

The KANSAS AGRICULTURAL STUDENT

KANSAS STATE AGRICULTURAL COLLEGE
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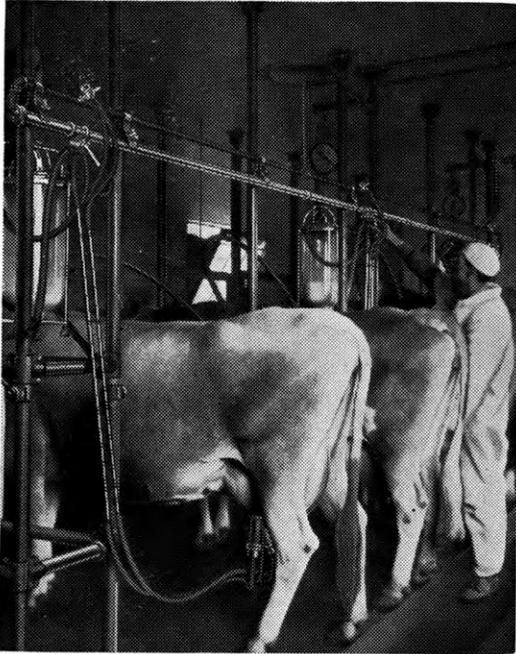
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After a cow has been milked the milker is placed on an adjoining cow, the gate in front of the cow which has just been milked is opened, she passes out and her place is taken by another cow waiting to be milked.

The De Laval Magnetic Combine milks, weighs and conveys. With it one man can milk from 30 to 40 cows per hour.

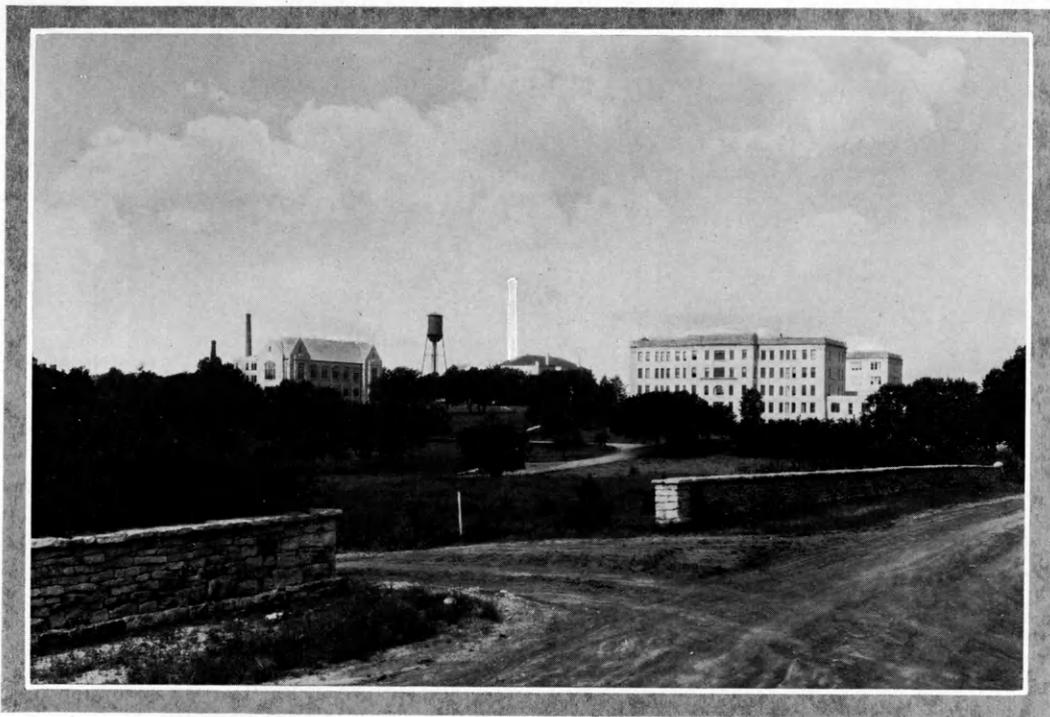
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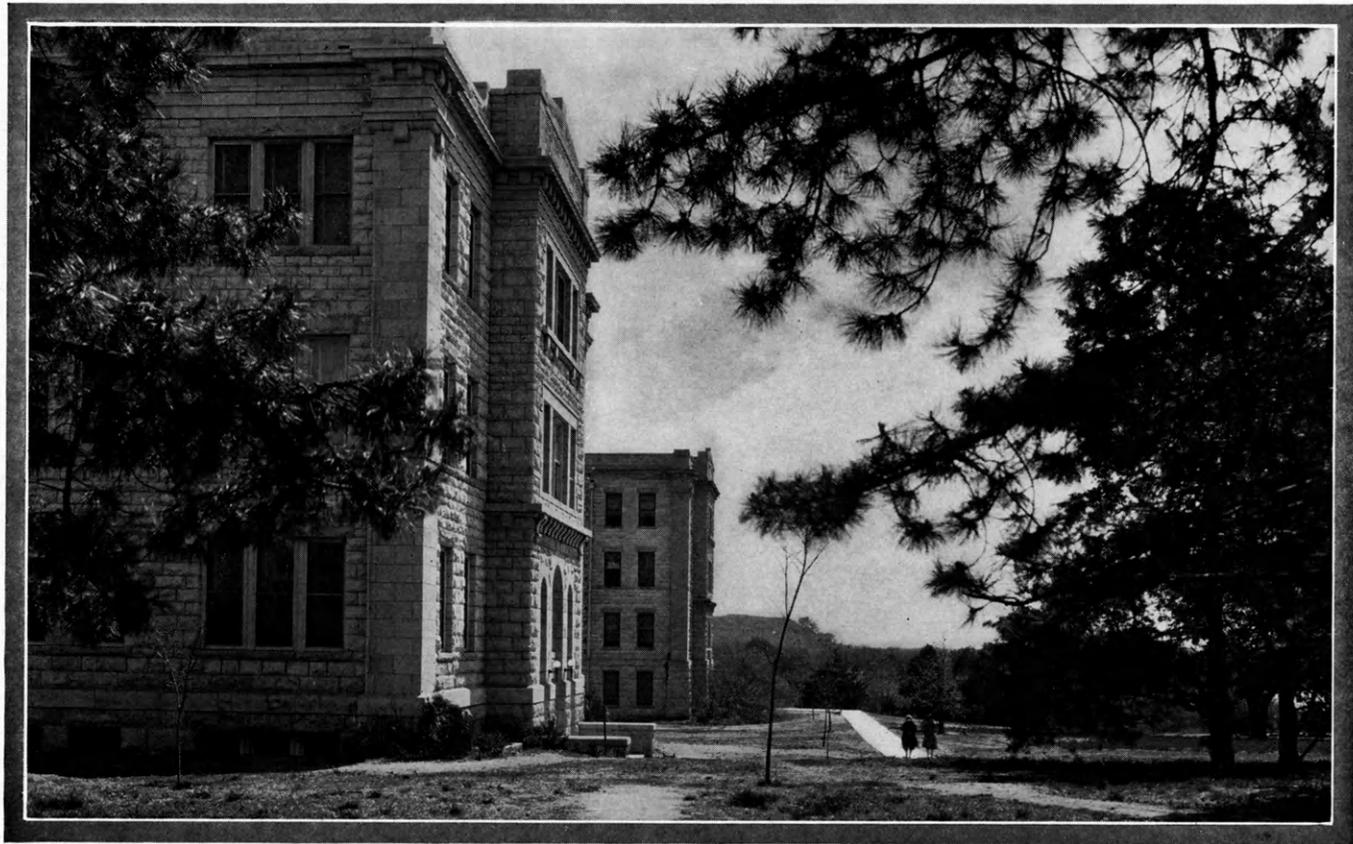


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FRONT VIEW OF THE WEST AND EAST WINGS OF WATERS HALL AS SEEN FROM THE SOUTHWEST

The Kansas Agricultural Student

VOL. X

Manhattan, Kansas, October, 1930

No. 1

Poultry Husbandry in Great Britain

Loyal F. Payne

Head of Department of Poultry Husbandry

Americans who attended the World's Poultry Congress and participated in the Post Congress tours on the British Isles and the continent this summer had many object lessons of methods and practices which might be used to advantage in this country. The unanimity of good husbandry, standardization of important practices, and their educational program were outstanding features.

While the British have all of the common problems of maintaining vigor, controlling parasites, avoiding losses from disease, and finding the most economical method of marketing, they seem as a group, to be further advanced in some ways than poultry raisers in America. The rather general adoption of a few principal breeds; namely, Rhode Island Reds, White Wyandottes, Light Sussex, and White Leghorns, enables them to produce uniform products and to obtain good stock from many sources. First generation crosses of two of the above breeds are frequently made to increase vigor and egg production.

Sanitary measures are practiced by the utilization of clean ground or wire or slat covered floors for the young stock and well sodded yards for adult birds. Neither old nor young birds come in contact with the bare ground. Nests, feed hoppers, and water vessels are frequently made accessible to the caretaker from outside the houses so the danger of introducing internal parasites or diseases on one's shoes is minimized. Some of the yards have been used by the laying flocks continuously for 25 years without apparent detrimental effects.

In the numerous egg-laying trials great emphasis is placed on size of eggs produced. In Northern Ireland the government standards call for eggs weighing from 22 to 28 ounces a dozen for the different grades. In the laying trials every hen that lays more

than 50 eggs below the standard weight is disqualified. A compulsory act of buying and marketing eggs by weight was passed by the government in 1924 and the Irish are still enthusiastic about this system.

Poultry products marketed in Great Britain do not pass through the hands of so many middle men as is common in America. Pro-



THE KANSAS DELEGATION ENROUTE TO THE WORLD'S POULTRY CONGRESS

ducers often deliver direct to jobbers who sell either to retailers or direct to consumers. The lapse of time from producer to consumer is so short that artificial refrigeration is not utilized. The time element is expressed in the following verse taken from a placard on the Irish educational booth:

"Monday morn an egg was born,
Tuesday to market 'twas taken
Wednesday nite reached London bright,
Thursday met its bacon."

A national mark egg scheme has been adopted in England and Wales to secure a better service of eggs for the large consuming centers and to help home produce to capture busi-

ness now going to imports.

The educational system in poultry husbandry is unique. Thirty counties in England and Wales have 28 egg-laying trials, 73 poultry instructors, and 1,150 approved poultry stations. The poultry instructors maintain close supervision over the flocks in their respective counties by advising on problems of breeding, feeding, housing, management, diseases, economics, and marketing. Instruction is given at farm institutes and other centers by means of lectures and demonstrations. They also supervise county egg-laying trials and approved breeding stations. With this close supervision, it is obvious why good husbandry is so generally practiced.

Experimental work of a fundamental nature is conducted at highly specialized institutions. For example, research in nutrition and genetics is done at Cambridge University. Table poultry experiments are conducted at South-Eastern Agricultural College, Wye, and dis-

ease researches are carried on at a veterinary laboratory at Weybridge. New discoveries from the above poultry experiment stations are tried in a practical way on large numbers of birds at the Harper Adams Agricultural College and National Institute of Poultry Husbandry. While many of the methods of production and marketing used in America are better for us than European methods, some of the above practices might be profitably adopted in this country.

The World's Poultry Congress is an asset to any nation as demonstrated by the progress made in and adjacent to the countries where it has been held. Statistics show the increase in value of the poultry industry in these countries to be phenomenal since the first Congress was held at The Hague in 1921. Other Congresses have been held at Barcelona (Spain), Ottawa (Canada), and this year in London. The next Congress goes to Rome (Italy) in 1933.

The Income Tax Law in Other States

Harold Howe

Associate Professor of Agricultural Economics

With an income tax amendment up for consideration in the November election and a well developed sentiment in the state favorable to the passage of an income tax law, Kansas people are now giving considerable attention to income tax laws in force in other states.

There are at the present time 20 states that tax incomes in some form or another. There are two principal kinds of income taxes, the tax upon individuals and the tax upon corporations. States making use of the income tax may be placed in three classes: (1) Those having both individual and corporation income taxes. (2) Those having a tax on personal income only. (3) Those having the corporation income tax only.

