods of controlling their growth. Studies are made of the various bacteria commonly found in milk. This work is intended to acquaint the student with the important part played by bacteria in dairy products, rather than to train him in scientific procedure.

202. **Dairy Chemistry.** Credit one hour. Lectures, T Th S 8. Room 218. Assistant Professor HERRINGTON.

The elementary principles of chemistry are explained in order that the student may better understand the composition of dairy products and the chemical changes connected with and influencing dairy operations.

203. **Dairy Arithmetic.** Credit one hour. Recitations, and laboratory practice, T Th 9-12. Room 119. Professor GUTHRIE.

A thorough drill is provided in such problems as are constantly arising in all kinds of dairy work and in the keeping of factory accounts.

204. **Dairy Mechanics.** Credit three hours. Lectures and recitations, M W F 8-10. Room 218. Laboratories, M F 1-4, S 9-12. Room 235. Assistant Professor AYRES, Professor ROSS, and Mr. ALVORD.

A lecture and laboratory course covering the principles, and the operation, adjustment, and repair, of dairy machinery, refrigeration equipment, steam engines, boilers, lubricating devices, and related apparatus. Practical laboratory work is given in the operation of cream separators and similar equipment, in the installation of shafts and pulleys, and in pipe fitting, belt lacing, and soldering.

## ELIGIBILITY FOR THE SECOND PERIOD

During the last half of the term, laboratory courses in the manufacture of various dairy products will be conducted as listed subsequently.

Any student whose work in the first period has been of satisfactory grade, may enroll in any of the courses offered that do not conflict as to time.

These courses are open also to former students who have satisfactorily completed the work of the first half, and who wish to return and obtain additional training in dairy manufacturing lines.

This privilege is extended also to persons who may already have received training elsewhere equivalent to the work of the first half of this course. Such persons will be expected to pass an entrance examination covering the subjects listed in the first half, as evidence of their fitness for admission; and a complete understanding between the candidate and the dairy department should be accomplished by correspondence before any move is made toward coming to Ithaca.

Fees covering enrollment of those not registered for the first half of the term are stated on pages 9 and 20.

## SECOND PERIOD

The following elective courses are offered, subject to the requirement that at least five students register for any desired course.

No student may take more than three subjects, as the work of any one course will occupy his entire time during the period scheduled.

## December 17 to 22 and January 7 to 12

205. **Market Milk.** Credit three hours. Laboratories, daily, 8-1. Room 128. Lectures, daily, 2. Room 120. Professor ROSS, Assistant Professor AYRES, and Mr. ALVORD.

This course covers the sanitary construction of dairy barns; score cards for dairy barns and market milk; food value of milk; standardizing milk and cream; legal standards for milk and cream; dairy utensils; the general production and handling of clean milk. The laboratory work includes bottling; milk pasteurization; different methods of cooling milk; clarification; standardization of milk and cream; judging milk and cream for sanitary quality; the making of commercial buttermilk and other milk drinks; the use of the sanitary score card in judging dairy barns and dairy plants.

## January 14 to 26 inclusive

206. **Condensed and Powdered Milk.** Credit three hours. Laboratories, daily 8-1. Room 237. Lectures, daily 2. Room 120. Assistant Professor AYRES, Professor ROSS, and Mr. ALVORD.

This course considers the principles and practices of making condensed and powdered milk. Students make sweetened condensed, evaporated, and superheated milk and powdered whole milk, skimmilk, and buttermilk.

207. **Cheese.** Credit three hours. Laboratories, daily 8-1. Room 122. Lectures, daily, 3. Room 119. Assistant Professors AYRES and BRUECKNER.

Instruction is given in the principles underlying the making of the common types of both hard and soft cheeses. Daily practice is conducted in the manufacture and judging of cheese and in the making and use of starters.

January 28 to February 9

208. **Butter.** Credit three hours. Laboratories, daily, 8-1. Lectures, daily, 2. Room 139. Professor GUTHRIE.

This course deals with the principles involved in butter-making processes, and the practices followed in modern creameries. Training is given in judging and grading cream; standardizing acidity of cream; pasteurization; making cultured buttermilk and cultured sour cream; and the manufacture of butter from both sweet and ripened cream. This involves also the making and use of starters, and a study of cream-ripening methods. Practice in scoring and grading butter is included, and consideration is given to the marketing of the finished product.

