

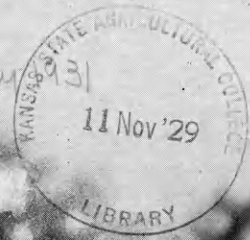
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The KANSAS AGRICULTURAL STUDENT

vol. 9-10
Oct. 1929 - Mar. 1931



VOL. IX, No. 1 OCTOBER 1929
MANHATTAN, KANSAS

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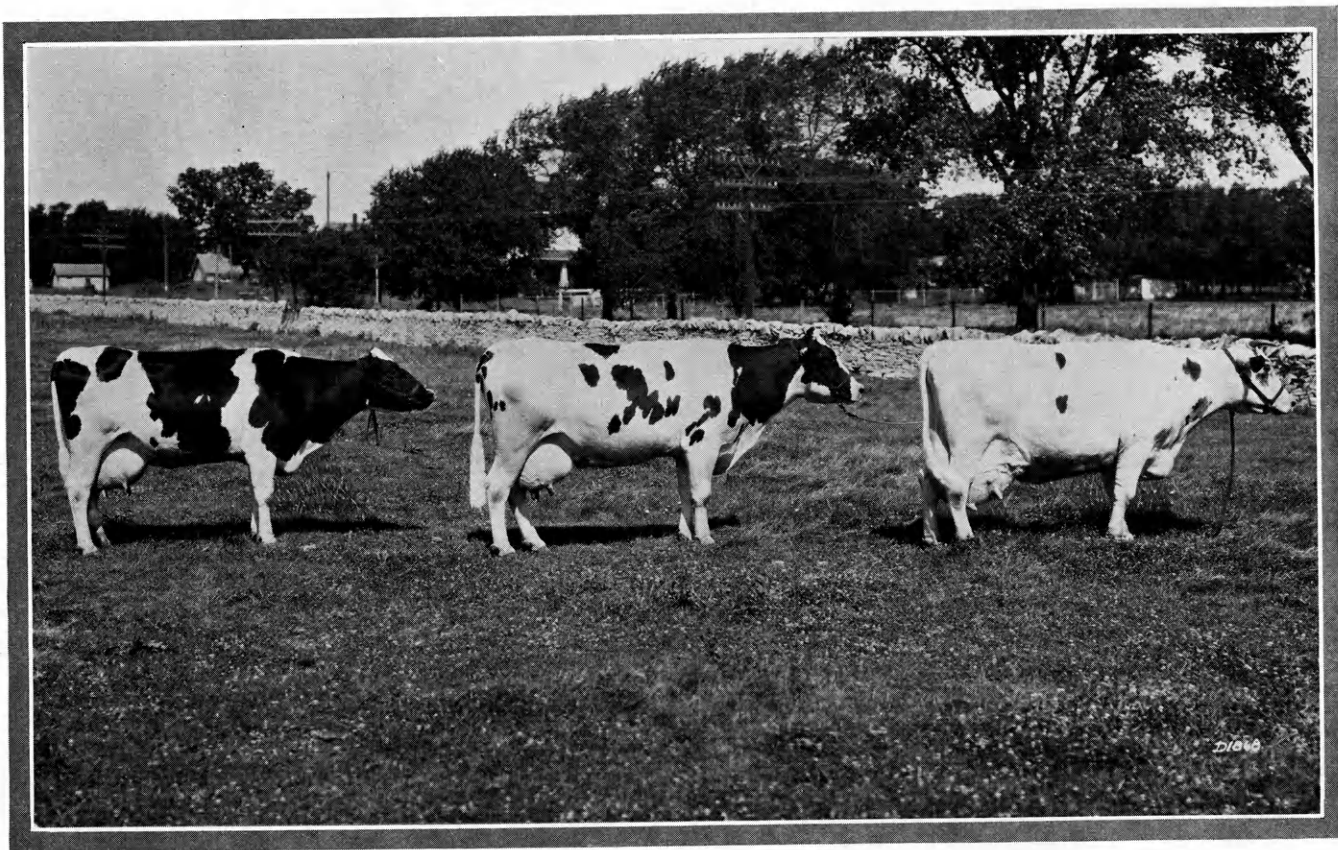
CUTTING SORGHUM FOR SILAGE

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A FAMOUS OLD COW AND HER FAMOUS TWIN DAUGHTERS

To the right is Inka Hijlaard Walker, commonly known as "Old Inka." Behind her first is K. S. A. C. Korndyke Ina and to the rear again (left in picture), K. S. A. C. Korndyke Inka, twin daughters of Old Inka, born August 1, 1922. K. S. A. C. Korndyke Ina holds the highest production record ever made by a cow in the K. S. A. C. dairy herd. (See "The Twins Step Out," page 6.)