Thirteen states tax the income of both individuals and corporations. Ten of these have comprehensive laws which tax the entire net income of persons and corporations. The ten states which have this most desirable form of income tax law are: Arkansas, Georgia,

Mississippi, Missouri, New York, North Carolina, North Dakota, South Carolina, Virginia, and Wisconsin. Massachusetts and Tennessee tax the income from all corporations but their personal income tax laws apply only to the income from intangible property. On the other hand, Oregon taxes the income of persons from whatever source derived but its corporation tax law is imposed only upon the banks, other financial institutions, and manufacturing and business corporations. The Oregon referendum has been invoked against the income tax law of that state and collections under the act are suspended, at least until the November election.

Three states, Delaware, New Hampshire, and Oklahoma, tax the income of individuals. The laws of Delaware and Oklahoma base the tax on the entire net income while the New Hampshire law imposes the tax on the income from intangible property.

Four states that do not have personal in-

(Continued on page 26)

An Outstanding Cooperative Elevator Company

J. H. Coolidge, '25

A gigantic grain elevator is owned by 143 farmers in the vicinity of Copeland (Gray county), Kansas. These farmers have learned the advantages of marketing their wheat cooperatively by their loyalty to their organization and the annual dividends which this loyalty has enabled the company to pay.

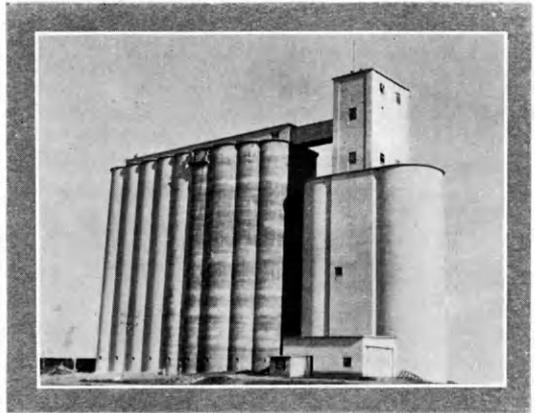
The handling of 900,000 bushels of wheat in 90 days (from June 1 to September 1, 1930) and 1,710,000 bushels of grain from June 1, 1929, to June 1, 1930, and the unloading of over 900 truckloads of wheat one day during the last week of August, 1930, is the record established by this Farmers Cooperative Elevator Company.

This 500,000-bushel concrete elevator and storage tanks are the result of a recent building campaign. The two large tanks, dumping pits, and head house were built in the spring of 1929. This house paid for itself in one year by efficient management and the savings effected by storing at home the 150,000 bushels instead of paying storage on this amount in Hutchinson and Kansas City terminal elevators. In the spring of 1930 the battery of storage tanks with a capacity of 350,000 bushels was constructed and connected with the head house and dumping pits. A large endless belt carries the grain from the top of the main elevator across above the storage tanks where it can be directed into the desired bin. Another endless belt, mounted in a tunnel below the tanks, carries the grain back from the bins to the pit where it can be elevated to the loading hopper (which holds over a car load) or to one of the large tanks. The elevator is equipped so that car loads of grain can be dumped into the pit and the elevator used as a terminal elevator for storage. It is one of the few country bonded warehouses in the state authorized to issue warehouse receipts to farmers whose grain is being stored in the elevator.

The Copeland Cooperative Equity Exchange has been able to complete this enormous building program entirely with their own

capital. The necessary funds were secured by increasing the number of members, by increasing the size of the shares of stock, by selling more stock, and by temporarily diverting a portion of the patronage dividends into the building fund. The organization is affiliated with the Farmers National Grain Corporation by its membership in the Equity Union Grain Corporation of Kansas City, Mo.

The phenomenal success of this cooperative marketing enterprise has been due to



COPELAND COOPERATIVE ELEVATOR

This elevator with a storage capacity of 500,000 bushels is the property of the Copeland Cooperative Equity Exchange. It is an outstanding example of successful cooperation in its field.

(1) the unity of thought and effort of a faithful board of directors (who serve entirely without pay) of young progressive wheat farmers who thoroughly believe in the plan of cooperative marketing of the farmers' products; (2) the untiring and unselfish service of O. H. Hatfield—their able president; (3) the excellent management of the business by A. Swanson—one of the best cooperative elevator managers in the state; and (4) by the loyalty of the membership. Mr. Hatfield has been president of the exchange for many years. The undivided support of

(Continued on page 26)

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WHAT IS THE AGRICULTURAL ASSOCIATION?

The Ag freshman might be expected to ask, "What is the Agricultural Association and what does it stand for?" However, before many weeks of the fall semester have passed he should be able to answer this question satisfactorily. The Agricultural Association is financed through membership dues paid voluntarily by the members of the Division of Agriculture. It provides for the publishing of the Kansas Agricultural Student, copies of which are received by every member of the association. It provides the medals for the members of the various agricultural judging teams that represent K. S. A. C. in intercollegiate judging contests. The association also sponsors the Ag Fair in the spring and the Barnwarmer in the fall. It holds one or more functions each year which are beneficial to all agricultural students. Its duty, in general, is to get the students of the division to work together as a unit.

The present officers are:

W. G. Nicholson, President
K. B. Dusenbury, Vice-President
E. S. Schultz, Treasurer

E. H. Regnier, Secretary

The Agricultural Association also sponsors the various departmental clubs and coordinates their activities. These departmental clubs are organizations which tend to encourage interest, promote cooperation, and aid the students in their chosen field of work.

The Block and Bridle Club encourages interest among the members in progress in animal husbandry. In the winter it sponsors a fitting and showing contest. In the spring the club sponsors the annual animal husbandry student live stock judging contest and awards the winners suitable prizes.

The Dairy Club promotes a wider interest in the field of dairying. It sponsors the dairy fitting and showing contest in the winter and the dairy judging contest in the spring. Medals are awarded by the club to the winners in both events.

The Horticulture Club was organized to promote interest along horticultural lines. It has two annual events, a fall party and a spring hike, which are elaborate affairs.

Tri K, the Klod and Kernel Klub, helps the agronomy students to become better acquainted with the problems along agronomic

(Continued on page 7)

Soybeans in a Kansas Crop Rotation

W. M. Myers, '32

Soybeans have been rapidly becoming popular among the farmers of eastern Kansas and are finding an important place in the crop rotation systems of that part of the state. This popularity is due chiefly to the value of soybeans as either a hay or seed crop and as a soil builder.

As a hay crop soybeans are used largely as a substitute for alfalfa or other legume hay. In 100 pounds of soybean hay there are 53.6 pounds of total digestible nutrients as compared to 51.6 pounds in alfalfa hay. This increase is found largely in the protein and fat.

A study of several feeding investigations shows that in pound for pound of the hay consumed soybean hay is equal to alfalfa but due to the coarse stems of soybeans that are wasted, its feeding value per ton is from 10 to 15 per cent less than that of alfalfa of equal quality.

In tests conducted by the Agricultural Experiment Station at Manhattan, A. K. soybeans made an average yield of 2.4 tons of hay per acre for the 10-year period, 1920 to 1929. Under field conditions this may not be so high but on ordinary upland soils an average of from one to two tons per acre could be expected and a yield of three tons would not be at all uncommon.

When these facts are considered along with the expense of establishing and difficulty of maintaining a stand of alfalfa it is easy to see the practical use of soybeans as a hay crop.

Soybeans when harvested for seed may be used either as a cash crop or as a substitute for expensive protein supplement in the live stock ration. Under ordinary conditions they yield on an average from 12 to 18 bushels per acre. On the market the price ranges around \$1.50 per bushel. As a feed, soybeans are valuable due to their high protein and oil content. The seed contains about four times as much protein and from three to four times as much fat as corn. Although the yield of soybeans is only 40 to 50 per cent that of corn, they will produce about twice as much protein per acre.

The soybean is a legume and for this reason it will bring about soil improvement especially when grown for seed. At Manhattan by following soybeans with corn in alternate years an increase of 14 bushels of corn per acre was obtained over corn grown continually. The nitrogen content of the soil is affected less when the crop is grown for hay owing to the fact that most of the top growth is removed when the plant is used for this purpose; but when the crop is removed for seed most of the leaves fall on the ground.

More detailed information concerning the culture and handling of soybeans may be obtained from Bulletin No. 249 of the Agricultural Experiment Station, Manhattan, Kan., or from an article on "Handling Soybeans in Southeastern Kansas," by I. K. Landon, which will be published in the Biennial Report of the Kansas State Board of Agriculture to be off the press in the near future.

THE AGRICULTURAL ASSOCIATION

(Continued from page 6)

lines. This club sponsors the students' annual grain judging contest, the winners of which receive worth-while prizes presented by the club and various companies who are interested in the contest.

The Agricultural Economics Club is open to students majoring in agricultural economics and those pursuing the Curriculum in Agricultural Administration. Its purpose is to create an interest in and to encourage sound, economic thinking. —C. W. N., '32.

Ed Thackery, f. s., '85, is engaged in bee farming at Hooper, Colo., in the San Luis valley.

Walter H. Olin, '89, M. S., '93, is head of the department of agricultural development with the Denver and Rio Grande Railroad Company.

Carl L. Howard, '20, is county agricultural agent of Lyon county, headquarters at Emporia. Carl was a member of the Franklin literary society when in college.

COLLEGE NOTES

HONOR ROLL, 1929-'30

One hundred and twenty-three students in the Division of Agriculture during the college year, 1929-'30, received special commendation for outstanding achievements in scholarship. Each of these students carried on regular assignments not less than 12 credit hours of work each semester, had practically no delinquencies against him throughout the year, and made a total of not less than 48 points on his two assignments, according to the K. S. A. C. point system (1).

The three highest ranking students in each class were given special mention as winners of high honors. The names and home addresses of the group winning "high honors" and the group winning "honors" are given below:

HIGH HONOR ROLL, 1929-'30

	Home P. O.	Credit hours passed	Total points
Seniors			
Raymond G. Frye.....	Freeport	47	112
Eugene M. Leary.....	Lawrence	38	97
John J. Curtis.....	Toronto	36	95
Juniors			
George D. Oberle.....	Carbondale	35	94
John L. Wilson.....	Geneva	32	93
Bruce R. Taylor.....	Alma	37	88
Sophomores			
Will M. Myers.....	Bancroft	36	102
Charles T. Herring.....	Tulia, Tex.	39	94
Tom D. Dicken.....	Winfield	36	94
Freshmen			
John I. Miller.....	Prescott	34	98
Andrew B. Erhart.....	Timken	32	88
Paul W. Griffith.....	Edmond	32	82

HONOR ROLL, 1929-'30

	Home P. O.	Credit hours passed	Total points
Seniors			
Howard R. Bradley.....	Kidder, Mo.	29	57
William J. Braun.....	Council Grove	33	53
Henry A. Burt.....	Manhattan	36	53
Dave A. Carlson.....	Manhattan	36	65
William Chapman.....	Wichita	35	51
Paul R. Chilen.....	Miltonvale	41	71
Manford L. Cox.....	Goodrich	34	65

1. Passing grades in K. S. A. C. are, from highest to lowest, A, B, C, and D. Each credit hour of "A" gives the student three points; each credit hour of "B" gives the student two points; and each credit hour of "C," one point. No student will be graduated unless his total number of points earned at least equals the total number of credit hours required in his curriculum.