209. **Ice Cream.** Credit three hours. Laboratories, daily, 8-1. Room 237. Lectures, daily, 2. Room 120. Assistant Professor AYRES, Professor ROSS, and Mr. ALVORD.

Lectures and recitations concerning the theories and principles related to the processing of materials and to the freezing operation are combined with daily practice in the making of ice creams, sherbets, and ices. Students are especially trained in the standardization of mixes and in the analysis of materials.

### 3. COURSE IN POULTRY HUSBANDRY

Persons expecting to take up poultry raising professionally should register in the course in poultry husbandry, not in the course in agriculture. Applicants must furnish satisfactory evidence of having had at least six-months experience in working on an approved farm or poultry plant.

Prospective students who have not had experience may well plan to take a preliminary course in general agriculture, spending the intervening period in work on a poultry farm. The following is suggested as a program for the preliminary year.

Agronomy 4 (page 4) .....	3
Agricultural Economics and Farm Management 2 (page 4) .....	3
Pomology 2 (page 8) .....	4
Poultry Husbandry 11 (page 8) .....	4

The winter course in poultry husbandry is one of the means by which the College of Agriculture attempts to meet the needs of persons engaged in the poultry enterprise. The course is intended also to assist in supplying trained poultrymen to take charge of poultry plants owned by others. Although it is manifestly impossible in twelve weeks to give full preparation for so exacting a business as poultry keeping, this course will start the student in the right direction, enable him to avoid many mistakes, and offer him facts and principles of value gleaned from the lifelong experience, study, and observation of others.

A meeting of all winter-course students in poultry husbandry will be held at four o'clock on the afternoon of registration day, October 31, in Poultry Building 174.

#### SPECIAL EXPENSES

Laboratory fee (to pay in part for material used) .....	\$12.00
Laboratory fee in farm shop work. ....	3.00
General supplies. ....	12.00
Excursions (exclusive of transportation to and from New York City) .....	25.00

**Excursions.** One three-day trip will be taken, during the days immediately following the Christmas vacation, to visit successful New York State farms and the New York City markets. This trip is required, and every student must take it in order to receive full credit for the course.

Besides these expenses, about \$5 is spent for books which are usually bought and retained by the student. For the cost of board and other expenses, see page 20. If the prospective student owns a set of drawing instruments, drawing board, triangles, and rulers, he should bring them and thereby save part of the expense for general supplies.

### REQUIRED SUBJECTS

Instruction in these courses is given by Professor HEUSER, Assistant Professors BRUNETT and HALL, and Messrs. ANDREWS, BRUCKNER, VAN WAGENEN, and DAVISSON.

1. **Poultry Husbandry, Lecture Course.** Six hours a week. Poultry Building 174.

A lecture course dealing with the practical application of the principles of poultry husbandry to general farm conditions.

2. **Poultry Husbandry, Laboratory Practice.** Five hours a week. Poultry Building 300.

A laboratory course dealing with the practices of poultry husbandry, including: judging and selecting fowls; preparing poultry products for market; designing poultry buildings; studying poultry rations; diseases and sanitation; and other poultry-management practices.

3. **Special Lectures.** Two hours a week. Poultry Building 174 and elsewhere by appointment.

A course of lectures, relating primarily to agricultural subjects other than poultry, given by members of the staff of several other departments of the College of Agriculture and of the Cornell Medical College.

4. **Poultry Farm Shop Work.** Two hours a week. For students of professional poultry only. Lectures, demonstrations, and practice, M Th 10-12.50. Agricultural Engineering Laboratory. Professor ROEHL and Mr. ———.

A course dealing with the selection, care, and use of the tools necessary for repair and construction work on the poultry farm. Practice is given in sharpening edge tools, in filing saws, and in constructing poultry appliances and houses. Laboratory fee, \$3.

5. **Flock Management.** One hour a week. Practice periods and extra time arranged by appointment.

Practice in feeding and management of fowls.

6. **Incubator and Brooder Management.** Two hours a week. Time to be arranged.

Practice in operating incubators and brooding chicks.

7. **Poultry Accounts.** One hour a week. Poultry Building 300.

Practice in recording poultry-farm transactions. Results are summarized to determine the profit or loss from the various poultry-farm operations.

### 4. COURSE IN FRUIT GROWING

The course is intended to meet the requirements of persons engaged in commercial fruit growing. Lectures cover the relation of the fundamental sciences to the various orchard operations, and a digest of experimental work bearing on fruit growing. Special emphasis is placed on the interpretation of experimental work with reference to New York conditions. In the laboratory exercises each student will be given opportunity to perform all the orchard operations which

the season will permit. The course should be of value to men who are preparing to become managers or foremen of fruit farms. Unless the student has had considerable previous experience, however, the course will not equip him for such a position.