The Kansas Agricultural Student

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Manhattan, Kansas, October, 1929

No. 1

Fort Hays Agricultural Experiment Station

J. E. Taylor, '30

The Fort Hays Agricultural Experiment Station is a branch of the Agricultural Experiment Station of Kansas State Agricultural College. The Fort Hays Branch was established on 3,600 acres of the Old Fort Hays military reservation near Hays, Kansas, by legislative enactment in 1902. Approximately two thousand acres are under cultivation, the remainder being native pasture, creek bed, experimental feeding yards, campus, and state park.

The elevation is 2,000 feet and the average precipitation 23 inches, 82.6 per cent of which falls during the months of April to October, inclusive. The summers are usually hot and dry, the winters are comparatively mild, the snowfall, light. The seasonal evaporation from a free surface averages 46.4 inches. The highest evaporation recorded for any one day has been 0.75 of an inch. The average wind velocity for the summer months is 7.9 miles.

The work of the station is divided into the Dry-land Agriculture project, the Forage Crops project, the Cereal Crops project, the Soil Erosion and Moisture Conservation project, the State Forest Nursery, and the general farm. Mr. L. C. Aicher, '10, is superintendent of the station. During the summer months large numbers of visitors pass through the station noting the various activities under way. Some are interested in seeing powerful tractors handling the 20-foot combine, the six-row lister, the six-row ridge buster, or other large tillage machinery. Others are interested in experimental results or other more specific phases of scientific agriculture.

Each of the projects has some interesting work under way. The Forage Crop project carries on experiments in the adaptation of forage crops and the possibilities of produc-

ing forage crops in western Kansas. The Cereal Crops project impresses visitors with the fact that care should be exercised in choosing varieties of grain crops. At the Dry-land Agriculture project one may see the results of different tillage and seedbed methods. The nursery with its assortment of trees, shrubbery, and vegetables, encourages the visitors to beautify their homes and to grow a larger per cent of their home food-stuffs.

Less than three decades ago this vast area was used as a range to pasture the horses kept at the fort. Now it is used to produce crops and it has assisted in helping farmers improve the agriculture of western Kansas. A great change has taken place in these years and one realizes that it has been for the betterment of Kansas.

THE DRY-LAND AGRICULTURE PROJECT

The Dry-land Agriculture project was established at the Fort Hays station in 1906. It is a project of the Office of Dry-land Agriculture of the United States Department of Agriculture in cooperation with the station and is in charge of Mr. A. L. Hallsted, '03.

The purpose of the project is to find the best agronomic practices that will produce the largest average yields. The crops grown are Kanred winter wheat, Beloturka spring wheat, Kanota oats, Club Mariot barley, Dwarf Yellow milo, Pink kafir, and Bloody Butcher corn. The work involves a large series of tillage and rotation experiments where various cultural methods are used to determine some of the best, most reliable, and practical methods for the production of each of the adapted crops. In the area around Hays winter wheat is grown on approximately 75 per cent of the cultivated land. On this project 275 of the 459 one-tenth-acre plats are devoted to this crop.

A set of meteorological instruments are installed on the project to record the climatic conditions under which the experiments are conducted and to study the effect of climatic changes on plants.

THE FORAGE CROPS PROJECT

The Forage Crop investigations were established at the Fort Hays station in cooperation with the Office of Forage Crop Investigations of the U. S. D. A. in 1913. The project is now in charge of Mr. D. A. Savage, Montana State College, '24.

The work consists of field experiments relating to the culture and improvement of the principal cultivated forage crops adapted to the plains area. In western Kansas forage crops are essential for diversified farming and live stock production and farmers there have a large number of forage crops from which to choose. The sorghums are the heaviest-yielding crop, consequently they receive the major attention. Other crops tested are Sudan grass, millet, alfalfa, sweet clover, cowpeas, and soybeans.

Alfalfa tests are made on the bottom lands. Many fields of alfalfa have died because of decreased moisture supply and a lack of resistance of the plants to disease. The investigations include varietal and regional tests and intermediate rotation schemes in establishing stands. Alfalfa is the most valuable crop to grow on the bottom lands, though the crop is not adapted to the upland soil of the Hays region.