Harold S. Crawford.....	Bonner Springs	36	67
John W. Decker.....	Holton	30	57
Alfred H. Epperson.....	Hutcheson	36	55
Clifford C. Eustace.....	Wakefield	27	66
Henry W. Gilbert.....	Manhattan	30	57
Joseph H. Greene.....	Beverly	32	50
Edwin O. Habiger.....	Bushton	34	58
Orville E. Hays.....	Manhattan	32	53
W. Harris Houston.....	Potwin	31	48
Glenn C. Isaac.....	Baldwin	32	57
C. Porter McKinnie.....	Glen Elder	35	73
Merle L. Magaw.....	Ames	33	48
Charles Mantz.....	Preston	38	70
R. Bruce Mather.....	Burdett	32	51
Thomas N. Meroney.....	Garden City	29	48
Raymond W. O'Hara.....	Blue Mound	27	73
Walter P. Powers.....	Netawaka	27	53
Louis P. Reitz.....	Belle Plaine	37	85
Fredrick H. Schultis.....	Sylvan Grove	27	64
James E. Smith.....	Woodward, Okla.	28½	57½
S. Roger Stewart.....	Vermillion	33	57
J. Edward Taylor.....	Manhattan	34	64
Merrill M. Taylor.....	Perry	29	56
Edgar A. Templeton.....	Eldorado	31	60
J. Allen Terrell.....	Syracuse	40	65
Charles C. Todd.....	Auburn	34	50
Henry B. Walter.....	Wichita	30	67

Juniors

Fulton G. Ackerman.....	Lincoln	32	68
Andre Audant.....	Port au Prince, Haiti	34	89
Kimball L. Backus.....	Olathe	33	71
John S. Boyer.....	Eldorado	37	82
George S. Brookover.....	Eureka	30	56
Marvin O. Castle.....	Mayetta	34	64
Arnold E. Chase.....	Manhattan	34	81
Clarence B. Cunningham.....	Manhattan	35	52
Lester A. Eastwood.....	Summerfield	37	51
Howard R. Fisher.....	Hays	32	64
Howard L. Fry.....	Hope	34	50
Vernon E. Frye.....	Quenemo	32	51
Miles W. George.....	Wichita	34	49
John B. Hanna.....	Clay Center	33	76
Orville T. Haury.....	Halstead	36	70
Harvey E. Hoch.....	Alta Vista	34	73
Alonzo Lambertson.....	Fairview	38	74
R. Stewart McCoy.....	Cedar Vale	35	50
Milton E. Saffry.....	Alma	33	60
Alva M. Schlehner.....	Durham	29	53
Elmer P. Schrag.....	Moundridge	37	58
Ebur S. Schultz.....	Miller	33	58
Richard W. Stumbo.....	Bayard	38	55
Lot F. Taylor.....	Ashland	33½	71
Chester A. Wismer.....	Pomona	31	66
Frank Zitnik.....	Scammon	34	56

Sophomores

Dallas D. Alsop.....	Frontenac	32	60
Jay R. Bentley.....	Ford	32	92
Boyd R. Cathcart.....	Winchester	26	65
Leonard W. Christal.....	Kansas City, Mo.	30	53
Sterle E. Dale.....	Protection	33	63
Hubert L. Fatzner.....	Fellsburg	34	51
Frank R. Freeman.....	Kirwin	32	61
George A. Gillespie.....	Welda	36	71
Alfred Helm.....	Chanute	31	63
Luther A. Jacobson.....	Horton	32	79
G. Raymond Kent.....	Wakefield	37	83
Keith J. Kimball.....	Nickerson	33	52
Claude L. King.....	Olsburg	32	51
Charles W. Naueheim.....	Hoyt	32	82
Harold W. Overbey.....	Winfield	30	65
Charles E. Powell.....	Frankfort	38	63
Leonard A. Rees.....	Abilene	34	48

Earl H. Regnier.....Spearville	32	61
Oliver W. Shoup.....Udall	34	66
Leland M. Sloan.....Leavenworth	31	79

Freshmen

Charles G. Brown.....Osborne	32	64
Alva N. Burns.....Topeka	33	56
Lester R. Chilson.....Oberlin	32	53
Herbert W. Clutter.....Larned	32	64
Raymond J. Cohorst.....Marysville	33	52
Paul H. Davies.....Delphos	32	48
Calvin E. Dornberger.....Talmage	34	80
Charles E. Fisher.....Cuba	32	80
Glenn S. Fox.....Rozel	32	60
Charles A. Hageman.....White Cloud	34	68
John Hamon.....Valley Falls	36	70
David A. Henley.....Eureka	32	79
Robert M. Hodgson.....Little River	31	49
Raymond A. Johnson.....Yates Center	33	64
Bernard R. Leak.....Colby	32	49
Clifford E. McClure.....Republic	35	78
Everett J. McNay.....Clay Center	32	77
Wade L. Morgan.....Phillipsburg	32	68
Joseph P. Neill.....Miltonvale	32	54
Roy A. Nesbit.....Ottawa	33	79
Melvin P. Rogers.....Glasco	33	54
Luke M. Schruben.....Dresden	31	64
Wayne D. Shier.....Gypsum	35	63
Gerald A. Simpson.....Milton	32	80
Harry W. Steele.....Arcadia	33	50
Penn Thompson.....Manhattan	32	52
Stephen Vesecky.....Kansas City	32	81
Raymond B. Wagner.....Richmond	32	51
Wilbur Wahl.....Wheaton	32	67
Leslie E. Wakeman.....Dodge City	35	56
Estel L. Wright.....Blue Mound	26	50

roll. The 123 of these students listed on the honor roll represent 38.3 per cent of those who, as regards attendance, had a chance to have their names on this roll. Figures on the enrollment by classes are as follows:

Number in Attendance Both Semesters

Freshmen	128
Sophomores	79
Juniors	62
Seniors	62

Per Cent on the Honor Roll

Freshmen	26.5
Sophomores	29.1
Juniors	55.8
Seniors	59.7

While the per cent of seniors on the honor roll is twice as great as the per cent of freshmen, yet the discrepancy is much smaller than it has been in recent years in the division. Normally a student's record should improve somewhat as his work progresses and the freshmen of 1929-'30 made a very good showing.

PROGRESS OF THE JUDGING TEAMS

The various collegiate judging teams which will represent the Kansas Aggies this fall are busy practicing for the coming contests. There is unusual interest shown this fall as

In the Division of Agriculture during the college year, 1929-'30, 321 students were enrolled for practically the full time both semesters and, hence, had their scholarship records considered for a place on the honor



THE THREE FRESHMEN, 1929-'30, ON THE HIGH HONOR ROLL OF THE DIVISION

The scholarship records of these three students, all sophomores in the division at the present time, may be seen by referring to the high honor roll for the freshmen last year. The high man is on the left and his placing entitles him to the Alpha Zeta medal awarded by Alpha Zeta, honorary agricultural fraternity, to the high freshman of the division each year. He is John I. Miller of Prescott. The other two are in order from left to right: Andrew B. Erhart and Paul W. Griffith.

a large number of men are trying out for each team.

It is too early in the season to determine who will be members of the various teams. The coaches of each of the teams will choose the most promising men within the next few weeks.

The coaches of the various teams are:

Live Stock Judging.....Prof. F. W. Bell
Dairy Cattle Judging.....Prof. W. H. Riddell
Grain Judging.....Prof. J. W. Zahnley
Poultry Judging.....Prof. H. M. Scott
Apple Judging.....Prof. W. F. Pickett
Dairy Products Judging.....Prof. W. H. Martin
Meats Judging.....Prof. D. L. Mackintosh

Records made in the past by the Kansas Aggie Judging Teams have been exceptionally good. The coaches expect the teams to make as good or even a better record this year than in previous years.

CHANGES IN THE AG FACULTY

Prof. Albert Dickens, '93, has returned to the routine of work after spending about a year in Albuquerque, N. Mex., building up his health.

Asst. Prof. W. P. Mortenson of the Department of Agricultural Economics has resigned and accepted a position with the University of Wisconsin as professor in agricultural economics.

Prof. R. M. Green of the Department of Agricultural Economics is back to his regular work after being away on leave of absence for the past year. While away Professor Green took work toward his doctor's degree in the University of Chicago.

Asst. Prof. George Montgomery, who was an extension specialist in marketing in K. S. A. C., has been transferred to the position formerly held by Professor Mortenson.

Assoc. Prof. Morris Evans, commonly known among the students as "Buck" Evans, is away on a leave of absence. He is taking work toward a doctor's degree in the University of Illinois.

Mr. Vance M. Rucker, former county agricultural agent of Harper county, is now extension specialist in marketing. He is handling the work formerly handled by Prof. George Montgomery.

Assoc. Prof. M. A. Alexander has resigned to accept an animal husbandry position in the

University of Wyoming. He will be in charge of the sheep work in that institution.

Mr. W. E. Connell, who is a graduate of Oklahoma Agricultural and Mechanical College and received his master's degree from K. S. A. C., will take charge of experimental records in the Department of Animal Husbandry, having recently been appointed as instructor in that department.

Prof. B. M. Anderson who was in charge of the college beef herd has resigned to accept the position of assistant secretary of the American Hereford Cattle Breeders' Association. This is the largest and wealthiest association of its kind in the world. His headquarters will be Kansas City, Mo.

Mr. Rufus S. Cox has accepted a position as assistant professor of animal husbandry. He is a graduate of Oklahoma Agricultural and Mechanical College and was granted his master's degree from Iowa State College. For the past four years Professor Cox has been associate professor of animal husbandry in the New Mexico College of Agriculture and Mechanic Arts.

Prof. H. W. Cave, who is on a year's leave of absence, is taking work toward a doctor's degree at the University of Wisconsin. Mr. Floyd B. Wolberg, University of Wisconsin, '28, is taking Professor Cave's work in the Department of Dairy Husbandry.

Mr. W. H. Atzenweiler, former county agricultural agent of Brown county, and Mr. J. H. Coolidge, county agricultural agent of Gray county, have accepted temporary assistantships in the Department of Agricultural Economics and are also taking part-time graduate work in marketing.

Mr. R. E. Hodgson, graduate assistant in the Department of Dairy Husbandry last year, has accepted a position at the Western Washington Agricultural Experiment Station at Puyallup, Wash. He is research man in charge of pastures at that station. The new graduate assistants in the Department of Dairy Husbandry are Mr. Russell Jouno, University of Idaho, '30; Mr. R. R. Oehmcke, Michigan Agricultural College, '29; and Mr. H. W. Mathews, Iowa State College, '28. Mr. Mathews has been teaching vocational agriculture in Iowa the past two years.

Mr. J. S. McCorkle, New Mexico College of

Agriculture and Mechanic Arts, '30, and Mr. T. N. Meroney, K. S. A. C., '30, have been appointed graduate assistants in the Department of Animal Husbandry. Mr. McCorkle's work will primarily be assisting Professor Reed in the beef cattle investigations of the station, and Mr. Meroney is doing his master's work in genetics and assists Dr. Ibsen in his research work in genetics.

Mr. H. M. Beachel, University of Nebraska, '30, who was a graduate assistant in the Department of Agronomy during the second semester, 1929-'30, is continuing his work in that capacity this semester and pursuing work toward his master's degree. He is assisting Dr. Parker in investigational work in plant breeding. Mr. O. E. Hays, K. S. A. C., '30, and Mr. C. H. Ault, University of Idaho, '30, are new graduate assistants in the Department of Agronomy. Mr. Hays is majoring in soils and assisting in the soils research work, and Mr. Ault is primarily Professor Salmon's assistant in crops research.

Mr. W. P. Albright, M. S., '30, graduate assistant in the Department of Poultry Husbandry, 1929-'30, has accepted a position as extension poultry specialist in Oklahoma Agricultural and Mechanical College. Mr. C. D. Gordon, who was graduated last spring from Rutgers University, New Brunswick, N. J., is the new graduate assistant in poultry husbandry.

Mr. L. R. Tucker, instructor in the Department of Horticulture last year, has resigned to accept a position as assistant professor of horticulture in the University of Idaho. Mr. Arthur Meyer, graduate assistant in horticulture last year, is now taking work toward his doctor's degree in the University of Missouri. Mr. John A. Andrew, Jr., Massachusetts Agricultural College, '29, is the new graduate assistant in horticulture.

NEW MANAGER AT K. S. A. C. POULTRY FARM

Frank Feight, formerly of Clyde, Kan., is now the manager of the Poultry Farm, succeeding Mr. A. P. Loomis who is now general manager of the Poultry Tribune Farm at Mount Morris, Ill.

Mr. Feight has been in the poultry business as a practical poultryman for 10 years,

specializing in Leghorns and the sale of accredited breeding stock. He kept about 500 laying hens and hatched 1,400 chicks this last year. He was for a time a State Accredited Poultry Inspector. He is a fine poultryman and is well liked by all the employees of the Poultry Farm.