### REQUIRED SUBJECTS

Students planning to attend but one winter session should take the subjects that follow. Those without experience in fruit growing had best plan a two-years program.

1. **Commercial Fruit Growing.** Six hours a week. Lectures, M W F 9, S 8. Practice, W S 10-12.50. Plant Science 114. Professor MACDANIELS.

This course includes a study of varieties, methods and principles of propagation; grafting; soils, and planting plans for the orchard, cultivation, cover crops, fertilization, pollination, pruning and thinning, as practiced in orchard management; picking, grading, packing, storing, and marketing fruit. The course considers the following: apple, pear, quince, cherry, plum, peach, grape, raspberry, blackberry, currant, gooseberry, and strawberry.

	<i>Hours</i>
Plant Pathology 1 (page 8).....	3
Entomology 1 (page 6).....	2
Agronomy 4 (page 4).....	3
Agricultural Economics and Farm Management 2 (page 4).....	3
Apiculture 1 (page 5).....	2

## 5. COURSE IN FLOWER GROWING

New York is distinctly a flower-growing State. The financial interests of the industry are greater in this than in any other State in the Union. There is keen competition among flower growers, and progressive young men realize that they must equip themselves with all the information possible if they are to make a success of the business. The course offered is for those especially interested in commercial floriculture; that is, in the production and the methods of distribution of cut flowers and ornamental potted plants.

Interest in flower growing, however, is not confined to men engaged in the commercial industry. There is an increasing demand from amateurs for information regarding the culture of plants, especially annuals and perennials, to be used about the home, in the the ornamentation of rural public buildings, and the school grounds. The course in garden flowers, as outlined on page 6, is planned to meet this demand. The following course is planned especially for persons who intend to engage in commercial floriculture.

### REQUIRED SUBJECTS

1. **Commercial Flower Production and Greenhouse Practice.** Five hours a week. M T Th F 11. Plant Science 22. Practice, W 10.30-12.20. Greenhouses. Mr. ALLEN.

A study of the methods of growing standard florists' crops, such as roses, carnations, sweet peas, orchids, and plants for bedding. So far as possible,

NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY  
APPLICATION FOR ADMISSION TO WINTER COURSES

Remove this application without separating the pages  
Print name clearly, using pen and ink or typewriter

Name of applicant IN FULL .....  
Last name ..... First name ..... Middle name .....

Permanent home address (number and street, or R. F. D.) .....

Place ..... County ..... State .....  
Date of birth, month ..... day ..... year .....

Nationality ..... Married ..... Date of this application .....

Name and address of parent or guardian, or person to be notified in case of serious illness or accident .....

School or college attended (Indicate clearly the type of school or course) .....  
Name of school ..... Place ..... Period of attendance .....

.....

.....

.....

Have you received any degree or certificate? ..... What? ..... Where and when? .....

What has been your practical experience in farm work and in the special work covered by the winter course in which you are registering? .....

What has been your residence and occupation during the past five years? .....

Occupation 1930 ..... Place ..... State .....

Occupation 1931 ..... Place ..... State .....

Occupation 1932 ..... Place ..... State .....

Occupation 1933 ..... Place ..... State .....

Occupation 1934 ..... Place ..... State .....

What church do you attend? .....

REFERENCES.\*—I am personally acquainted with the above applicant, and know..... to be of good moral character, industrious, studious, and physically and otherwise capable.

Name..... Name .....

Position..... Position .....

Address..... Address .....

\*Two endorsements are necessary, and should be preferably by your teacher and your pastor or a public official, not a member of your own family. These persons should sign the application themselves.

NOTE.—The applicant must answer ALL the questions asked on both sides of this application blank. When the blank has been answered in full, mail it to Olin W. Smith, Secretary, College of Agriculture, Cornell University, Ithaca, New York.



Name.....