CEREAL CROPS PROJECT

Investigations of cereal crops adapted to western Kansas have been conducted at the Fort Hays station since 1902, and in cooperation with the Office of Cereal Crops and Diseases of the United States Department of Agriculture since 1912. The project is in charge of Mr. A. F. Swanson, '19.

The work consists of nursery and varietal testing of domestic and foreign introductions and the improvement of crops by selection and breeding. Wheat, barley, oats, grain sorghums, and corn have been the principal crops under investigation. Over 1,600 introductions of barley from all over the world have been tested at the project, and as a result several excellent selections have been secured.

Hays Golden corn was first tested at the project in 1922. It was approved for certification by the Kansas Crop Improvement Association in 1929 and a limited amount of seed was made available for farmers the same year. The Cereal Crops project is striving to develop a variety of grain sorghum adapted to the combine system of harvesting. Such a variety must be of the dwarf type, have ability to stand after ripening, be non-shattering, and possess good yielding qualities.

The rate and date of seeding, and the pasturing of winter wheat have been studied. Results of tests indicate that the best average seeding date at Hays, over a period of years, is from September 20 to October 6. Seeded at this date the wheat makes sufficient growth to become well established against winter hazards and emerges late enough to escape fly infestation. Seeding later than October 6 may result in weakened plants not able to survive soil blowing in the spring. Late seeding followed by a cold wet fall is favorable for smut infestation. The most practical rate of seeding has been found to be four pecks to the acre. No loss of yield resulted with a five- or six-peck rate of seeding, and such rates may prove slightly beneficial in dry autumns or if severe soil blowing occurs in the spring.

The amount of pasture available from wheat is largely dependent upon the moisture supply of the seedbed and the fall growth. The data of the past two years indicate that moderate pasturing of wheat with heavy growth causes no injury and may even prove beneficial, besides providing an appreciable amount of feed for live stock. Where the growth is limited, pasturing generally results in reduced yields. In seasons of drought and slow fall growth, wheat cannot be depended upon to supply feed for live stock.

SOIL EROSION, MOISTURE CONSERVATION, AND STREAM REGULATION PROJECT

This project is cooperative between the Bureau of Chemistry and Soils and of Public Roads, U. S. D. A., and the Kansas Agricultural Experiment Station. The project was established in July, 1929, with Mr. R. H. Davis, '27, of the Bureau of Chemistry and Soils, and Mr. R. R. Drake, '29, of the Bu-

reau of Public Roads, in charge. In general, the purposes of the project are to work out methods to conserve the soil and plant food by preventing erosion, and to retain moisture where it falls, thereby decreasing floods. Mr. Davis will have some small plats of different lengths and slopes and growing various crops. At each plat there is to be a tank to collect the water and soil that is removed by erosion. Duplicate plats will be used to make soil moisture determinations and to study the penetration of rainfall into the soil. There will also be several one-acre plats to study the absorption of moisture and ero-

doubt that there is much erosion in the semi-arid plains area, but experiments at the Spur station in Texas prove that land with a slope of more than three or four per cent will erode during a dashing rain. Such rains are common during the summer months, at which time the soil is cultivated and easily eroded. Under these conditions 25 per cent of the rainfall is lost by surface runoff. This five or six inches of runoff water would be valuable in producing crops in regions where moisture is the limiting factor. By retaining the water on the lands where it falls the hazards of floods will also be reduced.



CAMPUS OF FORT HAYS AGRICULTURAL EXPERIMENT STATION

This is a beautiful campus scene for western Kansas. To the left is the home of Mr. Hallsted in charge of the work in dry-land agriculture. Next on the drive comes the home of the station superintendent and next the home of the forest nurseryman. The grain elevator will be readily recognized and the building in front of it is the general office. The large flat building to the right is a machine shed. The State Forest Nursery is in the background, while the city of Hays one mile in the rear and across Big creek may be seen on the sky line.

sion resulting from different tillage methods. The plats will be terraced and equipped with Ventura flumes to record the run-off of the plats. Mr. Drake will have charge of the terracing work.

Soil erosion increases with tillage. After the surface soil is removed and the infertile subsoil, impermeable to rainfall, exposed, people become interested in the conservation of soil and moisture. Thus during the past few years decreased crop yields and increased flood hazards have brought large recognition to the seriousness of soil erosion. One might

THE STATE FOREST NURSERY

The State Forest Nursery consists of 40 acres of creek bottom and sloping land which is used to test trees for ornamental, woodlot, and windbreak purposes. All plantings are tested for their adaptability to the semi-arid climatic conditions. The nursery was established in 1902 and is in charge of Mr. E. W. Johnson, a graduate of the Colorado Agricultural College.