The college poultry farm manager's job is no easy one. There are four full-time men, and several part-time helpers in addition to the office force. There are now on the farm some 3,000 pullets, 2,000 old birds, 500 cockerels, 150 birds for student instruction, and 448 turkeys.

—L. A. W., '32.

FOURTH ANNUAL BARNWARMER

The fourth annual Ag Barnwarmer is scheduled for Friday, October 10, in Nichols Gymnasium. The manager, H. Leonard Stewart, has his committeemen lined up and all committees are doing their part.

The chairmen of the committees in charge of the various phases of the work are as follows:

Decoration.....	H. W. Gilbert
Protection.....	W. J. Lynn
Transportation.....	H. L. Fry
Tickets.....	B. R. Taylor
Publicity.....	W. G. Nicholson
Lights.....	H. A. Duffy
Eats.....	W. C. Whitney
Throne.....	J. R. Bentley
Music.....	H. L. Stewart
Invitations.....	L. M. Sloan
Floor Manager.....	E. S. Sullivan
Check Stand.....	O. W. Shoup
Hay.....	G. S. Brookover
Features.....	W. M. Myers
Attractions.....	E. H. Johnson
Brush and Fodder.....	A. M. Schlehner
Clean Up.....	W. L. McMullen

GAYLORD MUNSON WINS RECOGNITION

Gaylord Munson, '33, Geary county 4-H Club member, was honored by being selected as the Kansas representative to the American Country Life Association meeting held at Madison, Wis., October 7 to 11. All expenses of the trip were paid by Successful Farming, Des Moines, Iowa.

In sponsoring this trip, Successful Farming has a two-fold purpose. Their principal purpose is to give recognition for local volunteer leadership in 4-H Club work. This work as a local leader is indispensable and is the thing upon which much of the success of the club depends. It is the belief of those responsible for these awards that these local

leaders receive inspiration and suggestions at such meetings that will prepare them to do even greater work than before.

When the long and enviable record made by Gaylord Munson is considered it is easy to understand why he was chosen to represent Kansas. Mr. Munson has been a 4-H Club member for five years during which time he has completed successfully 12 different projects. For this work he was awarded trips to the State Round-up, the American Royal Live Stock Show, the National Club Congress, the International Live Stock Show, and the National 4-H Camp at Washington, D. C. He was also the winner of a \$100 scholarship in K. S. A. C. offered by the Union Pacific Railroad Company.

Mr. Munson has engaged in a number of leadership activities. He headed the 4-H Club encampments at both the Topeka Free Fair and at the Kansas State Fair at Hutchinson in 1929, and was awarded a gold medal for outstanding leadership at each fair. Gaylord at the present time is a sophomore in the Division of Agriculture. He is taking an active part in the Collegiate 4-H Club and in other activities of his division and of the college.

—W. M. M., '32.

AGGIES ATTEND KANSAS FREE FAIR

A large group of Kansas Aggies attended the Kansas Free Fair at Topeka to participate in the 1930 annual judging contest. This was one of the largest contests ever held at the Kansas Free Fair, with a total of thirty-one entrants. Any man under the age of 25 and not a graduate from any Agricultural College was eligible to enter. All the prizes were won by K. S. A. C. men. Representatives of the freshman, sophomore, junior, and senior classes were present and each class had winners of prize money. The prize money was offered by the Kansas Free Fair.

Bruce R. Taylor won first with a total of 485 points out of a possible 550; John L. Wilson, second, 479 points; Earl C. Coulter, third, 455 points; Lot F. Taylor, fourth; F. Dean McCammon, fifth; Alonzo Lambertson, sixth; G. Arden Booth, seventh; Frank Zitnik, eighth. The contest consisted of judging eight classes of live stock and giving reasons on three of the classes.

KANSAS FLORISTS' THIRD ANNUAL SHORT COURSE

The third annual short course for Kansas florists will be held November 5, 6, and 7. The short course is sponsored by the Kansas Florists and Kansas State Agricultural College. The program will consist of talks by greenhouse men and discussions of various fertilizers, methods of handling seeds and seedlings, and other related subjects. All the meetings will be held in the horticulture building and are open to anyone who wishes to attend.

—R. F. G., '31.

KANSAS HOG RAISERS' MEETING

The Department of Animal Husbandry of the Agricultural Experiment Station announces Saturday, October 25, 1930, as the date of the fourth annual hog raisers' meeting.

During the forenoon the visitors will inspect the breeding herd maintained at the college, the fat barrows that will be shown at the American Royal and International Live Stock Shows, and the hogs that have been fed experimentally during the past year. The speaking program will begin at 1 p. m., in the live stock judging pavilion, and several notable and interesting speakers have been secured for this event.

Reports will be given on two series of experiments that have been conducted by the station during the past year. One test comprises a comparison of mixed proteins with a single protein as supplements in dry lot hog feeding rations. The other test was also a comparison of mixed proteins with a single protein as supplements in hog feeding rations but with the hogs running on alfalfa pasture.

—J. B. H., '32.

Kay H. Beach, '28, is assistant professor of horticulture in the Agricultural and Mechanical College of Texas, College Station, Tex.

Frank E. Balmer, '05, has recently been appointed director of agricultural extension in the State College of Washington, Pullman. He will resign his position as state county agent leader in Minnesota to accept his new work.

FARM NOTES

KANSAS FARM CONDITIONS

Kansas as a whole is in pretty fair condition financially, in the opinion of Dr. M. C. Sewell, associate professor of soils. Northeastern Kansas will have about one-half of a corn crop. Southeastern Kansas will have some good corn on bottom land. The greatest loss of corn was in the central part of the state. The wheat crop was fairly good all over the state except in some of the southwestern counties, but the price, of course, is disappointing. There were two good cuttings of alfalfa in the regions where alfalfa is grown. The western part of the state had a good barley crop and it is bringing 45 to 50 cents a bushel. The northwestern part of the state has been well favored the past crop season. Their wheat crop was a good one. Barley produced well and has been selling at a fair price. Considerable corn is raised in this part of the state and the crop promises very well. The clear fall weather is maturing the grain sorghums which will add materially to feed supplies. The farmers who are suffering the most are cattle feeders who bought cattle last fall when prices were fairly high.

Owing to prevailing low wheat prices the farmers who are producing wheat feel depressed, yet they are saying little about it and seem to favor working out their own salvation without political aid.

—J. B. H., '32.

PROGRESS OF 4-H CLUB WORK IN KANSAS

The 4-H Club work in Kansas has been steadily increasing since its organization, September 1, 1914. According to Prof. M. H. Coe, State Club leader, the enrolment in 1922 was 4,360, while at the present time it has reached the peak of 12,598. From 1929 to 1930 there was an increase of 1,569 members. The total number of clubs in Kansas in 1922

was 436 as compared to 623 in 1930, an increase of 187 clubs in the eight-year period. Of the many projects that are entered by 4-H Club members, clothing and baking have the largest enrolment, but these are closely followed by the swine, poultry, baby beef, corn, and dairy projects.

As a rule, members of 4-H Clubs are faithful to and encouraged by the 4-H Club motto, "To make the best better." This has influenced many boys and girls to stay on the farm, the majority of whom are working hard to raise their standards of living so they may enjoy the pleasures of life to a greater extent.

There is also a large number of 4-H Club members who plan "to make the best better" by increasing their technical knowledge of various lines of work, consequently these members go on to college. At present there is an enrolment of 304 former 4-H Club members at K. S. A. C., an increase of 40 members over the number last year. This group is taking an active interest in college work; some are representing the college on judging teams; some are entering other forms of college contests; many will be outstanding leaders on the college campus. —L. A. R., '32.

PROFESSOR GREEN DIRECTS SURVEY OF WHEAT STORAGE SPACE

The Federal Farm Board in cooperation with the Federal Bureau of Agricultural Economics and four important wheat-producing states (Kansas, Nebraska, Colorado, and Oklahoma) is making a survey of farm and elevator storage space and volume of business available as a basis of business-like financing and extension of cooperative marketing agencies where needed. The survey will determine the storage space available in each locality and the space required to care for the needs adequately.

The information will be of use primarily

in connection with financing the construction of cooperative elevators and in the extension of cooperative business in those sections and localities where a lack of storage space is shown to exist and where there appears to be a need for more facilities.

Much of the previous research in such storage problems, especially wheat storage, has been done by Prof. R. M. Green of the Department of Agricultural Economics, K. S. A. C., and he is directing the present research work for the Farm Board. He has been studying the wheat storage problem in Kansas since 1920 and has found it to be an important factor in grain marketing.

The survey now being made is similar to the one previously made in Kansas by Professor Green but covers a larger area. It will take several months to complete the work but when once completed it will permit the Board to use its resources to the best advantage and avoid making expenditures in places where there are already sufficient facilities. Some excess storage space for bumper crop years provides an insurance for orderly marketing, but too great an excess is an unnecessary expense.

—G. E. Hendrix, '24.

ECONOMICAL FEEDING VERSUS "GETTING BY"

The fall and winter feeding period is fast approaching. Weather conditions alone remain to determine just how short the 1930 feed shortage will be. In view of this situation and the fact that farmers have a tendency to "get by cheap" on lean years when money is scarce, suggest that a word of emphasis on economy in feeding is in order.

Farmers who are accustomed to feed their live stock exclusively on home-grown feeds, which as a rule are lacking in protein, will "get by" much cheaper and make whatever supply of home-grown feeds they have go farther by properly supplementing them with a protein-rich feed as legume hay, linseed or cottonseed oil meal, or tankage.

Farmers with great abundance of any one carbonaceous feed will do well to sell a portion of it and buy protein-rich concentrates to supply the missing link in their ration. Likewise feeders who have to buy all their

grain will be taking the longest step toward economy in reducing the amount to be purchased by feeding a properly balanced ration.

It takes approximately 12 bushels of corn to produce 100 pounds of pork, but 6 bushels will suffice when 40 pounds of tankage are fed with it. Similar, equally striking examples may be cited from feeding other classes of farm animals. The point to be remembered is—don't expect to save money by feeding more of what is apparently cheap and abundant to take the place of what you need and do not have.

—B. R. T., '31.

BARLEY AS A LIVE STOCK FEED

A bushel of barley has approximately 75 per cent the value of a bushel of corn for feeding farm animals. For all practical purposes one pound of rolled or crushed barley is equal to one pound of corn of similar grade and quality. It is essential, however, that the barley be rolled or ground. Soaking does not add to its feeding value either before or after grinding. In comparing corn and barley as a feed it should be remembered that barley is likely to vary more in grade and weight than corn, being as a rule lighter and of a lower grade.

—B. R. T., '31.

TEMPORARY SILOS

A marked increase in the use of temporary silos has enabled the Kansas dairyman to utilize as silage much feed that would otherwise have been wasted due to the unfavorable effect of weather conditions on crops in many parts of the state this year. The number of inquiries received by the Department of Dairy Husbandry regarding the use of these silos has far exceeded that of previous years, according to Prof. J. B. Fitch, head of the department.

The two types of temporary silos most in evidence in the state this year are the trench silo and the snow fence crib silo. These silos are cheap, easy to build, and give very satisfactory service when properly constructed.

The trench silo is generally recommended where the location and soil conditions are suitable. In this type the labor of digging is practically the only cost of construction, and only a few days are required to complete it. It offers an unlimited capacity for storage,

due to the fact that the length may be extended indefinitely, and it may be filled at a very low cost.

Where conditions are not suitable for the trench silo, the snow fence silo will fill the bill. It is constructed from snow fencing lined with sisalkraft paper or roofing paper. Slat corn cribs may also be used. This silo can be built at the cost of 50 cents per ton capacity. Last year Washington county reported the use of forty silos of this type with very good success.

These two types of silos offered an easy and economical way to store much of the corn and sorghum crops which were injured by dry weather conditions so that they will furnish an abundance of palatable winter feed. While such silos will not replace the permanent silo, built for durability and convenience, they offer an excellent emergency storehouse. Further details of construction and use may be secured by writing to the Department of Dairy Husbandry, K. S. A. C., Manhattan, Kansas. —J. L. W., '31.