Last name

First name

Middle name

### SCHEDULE OF SUBJECTS

**IMPORTANT:**—Before filling out the blanks on this page, make out a form such as is given on the reverse side.

*Indicate by a check mark (✓) the one of the following six courses in which you desire to register. Do not check more than one course.*

1. General Agriculture
2. Dairy Industry

3. Poultry Husbandry
4. Fruit Growing

5. Flower Growing
6. Vegetable Crops

*If you desire to specialize in either the professional course in dairy industry or the professional course in poultry husbandry, it is not necessary for you to fill out the remainder of the blanks on this page.*

*If you are registering in any of the other four courses, write here the number and the name of each subject that you desire to take, using the number given in the catalogue. Example: No. 2, Subject Agricultural Economics and Farm Management. Without special permission, no student is allowed to take less than twelve or more than eighteen "hours" of work.*

No..... Subject.....

No..... Subject.....

No..... Subject.....

No..... Subject.....

No..... Subject.....

No..... Subject.....

No..... Subject.....

No..... Subject.....

No..... Subject.....

No..... Subject.....

No..... Subject.....

After filling out this schedule completely according to directions, mail it, with your application for admission, to Olin W. Smith, Secretary.  
(OVER)

## TIME SCHEDULE

Before filling out the previous page the applicant should make sure, by means of a form similar to the one shown below, that the subjects he desires do not conflict in time. Most of the courses offer options in laboratory periods, so that, with the exercise of care, one can generally arrange to include the subjects desired.

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8-9						
9-10						
10-11						
11-12						
12-1						
1-2						
2-3						
3-4						
4-5						
5-6						



Students are advised to consider the possibility of taking more than one winter's work in order to broaden their training and to learn more of contributing subjects. Opportunity would also be afforded to build combinations of courses embracing other fields as dairy, pomology, poultry, and others.

### REQUIRED SUBJECTS

**1. Commercial Vegetable Crops.** Four hours a week. Lectures, M W F 4. East Roberts 222. Laboratory, S 10.30-12.50. Vegetable Greenhouses. Professor WORK.

A comprehensive survey is given of the vegetable industry in New York State. The problems of the market gardener, the vegetable forcer, the truck grower, the muck-land farmer, and the producer of canning crops, are taken up. Climatic adaptation, soils and soil management, varieties, seed, plant growing, cultivation, irrigation, grading, handling, and packing are all considered in general, and with reference to the special crops. The laboratory work includes exercises in plant growing, vegetable-variety studies, hotbed and coldframe construction and management, and the grading and handling of important vegetable crops. Laboratory fee, \$1.50.

For a one-year course the following are recommended:

	<i>Hours</i>
Agronomy 4 (page 4) . . . . .	3
Vegetable Crops 1 (page 8) . . . . .	4
Entomology 1 (page 6) . . . . .	2
Plant Pathology 1 (page 8) . . . . .	3
Elective . . . . .	3 to 5

For a second year's work, choice among the following should be made:

	<i>Hours</i>
Agricultural Economics and Farm Management 2 (page 4) . . . . .	3
Plant Breeding 1 (page 7) . . . . .	3
Agricultural Engineering 1 (page 4) . . . . .	3
Meteorology 1 (page 7) . . . . .	2
Extension Teaching 1 (page 6) . . . . .	2
Other electives, as Pomology, Poultry Husbandry, Field Crops, Animal Husbandry, Dairy Industry, and so forth . . . . .	2 to 5

### SPECIAL UNIT COURSES

Various groups of farmers, or others, frequently find themselves confronted by common problems that arise out of occupations related to agriculture. To these and to persons who wish to prepare for certain specific positions, the College offers special unit courses of intensive study over periods of a few days or a few weeks. The instruction in these special unit courses is devoted solely to particular subjects with which the courses are concerned. These special unit courses or special schools and conferences vary from year to year.