The nursery cooperates with the Forest Service of the United States Department of

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The Twins Step Out

H. J. Brooks

Instructor in Dairy Husbandry

Production is an indispensable asset to the recognized bovine leaders in the dairy world and any breeder who has pure-bred stock for sale or who is endeavoring to build a pure-bred herd must recognize this fact and interest himself in some form of testing for production and particularly advanced registry testing. While the college does not maintain its herd of dairy cattle primarily for commercial purposes, it must, however, establish a precedent for pure-bred breeders to follow. For this reason testing has been one of the major projects in the college dairy herd.

One of the most conspicuous successes in this endeavor was the development of the famous Holstein-Fresian cow, Inka Hijlaard Walker 360354. An account of her remarkable producing ability was presented in detail in the October, 1922, issue of *The Kansas Agricultural Student*, and the cover page of the December, 1922, issue carried a cut of "Old Inka," then only six years of age, and her twin daughters, K. S. A. C. Korndyke Ina 792575, and K. S. A. C. Korndyke Inka 792576, or "Little Inka" as she is known around the barn. These two youngsters have since developed into leaders in the dairy herd and through their splendid performance have added one more point of value to the record of Old Inka in marking her a great reproducer as well as a great producer. (See frontispiece.)

Up to the present time Old Inka has completed eight yearly records, three of which have been over 700 pounds of butter fat, while five of them have been over 600 pounds. Her best record was made as a seven-year-old when she produced 21,068 pounds of milk and 775 pounds of butter fat. To have maintained this remarkable production in her offspring would have been a feat worthy of commendation, but Old Inka not only produced twin daughters that maintained this production but one of them surpassed it by a considerable margin.

Little Inka is coincidentally the lesser of the twins in size as well as in her record of performance. To date she has completed

three yearly records at ages ranging from two years and five months to five years and nine months. The first of these made as a junior two-year-old totalled 14,824 pounds of milk and 511.5 pounds of butter fat. The next lactation she failed to measure up to her first year's production and gave only 461 pounds of butter fat. However, at five years and nine months of age she made the best production of her career by producing 18,364 pounds of milk and 643.3 pounds of butter fat. The latter record did not quite equal that of her dam at the same age, for Old Inka produced 19,250 pounds of milk and 770 pounds of butter fat as a five-year-old. In the three lactations Little Inka produced an average of 558 pounds of butter fat. Since she is yet only in her prime it is expected that her best record is yet to be made.

The other of the twins could more appropriately have been named Inka rather than Ina, for of the two she more closely resembles Old Inka in size, color, production, and type. She has completed two long-time records and is now finishing her third lactation. Her first record, which was made at two years and eight months of age, amounted to 16,955 pounds of milk and 628.6 pounds of butter fat. This outstanding production gave her first rank in the state in the senior two-year-old division of the advanced registry. She held this honor position for three years before she was displaced. Probably realizing that 628 pounds of butter fat was not a particularly difficult record to beat, Ina settled herself in her next lactation to the task of establishing a real mark at which future record breakers might aspire. Her success is evident by the fact that at her next freshening, at four years and three months of age, she crashed through with 22,699 pounds of milk and 849.9 pounds of butter fat in the succeeding lactation period. The excellency of this outstanding achievement is evidenced by the fact that it not only surpassed the best mature record of her great dam, Old Inka, but it gave her first place in the state in the junior four-year-old division,

(Continued on page 28)

Research Points the Way for Turkey Production in Kansas

H. M. Scott, M. S., '27
Assistant Professor of Poultry Husbandry

Should the production of turkeys in Kansas decrease in the next four decades as it has the past four, the once great American holiday bird will have vanished from our holiday table.

The United States Department of Commerce submits the following data: Kansas produced 530,397 turkeys in 1890; 275,330

the findings of these workers are responsible for the upward trend in turkey production.

Kansas should be or should become one of the leading turkey-producing states, a position that it does not enjoy at the present time. The people of this state are rather slow to accept the newer ideas on growing turkeys. The majority of our turkeys continue to be



A FLOCK OF K. S. A. C. POULTS

These poults were 20 weeks old when photographed and averaged about 11 pounds per poult. They were brooded in confinement and placed on this clean range at 16 weeks of age. Artificial incubation, artificial brooding, clean water, and clean feed will insure healthy poults as shown above.

in 1900; 104,421 in 1910; and 119,228 in 1920. The history of the industry in this state is not unlike that of most other states.