REPLACEMENT VALUE OF SILAGE

One ton of corn silage properly fed will replace $4\frac{1}{2}$ bushels of corn and 600 pounds of dry roughage in the feed required to make gains on fattening cattle. These figures are the approximate averages of 13 years of experimental feeding at the Indiana Agricultural Experiment Station. Figuring corn at 50 cents per bushel and hay at \$10 per ton, the value of a ton of silage is \$5.25. The usual cost of making silage is around \$4 per ton, so that all things considered, silage is a very economical feed. —B. R. T., '31.

WHEAT IN THE DAIRY RATION

The substitution of low-priced wheat for corn and other carbonaceous grains in the feeding of dairy cows is offering the Kansas dairyman a chance to increase the economy of his ration. Experiments conducted by the dairy department at the Kansas Agricultural Experiment Station have shown that wheat can be used successfully in the dairy ration, if not fed in too large amounts. Wheat has been found to be equal to corn, pound for pound, in feeding value and when it can be

bought at a lower cost per ton than other carbonaceous feeds it will furnish an economical and satisfactory part of the ration. The lower grades of wheat, which though less readily salable are still palatable, may be disposed of successfully by feeding to dairy cattle.

In spite of its low price, however, wheat should not be made to constitute over 50 per cent of the grain mixture, due to its lower palatability and tendency to gum in the cow's mouth. It should also always be ground to increase its digestibility. Under present conditions and prices, the feeding of wheat to dairy cows is proving an economical practice which will tend to decrease the present large surplus of the grain. —J. L. W., '31.

AN OPPORTUNITY FOR SHEEP RAISERS

Western breeding ewes are selling on the central markets at \$3 to \$6.50 per hundredweight. Feeder lambs are offered at \$5 to \$6.75 per hundredweight. This unusual situation seems to offer an opportunity to Kansas farmers who have had experience in handling sheep and who have access to suitable feed.

Serviceable western ewes bought now and mated to a pure-bred mutton ram of desirable type will produce lambs that can be marketed in May or early June. Kansas fat lambs marketed at that time of the year meet with but little competition in the markets.

In 1920 similar market conditions existed at this season of the year. That year western ewes bought at \$3 per hundredweight and mated to good-type Hampshire or Shropshire rams produced lambs which sold as high as 14 cents a pound. It is obvious that lambs from 3-cent ewes do not demand such a high price to show a profit.

Likewise Kansas feeders, situated as they are with an abundance of cheap wheat, may do well to consider the opportunity of feeding it to western lambs. The location of the state between the range country and river market permits application of "The Feeding in Transit" rule, which lowers freight rates to Kansas feeders. By using this rule sheep loaded in the range country and billed to a river market may be stopped at intermediate points for a 6-12 month feeding period with but lit-

tle extra cost. Nearby markets, Kansas City, Omaha, St. Joe, and Wichita, offer a good outlet for the finished sheep with a minimum railroad haul.

The writer does not advocate that Kansas farmers should jump into the sheep business, but prevailing conditions suggest that due consideration of the facts is in order for the experienced sheep man.

—B. R. T., '31.

MORE WHEAT FOR POULTRY

Due to the exceedingly low price of wheat this year the poultryman should utilize more wheat in his poultry ration. Wheat prices in early October were the lowest in more than 20 years. At these prices wheat is a more practical poultry feed than corn at prevailing prices.

The chief difference in the digestible nutrients of corn and wheat lies in the fat content. According to Henry and Morrison wheat contains 2½ per cent more digestible crude protein than corn; whereas corn contains about 3 per cent more fat than wheat. However, corn is not fed primarily for the fat which may be supplied in sufficient quantity by other feeds.

The wheat fed to Kansas hens this winter may safely be increased to 75 per cent of the ration. The use of wheat entirely, in place of equal parts of wheat and corn in the scratch grain, would do this. The K. S. A. C. Department of Poultry Husbandry recommends two parts of scratch to one of mash for laying hens. The composition of the laying ration recommended is as follows:

Scratch Grain

Cracked corn, kafir, or milo.....	200 pounds
Wheat	200 pounds
Total.....	400 pounds

Dry Mash

(Home Mixture)

Corn or kafir	} Ground	100 pounds
Wheat or milo		100 pounds
Oats or barley		100 pounds
Meat and bone scrap.....		75 pounds
Alfalfa leaf meal.....		25 pounds
Total.....		400 pounds

By feeding an all wheat scratch, 400 pounds of scratch wheat plus the 100 pounds of wheat in the dry mash are used, but since the ratio is two parts of scratch to one of dry mash, 900 pounds of wheat are used in

1,200 pounds of feed instead of 300 pounds of wheat in 1,200 pounds of feed. A necessary precaution would be to watch the weight of the birds and if they lost an appreciable amount the ration should be supplemented with a little more corn. The ration should not be changed all at once but quite gradually over a period of several days to prevent a body molt and unnecessary drop in egg production.

—L. A. W., '32.

MEETING OF POULTRYMEN

The third annual short course for hatcherymen will be held at the college October 17 and 18. The object of the course is to determine the inter-relations of various industries and the bearing that present industrial conditions might have on the baby chick industry next spring. There will be out of town speakers from Iowa, Ohio, Missouri, and Oklahoma, leaders along their respective lines. This is an open meeting and a large attendance is expected.

—R. F. G., '31.

P. H. Virtanen, '20, is raising cut flowers for wholesale market and managing his own greenhouse establishment in Dallas, Tex. His home address is 6016 Maple Ave.

Earl R. Honeywell, '26, M. S., Iowa State College, is assistant professor of horticulture in Purdue University, Lafayette, Ind.

George C. Wheeler, '95, is managing editor of the Western Farm Life (Denver), and conducts a farmer question box over KOA every week.

Ralph R. St. John, '17, former vocational agriculture instructor at Harper, Kan., is now located at 176 Thornell Ave., West Lafayette, Ind. He is assistant in botany in the Indiana Agricultural Experiment Station.

Donald B. Iback, '23, has resigned his position as county agricultural agent of Atchison county, Mo., to accept the position of assistant professor in agricultural economics in the University of Missouri. His new work which he began October 1 will consist chiefly of farm management in extension.

Inoculation of Sweet Clover Seed

M. C. Sewell

Associate Professor of Soils

In traveling over the eastern half of Kansas, one is impressed with the number of fields of sweet clover, the acreage of which has increased greatly during the past five years. Generally the purpose in growing sweet clover is to increase the productivity of soils which are in a low state of fertility, although the crop itself is of considerable value for pasture purposes.

The unproductiveness of eastern Kansas soils may be largely due to continuous one-crop systems of farming and to the loss of surface soil by erosion. Plants use more nitrogen than any other single nutritive element and the soil's supply of nitrogen is exhausted more rapidly than any other element. The nitrogen supply of the soil is in the surface soil, hence eroded soils are low in this plant food material.

Sweet clover has been found to be a soil improving crop because it is capable of adding considerable nitrogen and organic matter to the soil. The cultivated soils of eastern Kansas, since their state of virgin native sod, have lost 22 to 43 per cent of their nitrogen and 23 to 51 per cent of their organic matter.

Since sweet clover is grown on soils low in fertility because largely of lack of nitrogen, this crop cannot be expected to thrive nor can it be expected to function in adding nitrogen to the soil unless the plants utilize atmospheric nitrogen.

Legume plants, of which sweet clover is a member, can use atmospheric nitrogen that is fixed by certain bacteria which develop upon their roots. The nitrogen is fixed by the bacteria, from the air circulating in the surface soil. Legume plants whose roots are not inoculated are dependent upon the soil's supply of nitrogen.

The nitrogen-fixing bacteria which grow in the roots of legumes may naturally be present in our cultivated soils. However, to insure every plant's becoming inoculated with

these nitrogen-fixing organisms it is generally advisable to inoculate the sweet clover seed at the time of planting the crop.

Sweet clover seed can be most easily and cheaply inoculated by treating the seed with a commercial alfalfa-sweet-clover inoculant. The cost is 50 cents to \$1 for the inoculation of one bushel of seed, and one bushel plants about four acres. The standard commercial inoculants are composed of selected strains of nitrogen-fixing organisms, which may have higher nitrogen-fixing capacity than the same specie of bacteria prevalent in the soil.

Inoculated sweet clover plants may grow more rapidly and contain more protein than uninoculated plants. The more vigorous the growth of the plants the more nitrogen and the more organic matter can be added to the soil.

County agricultural agents and seed dealers are posted upon the use of the commercial inoculants and can recommend reliable material.

Cross Pollination in Apple Production

John A. Andrew, Jr., M. S., '31

Before one plants an apple orchard he should be sure that the varieties he is going to set out will fertilize each other. The failure of proper pollination and fertilization of the apple blossoms constitutes one of the most serious hazards faced by fruit growers.

A few definitions will be helpful: (1) Pollen consists of germs or fertilizing material, found in the anthers of flowers. (2) Pollination is the act of impregnating with pollen. (3) Fertilization is the union of sperm and egg cells. If 10 per cent of the blossoms on a tree in full bloom fertilize, the prospects for a heavy crop are favorable.

The three reasons for insufficient pollination and fertilization are: (1) Viable pollen may be unable to fertilize the ovules of the same variety. (2) Pollen may be discharged from the anthers when the pistils are not in a receptive condition. (3) Some varieties produce insufficient viable pollen so it is necessary that they be interplanted with strong-

er staminate varieties.

The results of four years of experimental crossing of different apple varieties at the Massachusetts Agricultural College prove conclusively the influence of cross pollination of various varieties. A Wealthy and McIntosh tree were enclosed separately in tents made of netting in order to prevent cross pollination by bees. The blossoms were emasculated at the pink stage, just before the anthers were mature. Anthers were also gathered from other trees at this time and dried to use for cross pollination purposes. Several days later each known variety of pollen was applied with a small brush to the pistil of the emasculated blossoms. A larger number of blossoms were used in order to reduce the probable error. The following tabulation shows the results obtained by crossing the McIntosh and Wealthy apples with several others:

Pistillate parent	Pollen source	Per cent set
McIntosh	Selfed	2.50
	Baldwin	2.80
	Wealthy	24.50
	Delicious	27.00
	Gravenstein	0.59
	Ben Davis	35.60
Wealthy	Selfed	7.00
	McIntosh	57.90
	Baldwin	4.80
	Delicious	31.00
	Oldenburg	37.00
	Rhode Island Greening	1.00

These results show clearly that successful apple production depends in part in planting congenial varieties close enough together that cross pollination will occur.

Glen W. Oliver, '20, has for the past six years been a special agent in the crops department of the Aetna Insurance Company. His present address is 790 Garfield, Denver, Colo.

Marvel L. Baker, '24, recently resigned his position in a Curtis, Nebr., bank to accept the position of animal husbandman at the North Platte Agricultural Experiment Station. Marvel has made good in Nebraska live stock circles since leaving K. S. A. C.

The Wheat Situation in Kansas

M. C. Sewell

Associate Professor of Soils

There will be some reduction in the Kansas wheat acreage this year. Part of this reduction will be due to a greater use of summer fallow. The fallowing of one-third to one-fourth the wheat acreage is becoming a widespread practice in the extreme western part of the state. Many wheat farmers in that section have realized that this system increases acre yields and at the same time gives them an average reduction cost in preparation.

For summer fallow the land is plowed or listed in May or early June at a time of the year when conditions are most favorable for the turning under of straw residues. Fallow ground is kept clean with shovel type cultivators and spring-tooth harrows. This kind of cultivation reduces soil blowing. Rod weeders are used on fallow ground to some extent in the northwestern part of the state.

The second crop of wheat after fallow usually is stubbled in with a furrow drill if the stubble is clean. This also helps to reduce soil blowing. If stubble is weedy or contains volunteer, the second crop then goes in on ground that has been one-wayed. The third crop on fallow may be planted on summer-plowed land, if moisture conditions permit, or the one-way may again be used in preparing the ground for this third wheat crop.

Observation of the implements on hand shows not only wider use of the shovel-type cultivators and spring-tooth harrows for working fallowed ground, but also use of packing implements to pack the soil prior to seeding.