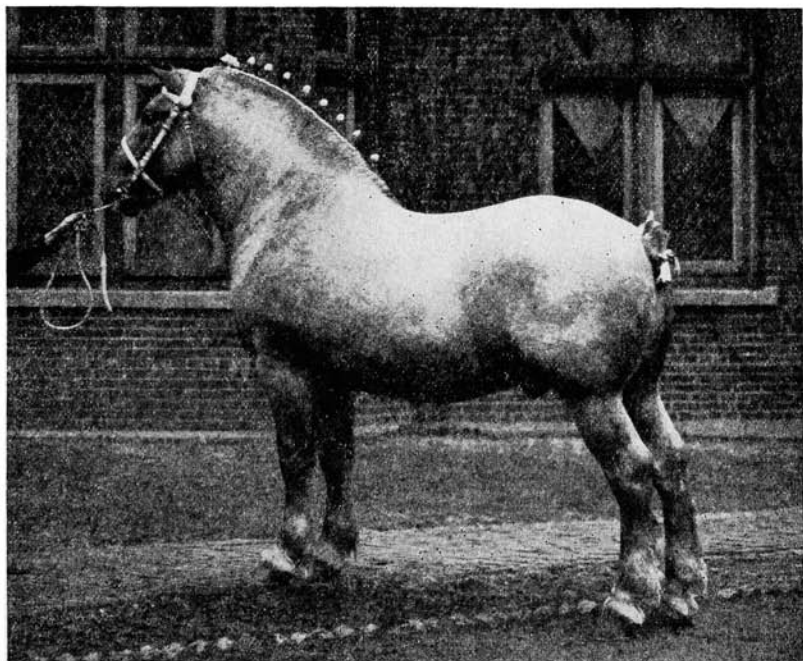
**Short Course in Nutrition.** Four days, October 22 to 25. This course deals with the principles of nutrition, requirements of poultry for the various nutrients, and the application of such information to the feeding and management of poultry. Admission is open to persons engaged in resident or extension teaching or in research, and to persons who manage a poultry enterprise and who are at least eighteen years of age. For information write the Department of Poultry Husbandry.

**Short Course in Poultry Judging and Poultry Breeding.** One week, June 25 to 29, 1934. This course is a study of the characters indicating egg production. Practice is given in culling and selecting birds for egg production and in judging birds in the show room. Admission is open to persons who are engaged in resident or extension teaching, research, judging, official poultry-inspection service, or writing, to college students, and to persons who are managing a poultry enterprise and who are at least eighteen years of age. For information write the Department of Poultry Husbandry.

**Short Course in Egg Grading and Marketing.** Five days, September 17 to 21.

Egg producers, merchants, and other handlers of eggs in commerce are offered this opportunity to become acquainted with the latest developments in the handling, candling, and grading of eggs. The first two days are devoted to the production and handling phases of egg marketing and the last three days to an intensive study and practice in the candling and grading of eggs. The first three days only of the school may be taken if so desired. For information write the Department of Poultry Husbandry.

**Short Course in Poultry Incubation.** Three days, November 13 to 15. This course gives instruction, through lectures, demonstrations, and round-table discussion, in the principles of incubation and the production of eggs for hatching, based on the results of modern research in these fields. Admission is open to persons engaged in resident or extension teaching or in research, to college students, and to persons who own or manage a hatchery, breeding plant, or poultry farm, and who are at least eighteen years of age. For information write the Department of Poultry Husbandry.



A BELGIAN STALLION AT THE CORNELL EXPERIMENTAL FARM

**Short Course for Florists.** Three days, January 22 to 24. This course is a review of the newer developments in the commercial flower business. It includes the consideration of problems of producing and preparing flowers for sale, of managing florists' stores, and of furnishing floral decorations for special occasions of all kinds. For information write the Department of Floriculture and Ornamental Horticulture.

**Short Course for Missionaries.** Four weeks, January 21 to February 16. This course offers to missionaries working in rural areas, who are home on furlough, the opportunity to pursue studies related to the life of country people. Each missionary student in given personal help in dealing with the problems in which he is most interested. The morning periods are devoted to the fundamental courses, leaving the afternoons for specialized study. Particular attention is given to sociology of rural life, fundamentals of agriculture, rural education, nutrition, and health. For information write to the Director of Short Courses.

**Fourth Annual Nurserymen's Conference.** Dates to be announced. Commercial and private nurserymen are offered an opportunity to consider and discuss problems of operating nurseries, sales policies, landscaping, and other matters of especial importance in the nursery business. The problems discussed are of concern to nurserymen in the northeastern part of the United States. For information write to the Department of Floriculture and Ornamental Horticulture.

## GENERAL INFORMATION

### ADMISSION

A satisfactory certificate of vaccination is required of all students and is considered satisfactory only if it certifies to a successful vaccination within five years or certifies that at least three unsuccessful attempts have been made within the same period. This requirement does not apply to students who attend the special unit courses for periods not exceeding six weeks.

The winter courses are business and occupational courses, not academic; hence there are no examinations for admission. However, in order that the student may be able to make the best use of the instruction, it is necessary that he should have a good common-school education. Winter-course students are sometimes seriously handicapped in their work by being deficient in arithmetic and in English. Persons who are planning to take a winter course are advised to review these subjects before coming to Ithaca.

Women should correspond with the Dean of Women, Ithaca, New York, in regard to rooms and accommodations.