It remained for workers in the field of research to point the way and an industry doomed to become extinct has been stimulated to activity. Newer ideas of sanitation, incubation, brooding, and feeding based upon

hatched and brooded beneath chicken and turkey hens. This is contrary to the newer idea of sanitation, the very foundation upon which successful turkey production is dependent. Our sister state to the north, Nebraska, is rapidly forging to the front as a leader in the production of the holiday bird. Within

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THE KANSAS AGRICULTURAL STUDENT

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ALPHA ZETA

As an honorary student organization, Alpha Zeta seeks men of character who will develop into the agricultural leaders of the future. It is a hard job to choose such men early in their college careers.

To be eligible for consideration, a student must have completed at least three semesters of college work toward his degree in agriculture and his grades must place him in the upper two-fifths of his class. Scholarship is the first indicator used to point out those men who have qualities of Alpha Zeta men. No small ability is necessary for a man to rank in the upper two-fifths of his class scholastically. It is the opinion of some that high grades and mastery of books make up less than half of the education one receives by spending four years at college. Such a statement may be true, yet we know that grades count. Grades are basic; all other things in college are secondary to them.

But grades alone will not gain for a man membership in Alpha Zeta. Participation in activities related to agriculture are very important and are used as indications of ability for leadership. Opportunities constantly present themselves where men may show their willingness and ability to work and exhibit

administrative powers. Such functions as the Ag Barnwarmer, the Ag Fair, and the departmental club activities furnish the best and most outstanding places to show one's mettle. Ability in organization and cooperation is shown in these activities.

Every freshman should set as his goal the attainment of those qualifications that Alpha Zeta requires for membership. They are not too rigid but are of a worth-while nature and a mark of distinction when once attained. Election to the Fraternity of Alpha Zeta is an honor of no little consequence. It signifies the essential qualities of leadership, character, and scholarship have been noted in the individual upon whom the honor is conferred.

WHAT WILL OUR COLLEGE MEN DO WITH THEIR COPIES OF THE AG STUDENT?

A few students will give their Ag Student a "once over" and toss it into the waste basket or otherwise tell it goodbye. We hope, however, this group of students really will be "few" in numbers. The publication staff works hard to make each number worthy of better treatment and we believe just a little

serious consideration will show you our efforts have not been in vain.

Some students will save their copies for reference and souvenirs in the future. Some will not only save them but will have them bound as a further guarantee against loss or injury. What student would not prize such a booklet 20 years hence?

Still other student readers would prefer to send their copies home. Any student desiring to make such a disposition of his copy may bring it to the Dean's office with proper instructions. The mailing will then be done in the regular way without further trouble or expense to the student.

ORGANIZATIONS OF STUDENTS OF AGRICULTURE

Brief statements regarding the departmental clubs of the division are presented in this issue. This is especially for the benefit of the large majority of agricultural students who are not as yet members of any one of

these clubs. All should be members of the Agricultural Association, the organization for all the students of the Division of Agriculture, and as a rule, as their own objectives become more definite—often sometime during the sophomore year—membership in the departmental club representing his major interest, will be of real value to every student.

A statement of the purpose and activities of the Agricultural Association was included in our issue of last May, page 108. Freshmen especially are urged to read this article. Considering its length it covers the ground exceptionally well, presenting in some detail most phases of the work of the association. Any interested student may get a copy of the issue of last May in the Dean's office.

The departmental write-ups in this issue and the write-up of the Agricultural Association in last issue together make a rather complete statement of the organized student activities of the Division of Agriculture.

The Kansas Free Fair and the Farmer

George D. Oberle, '31

Those who visited the Topeka Free Fair during the month of September this year saw the concentrated results of the progress made in the various phases of agriculture during recent years. They saw scenes from a land of plenty wherein real farm men, women, boys, and girls work for substantial net profits and yet find time for all the pleasure and self-improvement the world has to offer; wherein once depleted soils have forgotten their complication of ills, massive beef animals of known blood lines reproduce exact type and market crops in a profitable manner, dairy animals push their production records higher each year, porkers live much cleaner, shorter, and more valuable lives; and wherein one man with the aid of modern machinery, does the work of a dozen men and many teams.