The last of August the wheat belt had been fairly well supplied with moisture with the exception of the southwestern portion. Since that time there have been some heavy local rains, but the subsoil in the southwestern part of the state will need an abundance of moisture in order to have a good chance for a sizable crop.

American Institute of Cooperation

W. E. Grimes

Head of Department of Agricultural Economics

The seventh annual session of the American Institute of Cooperation will be held at the Kansas State Agricultural College in June, 1931. This Institute is an educational organization for the purpose of furthering educational work within the field of cooperation. It is supported by cooperative marketing organizations, agricultural educational agencies, and other public agencies interested in agriculture. The affiliated agencies represent practically every state in the Union and Canadian people usually take part in the sessions.

The annual meeting is divided into two parts: (1) A series of four-week credit courses opening Monday, June 1; and (2) a trade conference which lasts one week, June 8 to 13. The trade conference will be attended by leaders in cooperation from all over the United States and many foreign

lands. The credit courses will be along cooperative marketing lines. They will be open to students who have had the prerequisites for the courses or who are admitted by special permission of the instructors.

It is expected that this trade conference will bring more than 2,000 agricultural leaders to Manhattan for the one-week session. It is also expected that a large number of students will take advantage of the credit courses during June.

The American Institute of Cooperation is the outstanding cooperative agency representative of all those interested in the cooperative movement in the United States and Canada. The meeting at the Kansas State Agricultural College will afford the people of the Midwest a rare opportunity to become familiar with the latest developments along cooperative marketing lines.

Wheat as a Feed for Livestock

Bruce R. Taylor, '31

The feeding of wheat to live stock at present feed prices is practical for three main reasons. (1) It is cheap and easily available. (2) Properly fed it is worth pound for pound as much as corn. (3) It reduces the wheat surplus and lessens the shortage of suitable feeding grain caused by a light corn crop.

Agricultural Experiment Stations have proved definitely that wheat can be successfully used in the ration of all farm animals. It is, however, more suitable as a hog feed than it is for other farm animals. Hogs relish wheat more than the other classes of animals do, and are not subject to any digestive disturbances, even when fed wheat in unlimited amounts. Wheat must be ground for hogs, preferably coarse, and when so prepared a pound of wheat is worth as much or slightly more than a pound of corn. Since there are 60 pounds in a bushel of wheat and only 56 in a bushel of corn, it may be concluded that ground wheat is worth 10 per cent more per bushel than corn.

Soaking wheat is a very poor substitute for grinding and will not give nearly so desirable results. Soaking ground wheat will add nothing to its feeding value, but wetting the chop as it is fed is often advisable to prevent the feed from being blown or rooted out.

Wheat like corn must be supplemented with a protein-rich feed like tankage. A ratio of 10 parts ground wheat to 1 part tankage is satisfactory as a fattening ration for hogs. If it is desired to mix the wheat with oats, a mixture of 50 parts ground wheat, 40 parts ground oats, and 10 parts tankage will be satisfactory for feeding brood sows with litters, or growing out young pigs and breeding stock. Where plenty of skimmilk is available a mixture of 50 parts of both ground wheat and ground oats will be all that is needed.

Wheat has the same nutritive value for cattle that it has for hogs, but cattle do not like it so well. It often happens that they

(Continued on page 32)

The Nemaha Cooperative Creamery

Leland M. Sloan, '32

Dairying has increased in importance in Kansas more or less regularly since the opening of the World War in 1914. It is probably due for continued growth as a Kansas agricultural industry if satisfactory markets for increased quantities of dairy products are provided. Due to the fact that Kansas is relatively distant from the large centers of fluid milk consumption, milk must be separated and churned into butter, in which form it is more easily handled and also possesses the keeping qualities necessary for shipping before it is marketed. Naturally butter factories have been established and among them are the cooperatives. With the establishment of the Federal Farm Board and the subsequent encouragement of cooperative marketing concerns, the number of cooperative creameries in Kansas has increased. Some of these cooperative creameries are pronounced successes, some are failures, and some are just breaking even.

As a result of a joint survey by the Departments of Dairy Husbandry and Agricultural Economics of the college one reason for the failure of some of the creameries was found to be a lack of completeness and efficiency in the set up of the organization. Cooperatives are relatively new, and definite laws regarding their establishment are difficult to find.

Of the successful cooperative butter factories of the state the Washington County Creamery at Linn, Kan., and the Nemaha Cooperative Creamery at Sabetha are examples. The creamery at Linn is larger than the one at Sabetha, but the Sabetha creamery represents more closely the average cooperative creamery of Kansas, and it is with this fact in mind that the following information, which was obtained by a survey made by the Department of Dairy Husbandry in August, 1930, is given.

The Nemaha Cooperative Creamery was organized as a purely cooperative association under the laws of Kansas. Organization was carried out by local men with the exception of an independent man hired to sell stock to the producers, for which he received 10 per

cent of all stock sold that was secured by cash or bankable papers.

Stock sold to the farmers at the time of organization was on the basis of \$10 per cow. A farmer can become a member of the association by subscribing for not less than three shares of common stock, par value \$20 each. Payment is made by cash or a deduction of not less than 2 cents per pound of butter fat delivered to the creamery. The stock carries no voting power nor shares in any interest until fully paid. All patrons of the creamery must be members of the association. All common stock is owned by the producers whereas the preferred stock is owned by the business men of the town. The preferred stock carries no voting power.

The total organization expense was \$1,554. This figure includes all expenses relative to organization up to the time the creamery actually started operating, and includes all items that had no inventory value. The cost of the creamery as shown by the books was:

1. Building	\$8,472.00
2. Equipment	8,741.26
3. Trucks	5,400.00
4. Promotion expense	1,554.00
5. Supplies inventory	1,500.00
6. Office equipment	250.00

Total\$25,897.26

The directors of the association are all farmers and cream producers. The butter-maker also acts as manager and secretary of the association. The creamery operates its own trucks and picks up the cream twice a week. Cream is paid for once a month. Butter is traded or sold to the patrons on the basis of one pound of butter for one pound of butter fat. The bulk of the butter is contracted for to Swift and Company, and is sold mostly in prints. The buttermilk is very economically disposed of by being contracted for by one individual at the rate of 2 cents per gallon.

A marked increase in the amount of butter manufactured was noted for the five months the creamery has been in operation.

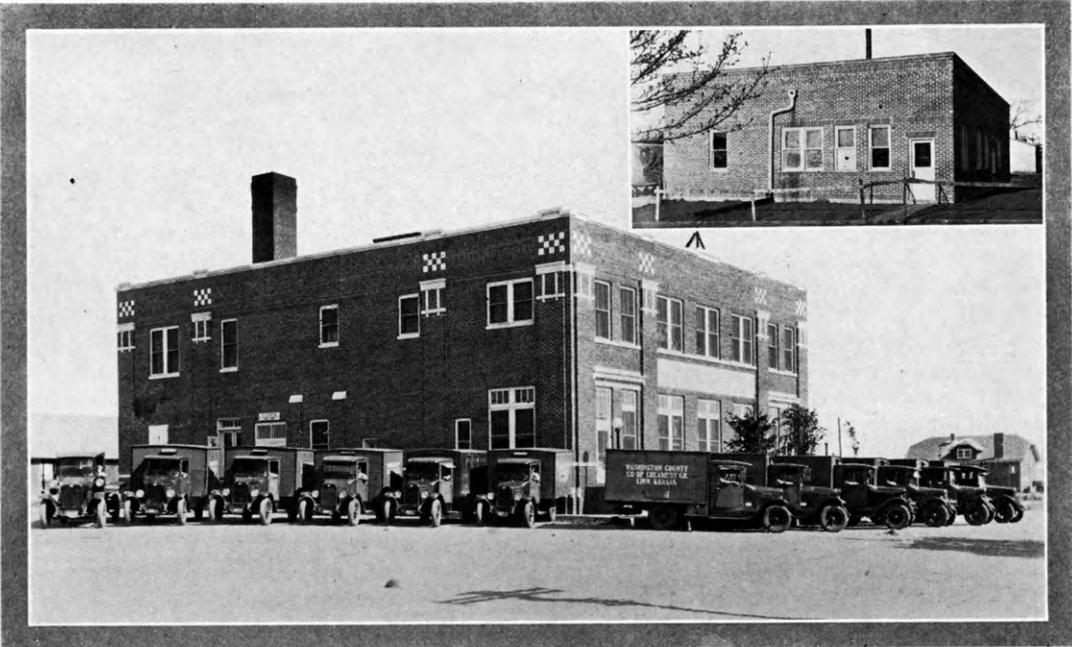
The output was as follows:

March 10 to 31, 1930.....	15,233 pounds
April, 1930	27,311 pounds
May, 1930	34,162 pounds
June, 1930	38,980 pounds
July, 1930	42,678 pounds

All the machinery was installed by the buttermaker with the exception of the refrigerating machine and the cold storage room. Considerable saving was effected this way. The machinery is not all of the very latest

ery. The creamery association has constantly grown in membership and now has 350 members.

A concise but very complete system of records is used. The Department of Markets System of Records for the State of Wisconsin is the system used. All patrons' accounts are carried on a special form known as a patron settlement sheet. The totals only of this sheet are posted in the ledger, thereby eliminating considerable work. It is estimated



WASHINGTON COUNTY COOPERATIVE CREAMERY AT LINN AND (INSET) THE NEMAHA COUNTY COOPERATIVE CREAMERY AT SABETHA

The creamery at Linn is one of the largest and most successful cooperative butter factories in the state. It is strong and well established. The picture not only shows the fine large plant but the twelve trucks owned by the company used in gathering in the cream; also the buttermaker's home at the right and the truck shed to the left and rear. The Sabetha plant is a smaller plant and in its first year of operation. It is handled by a typical organization, however, and is completely equipped for the handling of its business on the same basis as the Linn plant.

type, but provision was made when plans were drawn for more modern equipment as the creamery became more independent financially.

There are five cream stations operating in Sabetha, but according to the creamery manager these stations have not caused any grief. The prices paid by these stations have been about equal to the prices paid by the cream-

ery. this system of accounts saves the creamery \$50 to \$100 per month on their bookkeeping costs.

A very careful survey of the number of cows to furnish the raw product should be made if the establishment of a cooperative creamery is contemplated. Neither can too much stress be laid on the importance of hiring a capable manager and buttermaker.

Poultry Improvement in Kansas

L. A. Wilhelm, '32

The annual short course for Kansas poultry inspectors was held September 22 to 27 under the direction of the Department of Poultry Husbandry. Forty-six practical poultry and hatchery men from all sections of the state took this work which included exhibition judging, production judging, and lectures by various leaders on such subjects as judging, poultry disease, nutrition, management, and general care. Each man was carefully graded as inspectors are selected on a competitive basis.

In 1929, nineteen inspectors handled 650,000 birds. This year, due to the increased popularity of this work, two more inspectors were added, making 21 and it is estimated they will handle 800,000 birds. This addition was necessary as it is practically impossible for one man to handle more than 25,000 birds between October 1 and January 1. All work must be completed and records turned in by that time. This enables the poultryman to eliminate the undesirable, nonpaying birds, cutting down expenses and work for the winter and increasing his profits.

It is necessary for these candidates to take this instruction yearly. Thus the latest information pertaining to poultry husbandry is called to their attention. This year, owing to the large number taking the course, the sponsors found it necessary to add more material and at the same time revise the older material so the examinations would be hard enough to test the prospective inspector's mind in all phases of practical and technical poultry husbandry.

In Kansas, four kinds of poultry flock improvement are being carried on extensively: There are Accredited Hatchery flocks, State Accredited or Improvement flocks, Kansas Certified flocks, and Record of Performance, or R. O. P., flocks. The R. O. P. work is not carried on by the inspectors but employs its own private field man. Its chief connection with the others is in supplying pedigreed males for the Certified flocks.

The Kansas Accredited Hatcheries Association was formed in 1923 by 15 Kansas hatcherymen for the purpose of "improving and

standardizing" the baby chick industry of Kansas. It has accomplished a great deal toward this end. In 1928 it had a membership of 50. In 1929, a field man and general secretary, Mr. Lawrence Nelson, was added to carry on full-time work in its interests. In addition to working with the inspectors and the college, he keeps the records of the association and personally inspects all the hatcheries. By 1930 the association had grown to 60 members and a membership of 75 is expected this year.