**Age.** All the courses are open to both men and women of at least eighteen years of age.

**Application.** This circular contains an application blank for admission to the winter courses and a schedule sheet for courses to be taken. Both of these should be made out in full and forwarded to the Secretary at once by any person who is considering, even though indefinitely, attending any one of the winter courses. The filing of an application for admission does not constitute an obligation to attend, and applications may be withdrawn at any time.

When making application, candidates for admission should give a description of their school training and, if possible, should send a certificate or a statement from the teacher of the school last attended.

*Arrival at Ithaca.* Students who desire advice concerning lodgings and boarding places are invited to come directly to the College of Agriculture on their arrival in Ithaca. It is desirable that all housing arrangements should be completed before registration day.

#### REGISTRATION

On Wednesday, October 31, beginning at 9 a. m., all students must report for registration at the office of the Secretary of the College of Agriculture, Roberts Hall. Upon being registered, each student is assigned a faculty adviser to whom he goes at once, and with whom he will consult frequently, during his course, on either personal problems or matters pertaining to his course of study.

*Study Cards.* After the student has registered, he may not change his schedule of courses in any respect, except on the recommendation of the head of the winter course concerned or of his faculty adviser, and with the approval of the Secretary. The schedule of subjects, which the applicant fills out in advance, may subsequently be changed at the request of the applicant, and is not to be confused with the study card, which is made out when the student registers.

#### CERTIFICATES

Students who complete a schedule of at least fifteen hours with grades of 70 or better will be given certificates of record. Students desiring such certificates must notify the office of the Secretary before the close of the course.

#### POSITIONS

The College does not promise to find positions for students registered in any of its courses, but it has opportunity to recommend students for a large number of positions. Some students who have completed a winter course have obtained an increase in salary in the following season sufficient to pay the entire cost of the course. Such results, while of course not guaranteed, show that there are excellent opportunities for trained men.

A student desiring a recommendation from the College must fulfill the following conditions: (1) he must be of good character; (2) his previous record must be good; (3) his work in the winter course must be satisfactory.

In the course in dairy industry, previous experience in a well-conducted dairy plant is strongly advised for those who expect the College to recommend them for positions.

In the course in poultry husbandry, it is recommended that persons inexperienced in the handling of poultry spend at least a year in acquiring practical knowledge of the business before entering this course. Students who have not previously had a considerable amount of farm or poultry experience cannot, as a rule, be recommended to positions of responsibility until they have spent a season on an approved poultry farm. This is particularly true for the better positions in which managers or superintendents are wanted to take charge of poultry farms.

## EXPENSES

## TUITION

Tuition is free to those who at the beginning of the course are, and for at least twelve months prior thereto have been, bona-fide residents of the State of New York. Non-residents pay a tuition fee of \$25. If a student withdraws, the Treasurer may refund a part of the tuition fee or cancel a part of the obligation that the student has incurred for tuition, provided the reason for the withdrawal be stated in writing and be satisfactory to the Comptroller and the Registrar. The amount that the student owes the University for tuition is 10 per cent of the term's tuition for each week or fraction of a week between the first registration day and the date of his certificate of withdrawal. This rate applies also to students registering for a part of the term only, as for the second period of the professional course in dairy industry.

Any tuition or other fee may be changed by the Board of Trustees to take effect at any time without previous notice.

## BOARD AND LODGING

A number of fees and incidental expenses are detailed under the description of each course, but practically the only large expense is the cost of living in Ithaca and the railroad fare to and from Ithaca. While special arrangements may sometimes be made to lower costs, it is best to count on from \$6 to \$8 a week for board and from \$3 or \$4 for a room. The cost of books need not be more than \$10, but it has been the experience of winter-course students that they wish to buy a number of books to take home, and it would be well to allow at least \$15 for this item. Statements made by students in previous years show that \$175 or \$225 is a reasonable amount to allow for total expenses exclusive of clothes and travel. By careful management this may be reduced somewhat; but it is best not to stint too much, since great economy is likely to lessen the value of the course.

## OTHER FEES

The laboratory and other expenses of observation trips are mentioned in the descriptions of the courses in the announcement; students are also liable for breakage due to carelessness on their part.

A *Health and Infirmary Fee* of \$3 is required. In return for this, any sick student is, on his physician's certificate, admitted to the infirmary, and is given, without further charge, a bed in a ward, board, and ordinary nursing, for a period not exceeding two weeks. Extra charges are made for private rooms, special food, and special nurses. If a sick student who has not received two weeks service during the course is unable to gain admittance to the infirmary, by reason of lack of accommodation, he is entitled to a refund of the fee. The infirmary has no medical staff; students employ their own physicians among practitioners in Ithaca or elsewhere.