In order to further its aim it became necessary to have certain standards to which all flocks from which hatching eggs are procured must conform. In 1924 the Hatchery Accredited flocks were established. All birds must be inspected and passed yearly; all birds must be standardbred; all flocks must be kept free from disease; all birds must conform in a reasonable degree to the American Standard of Perfection; all birds must conform in a reasonable degree to production requirements as set forth by the K. S. A. C. Department of Poultry Husbandry. In 1928, 295,000 birds were handled and 210,000 were passed and banded for the Kansas Accredited Hatcheries Association.

The Kansas Poultry Improvement Association is a different organization. Its work, which started in 1922, is handled through the extension service of K. S. A. C. Its membership is made up of poultrymen who pay dues and are members as long as they conform to certain rules of sanitation and management, and keep their egg record up to 125 eggs a bird per year. The only prerequisite is that the flock shall have been handled at least one year, as a "demonstration flock," by the county farm bureau. In this work in 1928, 185,000 birds were handled. Of this number 115,000 were passed and banded "Kansas Accredited."

A Kansas Accredited flock may become a "Kansas Certified" flock by fulfilling an additional breeding requirement. All "Kansas Accredited" rules apply to Certified flocks and in addition it is necessary that all females "shall be mated to wing banded, pedi-

greed males, whose dams laid 200 or more eggs in one year in trap nests. These records must have been kept under supervision." In order to protect prospective customers all proof copy of all advertising must be approved by the executive committee of the Kansas Poultry Improvement Association.

The 21 district inspectors selected on a competitive basis from the 46 candidates who took the recent inspectors' short course, serve a large number of hatcherymen and

Miner M. Justin, '07, is agricultural statistician for the United States Department of Agriculture. He is located at West Lafayette, Ind.

Mr. J. F. Martin is working on his master's degree majoring in the Department of Agronomy. He is junior agronomist in the United States Department of Agriculture and was located at the Oregon State Agricultural College before coming to Manhattan.



BROODER HOUSES AND RANGE ON THE COLLEGE POULTRY FARM

poultrymen. It is of vital interest to the buying public and the poultrymen concerned that they be competent. Inspection work such as these men are engaged in is doing much to improve the quality of poultry in Kansas. The rigid selection of breeding stock also gives the buying public confidence in the hatcheries who make use of this service. These inspectors are agents of progress in helping a rapidly expanding industry.

James C. Snapp, '20, is in commercial work in Riverside, Calif. His address is 4270 Ramona Drive.

Karl Knaus, '14, is assistant state county agent leader, located at Purdue University, Lafayette, Ind.

Luzerne H. Fairchild, '16, is located at Elmwood Place, Crown Point, Ind. He is employed in the Research Department of the Letz Manufacturing Company.

J. Kenneth Muse, '24, is chemist for the Sterling Milk Products Company, a division of the Beatrice Creamery Company. His home address is 2331 W. Tenth St., Oklahoma City, Okla.

Landscaping the Farm Home

Harold S. Crawford, '30

The interior of a home is often judged by the external surroundings and where one person sees the interior of a farm home hundreds see the outside. Since the home is a place for rest and diversion from the day's labor and is the center about which all family relations move, it should be made as beautiful and conducive to happiness as possible. For the city man diversion from his work is easy as his work is generally far away and necessarily disconnected from his home. But the farm home is not removed from the daily work, either by distance or environment.

Planning, planting, and caring for the home grounds are very closely related to the usual farm work. For this reason very careful study should be made to place the home comely in its country setting that it may truly be a refuge and a place for rest and at the same time blend into the natural surroundings. If the farm home is not attractive to, and loved by, all the members of the family nothing remains of farm life but constant work, which soon becomes drudgery. The home to be most valuable must have pleasant, convenient surroundings.

Beautifying the home grounds need not all be done in one year. A definite plan should be made, however, and then from year to year work on different parts of the area may be carried on until the final desired effect is accomplished.

Landscaping the home grounds does not consist merely in planting a few trees, shrubs, and flowers but includes also the arrangement of the buildings, walks, and drives in the most convenient and esthetic manner.

After the site is chosen the first thing to consider with the new farm home is the location and arrangement of the buildings. Convenience is of major importance but, by careful study, beauty can be obtained with maximum utility. With the established farmstead, probably the first step would be a general clean-up. Chicken coops, old machinery and rubbish should be removed from about the house to where they will be out of sight. This may be easily accomplished by the use of a "screen" planting. The grounds imme-

diately about the house, which will include the lawn, shrubbery, and flower beds, should be tightly fenced to exclude chickens and other farm animals.

The extent to which the grounds will be developed will depend of course upon the amount of money available for such purposes. The farm usually offers excellent opportunities for development, as space is not a limiting factor. The type of development should depend upon the type of house, its size, and architecture. No matter how much or how little work is to be done, the main idea to be kept in mind is the combination of maximum utility with maximum beauty.

The most common excuse for not landscaping is the cost. For the average farmer this is not an acceptable excuse as the work can be done at a time when the farm work is not requiring immediate attention and many of the plants used in the development can be secured from his own woods and pastures. Oak, elm, hackberry, sycamore, and ash are available trees on most farms; while coralberry, redbud, dogwood, and wahoo are a few of the shrub plants commonly obtainable. There are numerous wild perennials that are beautiful under cultivation. Some of the better known are the sweet william, dutchman's-breeches, black-eyed-susan, wild verbenas, butterflyweed, blazing star, and violets. Natural wild plants should be used where possible as they are in their native surroundings and will make their best showing. For the few remaining plants and material, the cost is certainly not prohibitive when the total results are considered.

One of the most common mistakes in planting the farm home grounds is to plant in rows. Trees and shrubs should be grouped, preferably about the house or along the boundary of the area, in such a manner as to form graceful curves of bays and promontories. Grouping the plantings about the house forms a natural enframing and ties the house to the ground. Flower beds should never be placed in the open lawns but should be located in natural bays of the shrubbery plantations or in gardens by themselves.

Leaving the lawn open gives an unobstructed view from the house to the highway, distant fields, or other points of interest.

When the flower garden is developed as a separate unit, there are excellent opportunities for the development of formal perennial gardens, rose gardens, bulb gardens, or pools.

When the beauty of a well-developed home and the personal satisfaction of owning and working about such surroundings are considered, the effort and cost necessary for such attainment are really very small, for only years of happy careful development of a place really make it a home.



A PORTION OF AGGIES' GARDEN OF EDEN

The central section with the pool is in the center, the garden seat to the right. The section to the north of the center with the sun dial and the north end garden are shown slightly in the background. In the distant background a gable of the women students' dormitory may be seen.

Annual flowers are seldom planted in the formal garden except to fill in among missing perennials or to take the place of spring blooming bulbs. However, annuals grown in the vegetable garden for cut flowers are always desirable. These gardens should always be enclosed by vine-covered fences, hedges, or walls.

Glen A. Rixon, '25, is principal of the Of-ferle Rural High School. On the side Glen manages a 1,280-acre wheat farm.

Mr. Clyde McKee, '10, head of the Department of Agronomy, College of Agriculture, University of Montana, is pursuing work for his master's degree in K. S. A. C. this year.

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THE INCOME TAX LAW

(Continued from page 4)

come taxes make use of the corporation income tax. Montana has a comprehensive law applying to all corporations. The state of Washington taxes banks and financial institutions. Connecticut has a law which imposes a tax on mercantile and manufacturing corporations, while California taxes these institutions and includes, in addition, financial and business corporations.

Warren C. Cowell, '22, is athletic coach in the University of Florida. His address is 415 S. Ninth St., Gainesville.

Sam P. Gatz, '24, is farming near McPherson, Kan.

Chester D. Tolle, '24, Ph. D., Cornell University, is assistant technologist in the Department of Commerce, Bureau of Fisheries. He is engaged in research regarding the nutritive value of marine products.

A COOPERATIVE ELEVATOR COMPANY

(Continued from page 5)

the members is evidence of their confidence in his business and executive ability. He has assisted many groups of farmers over western Kansas in organizing cooperative elevator companies at their shipping points, and is constantly alert to any situation that may prove of benefit to western Kansas wheat farmers. Mr. Swanson, manager for the last five years, has won the respect and confidence of the farmers by his knowledge of grain buying and his ability in marketing wheat to the best interest of his farmer constituents.

The Copeland Cooperative Elevator is only one of the cooperative elevator groups in Gray county. There is one at each of the other shipping points, and there are two at the town of Ingalls. One of these includes the elevators at Charleston (just west of Ingalls). There are 800 farmers in Gray county and the accompanying tabulation shows that 85 per cent of them belong to farmers' cooperative elevator companies and own 75 per cent of the elevator capacity in the county. The distribution of membership, the storage built by the companies this year, and the total capacity owned by these farmers' organizations are as follows:

COOPERATIVE ELEVATORS IN GRAY COUNTY

Location of elevator	Number of members in the company	Storage space constructed in 1930	Total capacity of elevators
Copeland	143	350,000	515,000
Montezuma	100		20,000
Cimarron	150	110,000	135,000
Haggard	117	60,000	60,000
Ensign	60		15,000
Ingalls	75		12,000
Ingalls	35		23,000
Totals	680	520,000	780,000

George E. Truby, '25, is superintendent of schools, Olivet, Kan.

E. W. Winkler, '21, M. S., '24, is secretary-treasurer of the Western Mortgage Syndicate, Salt Lake City.

R. F. Copple, '21, M. S., '30, is engaged in a pasture survey of the New England states for the Bureau of Plant Industry. His headquarters is Stockbridge Hall, Amherst, Mass.



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Hay Fever Facts

Elsa Horn

Instructor in Botany

For a million people in the United States hay fever is an "annual torment." While it is neither fatal nor contagious, it is one of the most serious of diseases. Four phases march through every year as follows:

1. Perennial hay fever grips its victim at any time and may be induced by food, feathers, animal dander, flour, powder, heat, cold, etc.

2. Early spring hay fever (from February to April) is caused by the pollens of 50 trees, definitely tested, including some of the maples, walnuts, cedars, cottonwoods, oaks, ashes, and elms. In Kansas the cottonwood, black willow, and soft maple are guilty, offending mildly, however, with but 50 sneezes.

3. Early summer hay fever (from May to July) is produced by the pollens of a hundred grasses, timothy leading with 90 per cent in the United States to its discredit. Other important grasses in Kansas are blue-grass, brome grass, yellow foxtail, and quack grass.

4. Fall hay fever (from August to the first frost) is ushered in by the pollens of a hundred weeds, among them are the amaranths or pigweeds, lambs-quarter, the chenopods or goosefoots, docks, cocklebur, plantain, hemp, wormwoods, also sage brush which is the worst west of Kansas, and the ragweeds causing 85 per cent.

Roses, goldenrod, alfalfa, clover, dahlias, honeysuckle, chrysanthemums, asters, lilacs, dandelions, daisies, sunflowers, do not cause hay fever. Their pollens are insect borne and therefore are not floating around in the air where they are inhaled.

Because of the intense suffering, patients are anxious to be cured and are willing to try almost anything with the result that the treatment of hay fever has run about the whole gamut of cures known, including medicines, salves, surgery, climates, contrivances, hope, and dope. While active immunization by pollen therapy is the best and most effective treatment known, its methods are still crude, and it is so complicated by the 300 and one causative factors that it requires the ser-

vices of specialists in making even correct diagnoses.

The physician is handicapped by a lack of available botanical information. There is a great need for intensive local surveys all over the United States. Only a few have been made in parts of California, Texas, Kansas City, Denver, Oklahoma, and Chicago. The survey made of the city of Chicago during the summer of 1926 by Koessler and Durham revealed the fact that 40,000 acres or 38 per cent of the total area of the city was allowed to run to weeds and wild grasses; that 65 per cent of the pollen floating in the air was ragweed pollen in amounts of 60 pounds per acre; and that 1,200 tons of ragweed pollen were produced in one summer within the city limits of Chicago. It has also been found that ragweed pollen is blown for a radius of 10 miles and that it rises to an altitude of 15,000 feet.