*A Willard Straight Hall Membership Fee* of \$3 is required, at the beginning of the term, of every winter-course student. Its payment entitles the student to a share in the common privileges afforded by the operation of Willard Straight Hall, subject to regulations approved by the Board of Managers of the Hall.

For those enrolling in unit courses of three weeks' duration or less the fee is \$1.50.

*Fee Cards.* All the winter-course students must call at the office of the Secretary of the College of Agriculture on November 17, at which time the fee cards will be issued with tuition fee, infirmary fee, and laboratory fees charged. The cards must be presented at the Treasurer's office in Morrill Hall and payment made not later than 12 o'clock on Saturday, November 24.

### SCHOLARSHIPS AND PRIZES

*Beatty Agricultural Scholarships.* By the will of the late Harrison L. Beatty of Bainbridge, New York, the income of about \$5900 is devoted to three equal scholarships in the winter courses to be known as the Beatty Agricultural Scholarships. These scholarships are to be awarded to residents of Chenango County, one of whom shall be a resident of the town of Bainbridge. In making the award, equal consideration will be given to education and practical experience. Competitive examinations are held annually in Norwich and Bainbridge, New York, in the last week of September; the exact dates are to be announced to those applying for the examinations. The applications must be sent to the Secretary of the College of Agriculture, Ithaca, New York, by September 1.

*The Grange League Federation Exchange Scholarships* are two in number, and are for \$50 each. One of these scholarships will be awarded to a member of the 1934 4-H Dairy Club; the other will go to a member of the 1934 4-H Poultry Club. Application for these scholarships must be made to Mr. W. J. Wright, State Club Leader, at the New York State College of Agriculture, Ithaca, New York, on or before September 15. Awards will be made by the Grange League Federation Exchange on the advice of a committee consisting of the State Club Leader, a representative of the Department of Animal Husbandry of the New York State College of Agriculture, and a representative of the Grange League Federation Exchange.

### WINTER COURSE STAFF

Livingston Farrand, A.B., M.D., L.H.D., LL.D., President of the University.  
Albert Russell Mann, A.M., D.Sc., D.Agr., LL.D., Provost of the University.  
Carl Edwin Ladd, Ph.D., Dean of the College of Agriculture and Director of Experiment Stations.  
Cornelius Betten, Ph.D., D.Sc., Director of Resident Instruction.  
Lloyd R. Simons, B.S., Director of Extension and Professor of Extension Teaching.

Olin Whitney Smith, B.S., Secretary.

Charles Arthur Taylor, B.S., Professor in Extension Service, in charge of Winter Courses.

Anson Wright Gibson, B.S., Associate Secretary, in charge of Former Student Relations, Vocational Guidance, and Placement.

Willard Waldo Ellis, A.B., LL.B., Librarian.

George Wilson Parker, Bursar.

Raymond Clayton Allen, B.S., Instructor in Floriculture.

Elmer William Alvord, Foreman in Dairy Industry.

Floyd Edward Andrews, Foreman in Poultry Husbandry.

Winfred Enos Ayres, Assistant Professor of Dairy Industry.

Jacob Herbert Bruckner, B.S., Instructor in Poultry Husbandry and Assistant in Poultry Husbandry in the Experiment Station.

Herman Jacob Brueckner, Ph.D., Extension Assistant Professor of Dairy Industry.

Earl Louis Brunett, D.V.M., Assistant Professor of Poultry Diseases (Veterinary College).

Harry Oliver Buckman, Ph.D., Professor of Soil Technology.

Frank Pores Bussell, Ph.D., Professor of Plant Breeding.

Bruce Raymond Davisson, B.S.A., Instructor in Poultry Husbandry and Assistant in Poultry Husbandry in the Experiment Station.

Karl Hermann Fernow, Ph.D., Extension Assistant Professor of Plant Pathology.

Adrian Gordon Gould, M.D., Ph.B., Assistant Professor of Hygiene and Assistant Medical Adviser.

Edward Sewall Guthrie, Ph.D., Professor of Dairy Industry and Dairy Technologist in the Experiment Station.

Goldan Orlando Hall, Ph.D., Assistant Professor of Poultry Husbandry and Assistant Poultry Husbandman (Genetics) in the Experiment Station.

Merritt Wesley Harper, M.S., Professor of Animal Husbandry and Animal Husbandman in the Experiment Station.

Edwin Shepard Harrison, Ph.D., Assistant Professor of Animal Husbandry and Assistant in Animal Husbandry in the Experiment Station.

Herbert Bertsch Hartwig, M.S., Assistant Professor of Field Crops.

Charles Ernest Hayden, A.B., D.V.M., Professor of Veterinary Physiology (Veterinary College).

Glenn Washington Herrick, B.S.A., Professor of Economic Entomology and Entomologist in the Experiment Station.

Barbour Lawson Herrington, Ph.D., Assistant Professor of Dairy Chemistry.

Gustave Frederick Heuser, Ph.D., Professor of Poultry Husbandry and Poultry Husbandman (Nutrition) in the Experiment Station.

Robert Byron Hinman, Ph.D., Assistant Professor of Animal Husbandry and Assistant Animal Husbandman in the Experiment Station.

Josiah Randall Livermore, Ph.D., Research Assistant Professor of Plant Breeding and Assistant Plant Breeder in the Experiment Station.

Laurence Howland MacDaniels, Ph.D., Professor of Pomology and Pomologist in the Experiment Station.

Lua Alice Minns, M.S.A., Assistant Professor of Floriculture.

Richard Alan Mordoff, Ph.D., Professor of Meteorology.

George Eric Peabody, M.S., Assistant Professor of Extension Teaching.

Everett Franklin Phillips, Ph.D., D.Sc., Professor of Apiculture and Apiculturist in the Experiment Station.

James Dunbar Pond, B.S., Instructor in Forestry.

Alfred Herman Rishoi, M.S., Instructor in Dairy Industry.

Louis Michael Roehl, B.S., Assistant Professor of Farm Shop.

Harold Ellis Ross, M.S.A., Professor of Dairy Industry.

Elmer Seth Savage, Ph.D., Professor of Animal Husbandry and Animal Husbandman in the Experiment Station.

James Morgan Sherman, Ph.D., Professor of Dairy Industry and Bacteriologist in the Experiment Station.

Alfred Van Wagenen, B.S., Instructor in Poultry Husbandry and Assistant in Poultry Husbandry in the Experiment Station.

John Peter Willman, Ph.D., Assistant Professor of Animal Husbandry and Assistant Animal Husbandman in the Experiment Station.

Alan Wardlaw Woodrow, B.S., Assistant in Apiculture.

Paul Work, Ph.D., Professor of Vegetable Crops and Investigator in Vegetable Crops in the Experiment Station.

Samuel Healea Work, B.S., Assistant in Animal Husbandry.

Forrest Blythe Wright, Ph.D., Assistant Professor of Agricultural Engineering.









## CORNELL UNIVERSITY OFFICIAL PUBLICATION

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This series of pamphlets is designed to give prospective students and other persons information about Cornell University. No charge is made for the pamphlet unless a price is indicated after its name in the list below. Requests for pamphlets should be addressed to the Secretary of the University at Ithaca. *Money orders should be made payable to CORNELL UNIVERSITY.*

The prospective student should have a copy of the

*General Information Number*

and a copy of one or more of the following Announcements:

*Announcement of the Graduate School.*

*Announcement of the Medical College.*

*Announcement of the Law School.*

*Announcement of the College of Arts and Sciences.*

*Announcement of the College of Architecture.*

*Announcement of the College of Engineering.*

*Announcement of the New York State College of Agriculture.*

*Announcement of the Two-Year Courses in Agriculture.*

*Announcement of the Winter Courses in the College of Agriculture.*

*Announcement of the Farm Study Courses.*

*Program of the Annual Farm and Home Week.*

*Announcement of the New York State College of Home Economics.*

*Announcement of the Course in Hotel Administration.*

*Announcement of the New York State Veterinary College.*

*Announcement of the Graduate School of Education.*

*Announcement of the Department of Chemistry.*

*Announcement of the Summer Session.*

*Announcement of the Summer School of Biology.*

*Annual Report of the President.*

Special departmental announcements, a list of prizes, etc.

Other periodicals are these:

*Guide to the Campus.* A book of 132 pages, including 55 illustrations and a map in three colors. Price, 50 cents.

*Directory of the University.* Price, 10 cents.

Correspondence regarding the Cornell University Official Publication should be addressed to

THE SECRETARY, CORNELL UNIVERSITY,  
ITHACA, NEW YORK.