Hay fever is a preventable disease. It could be greatly ameliorated by a national campaign for the eradication of hay fever weeds. This should not be impossible because weeds follow agriculture which already has machinery and legislation that could be organized into an eradication program. If we as a nation can spend uncounted millions over a period of 10 years (1918 to 1928) in a campaign to eradicate a useful plant because it harbors a disease of a more useful plant, why can we not spend a few millions in the eradication of useless, nay noxious, weeds which cause a disease of human beings? If the comfort of the public is not so important as wheat, which we are saving by the other program, then why not organize this campaign because these same weeds decrease the yield of this same wheat? The eradication of the ragweed alone would prevent about 50 per cent of the hay fever and about 20 per cent of the asthma in the United States and incidentally would conserve about a barrel of water in the soil per giant ragweed.

Joe H. Cool, '20, is farming near Glasco, Kan.

DYNAMITE removes farming handicaps



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a
\$10,000
crop
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(Above) The winding stream which overflowed to ruin the crop

(Below) The present channel after du Pont Ditching Dynamite was used

A SPECIFIC example of the value of explosives to agriculture is found in this story of a Pennsylvania ditching operation.

About 1,000 acres of high-grade muck land had been ditched and partly placed under cultivation. The outlet of the ditch went into a meandering stream which was clogged with debris to such an extent that whenever there was a heavy rain the stream would not carry the water. This plugged up the ditch and flooded the swamp area.

Mr. A. H. Meyer, a progressive farmer, had ten acres in celery, valued at \$10,000, which was jeopardized four times last year during growing season by the overflow of this stream. To

correct this condition, dynamite was used to clean out the stream for approximately one mile. The new, blasted ditch carries the water without overflow.

Hundreds of other examples might be cited showing the value of explosives in making for more efficient farming.

Knowledge of explosives and their use on the farm is valuable to the agricultural student and farmer. You can obtain more information about ditching with dynamite, about stump and boulder blasting by writing to the du Pont Company. Write for our free booklets, "Ditching with Dynamite" and "AGRITOL for Field Clearing." Address Agricultural Extension Section.

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EXPLOSIVES

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Kansas Cyanamid Tests on Wheat

W. M. Myers, '32

During the past year nitrogen fertilizer tests on wheat were conducted throughout the state to determine the efficiency of available nitrogen in Kansas soils for maximum crop yields.

The nitrogen used in these experiments was in the form of cyanamid and was applied at the rate of 100 pounds per acre in western Kansas and 200 pounds per acre in the eastern part of the state. In each place a test was made in which all the cyanamid was applied in August, another in which all was applied in March, and a third in which part was applied in August and the remainder in March. The results varied widely in different sections of the state, with different dates of application, and with methods of seed bed preparation, but in each case definite increases were obtained from the use of cyanamid, proving conclusively that the nitrate content of Kansas soils is deficient for best crop yields.

The largest increase was found in Allen county in southeastern Kansas where, aver-

aging all three dates of application, an increase of 13.2 bushels per acre over the check plats was obtained. The lowest amount of increase was reported in Ford and Meade counties where the yield of cyanamid plats averaged only 2.1 bushels per acre higher than the check plats. The results in other counties representing other parts of the state ranged between these two extremes; the amount of increase depending a great deal on soil conditions and upon the amount and distribution of the rainfall during the growing season.

These data were obtained under adverse conditions due to the limited rainfall during the wheat growing season of 1929-'30 and it is very probable that greater increases would result from the use of cyanamid in a season with more rainfall.

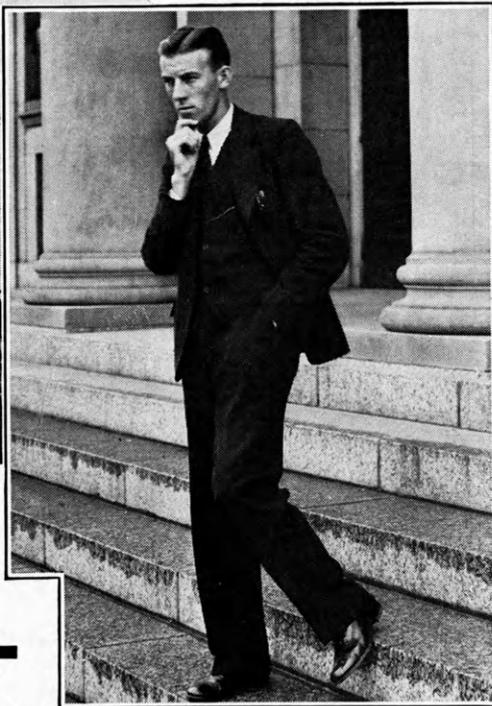
Southeastern and northeastern Kansas as a whole gave the largest increases in yield through the application of this nitrogenous fertilizer. The average increase in the former section was 7 bushels per acre and in the



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latter section, 6 bushels. These figures represent 30 per cent increases in yield for an adverse year.

When the costs of air nitrogen fertilizers are lower and prices of farm products are higher, the farmer of eastern Kansas may profitably increase the soil's supply of nitrogen by means of these fertilizers. However, where legumes fit into the cropping system, their production is a cheap and efficient means of adding nitrogen to the soil.

WHEAT FOR LIVE STOCK

(Continued from page 19)

will not eat so much of it as they would corn and will therefore not gain so fast. Wheat can, however, when ground, be successfully substituted for corn during most of the feeding period. Best results will be obtained if some corn be added to the ration during the latter half of the feeding period; and cattle should be finished entirely on corn the last 30 days. Wheat is not a supplement to corn but merely a substitute for it. Legume hay or a protein-rich concentrate like cottonseed or linseed oil meal must be fed just as though

corn were being fed as the only grain.

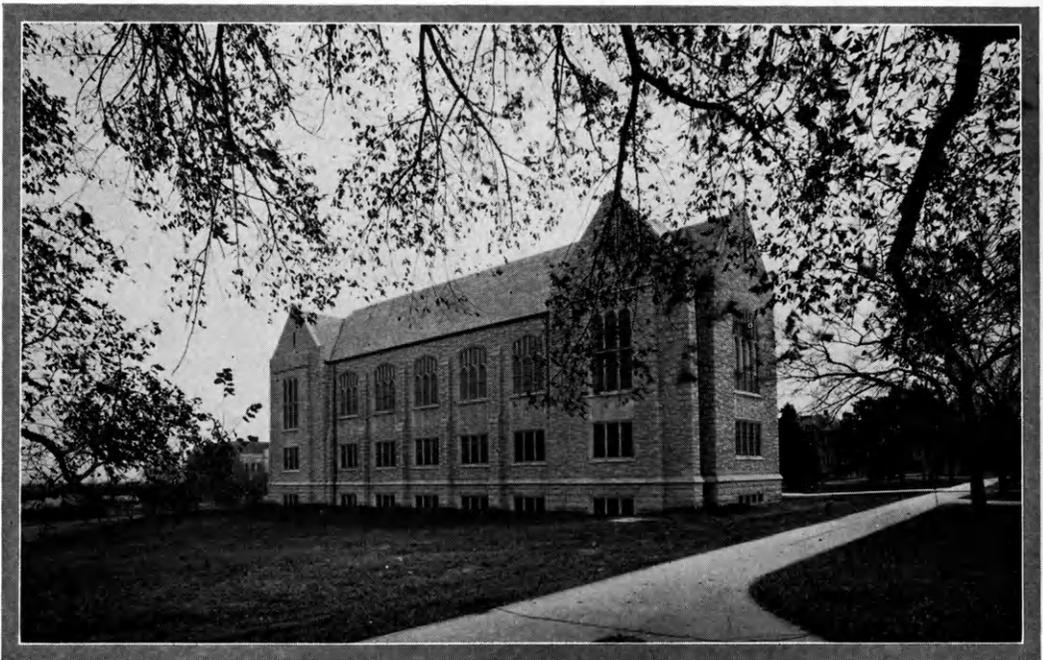
Sheep can use whole wheat successfully and in that form it is worth pound for pound as much as corn. It can be substituted for the entire corn ration in the feeding of either breeding sheep or fattening lambs.

Horses can utilize coarsely ground or rolled wheat to the same advantage they do corn. However, it cannot be fed in unlimited amounts to horses or digestive disorders and skin eruptions will result. It can be used successfully in limited amounts only—not comprising more than 25 per cent of the grain ration.

Aden C. Magee, '24, is county agricultural agent, Dimmitt, Tex.

John V. Hepler, '15, is district county agricultural agent for northwestern Kansas.

Preston Hale, '16, is county agricultural agent of Leavenworth county. Mr. Hale was a member of the senior live stock judging team in '16. He was also an Alpha Zeta and member of the Saddle and Sirloin Club.



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The Annual Ag Barnwarmer

W. L. McMullen, '32

The big social event of the fall semester for the Division of Agriculture has come to be the Ag Barnwarmer. Since its inception three years ago this fall, it has been rapidly growing in favor among all members of the division, each succeeding repetition being declared the best ever. This fall's Barnwarmer was by no means an exception to this rule, thanks to an efficient manager, a good group of committeemen, and splendid cooperation from the entire division. Special recognition should be given Mr. H. W. Gilbert, who was responsible for the excellent decorations. Ag Engineers and Vets were invited, and the crowd consisted of over 300 couples.

Friday, October 10, was the date scheduled for the event. When the couples began to arrive, they found it was necessary to mount the steps to the second floor, where there was a nice long, narrow, twisty, dark tunnel of baled hay to be negotiated on hands and knees before entrance to the main floor could be gained.

The gymnasium was a sight which reminded one of a large spacious barn, and sharply impressed the fact that the autumnal season had arrived. Near the east end, constructed of baled hay and straw and decorated effectively with corn stalks, sumac, and oak branches, stood the Queen's throne. The orchestra platform was on the south side, partially screened off by a fence of sumac and other bright colored foliage. In the northwest corner the dancers were refreshed with cider and doughnuts. Bales of hay placed around against the walls furnished seats for lookers-on and for tired dancers. Corn shocks at advantageous points around the edge added to the rural atmosphere, and harness hanging from wall braces suggested that the mules had just been turned out for the night. Pumpkins, squashes, and other autumnal vegetables were in evidence everywhere.

The light question was taken care of by kerosene lanterns swinging from above, which seemed to furnish light enough to suit even the most fastidious, while the barriers of baled hay in a corner or two cut down the light sufficiently for those less fastidious. A

spot-light played around on the floor from the track above all evening. The "Moon room," while possibly not so effective as it has been in previous years, drew a share of the interest.

In the girls' gym were several attractions for those who did not care to dance, the Tom Thumb golf course being perhaps the most popular attraction there.

A fluent, oily-tongued soap salesman started the ball rolling by attracting the crowd to the west end of the gym while the Queen, Miss Maxine Blankenship of Downs, Kan., was seated on the throne. Immediately afterward, Assistant Dean Hugh Durham placed the crown on her head, and the grand march started, led by Manager Leonard Stewart and the Queen. Jack Mills' recording band wearing "barnyard tux" jackets, and seated on saddles, furnished the music. Later in the evening a picture was taken of the Queen's being crowned with the Princesses at her feet. Miss Barbara Brubaker, Miss Vera Smith, and Miss Bernice Cousins of Manhattan, Miss Marie Antrim of Spivey, and Miss Hazel Bland, Garden City, were the Princesses. Much excitement was occasioned when, near the close of the dance, balloons of all colors and shapes were released from the beams above, to float down on a crowding, pushing mass of merry-makers, all eager to get their hands on a balloon.

The last dance arrived all too soon, as most last dances do, and before long the scene was almost deserted. The desertion was only a short time, however, for on this night the ardent swain needs must bid a fond but hasty farewell to his date and hurry back for clean up. Only when the last truck had taken its load of hay away, the trash fire had become a smouldering heap of ashes, and the last glass of cider was gone, did the fourth annual Ag Barnwarmer become a matter of history, pleasant memories, and weary feet.

Burton E. Colburn, '24, has been placed in charge of the Denver branch office of the National Live-stock Marketing Association. His residence address is 1551 Niagara.