The agricultural exhibits presented results that can be obtained on the average Kansas farm. Some two hundred entries of corn testify to the ability of Kansas farms and

farmers to grow this king of cereal crops. Perhaps this year's crop will be short owing to extremely unseasonable weather conditions, but huge crops have often been harvested and many larger crops are still ahead. The quality of the exhibits was such that no apology need be offered to the "state where the tall corn grows." The small grain, hay, and legume shows were as interesting as ever and, if possible, of superior quality.

Contrary to usual theory the best hard winter wheat exhibited was grown in eastern Kansas while the best soft wheat came from south central Kansas. The legume entries of both forage and seed came mostly from the eastern counties where much certified seed is produced and where every Kansas farmer can purchase the best seed available. Other small grains of equal quality were very much in evidence while the attractive hay exhibits showed in what attractive forms hay can be marketed and the in-

(Continued on page 24)

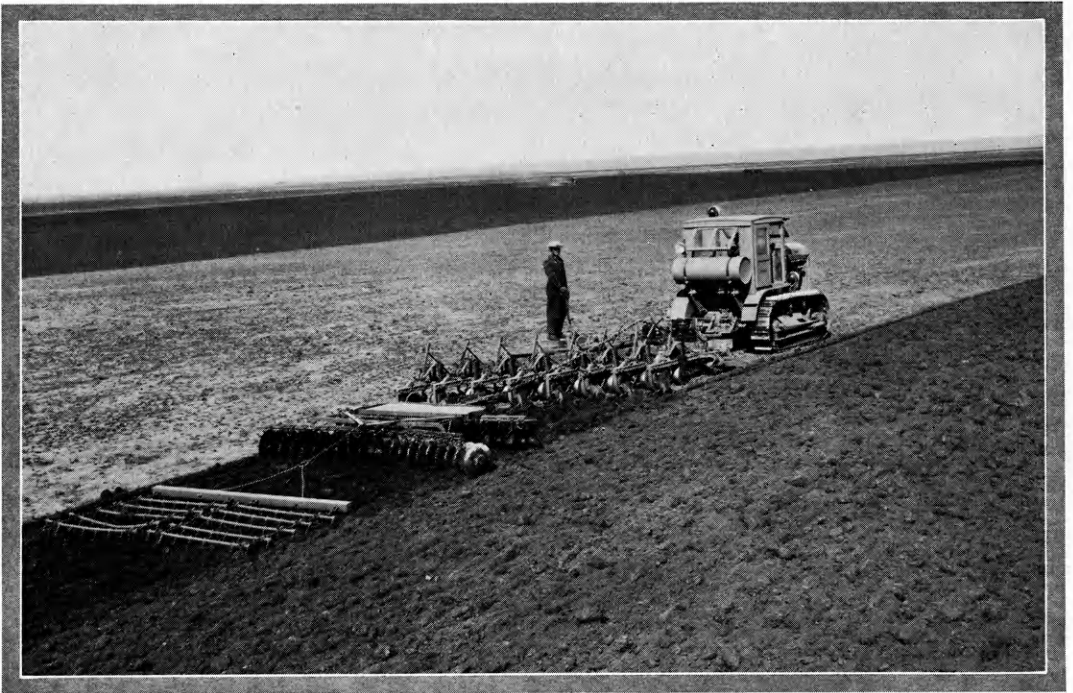
Increased Competition in Agriculture

F. C. Fenton

Head of Department of Agricultural Engineering

Agriculture is everywhere feeling the effects of new and increased competition. Farming has always been a highly competitive business, but the farmer has been slow to recognize this fact. He has been led to believe that his real opponent in the struggle for existence was the middleman or the corporation which purchased his products. He

tempts at price fixing and price control have often got the farmer nothing but discouragement and hard feelings. But the new game of lowering costs of production gives promise of reward for better management. It is doubtful whether any large number of farmers of this country have much faith in the helpful effects of governmental "Farm Re-



AN EXAMPLE OF POWER FARMING

This 60-horsepower tractor is plowing, discing, and harrowing in one operation. Such an outfit prepares the seed bed for wheat at the rate of at least 30 acres a day. By methods followed 20 years ago it would take 5 men and 30 horses to do the work of this one power-farming outfit.

saw prices mount and profits increase on his products after they left his hands, and he seemed to see others reaping the benefits of his labors. He has been greatly encouraged in this attitude by the emphasis placed upon price control and marketing.

The recent emphasis upon cost and production rather than upon price is introducing new competition in agriculture. At-

lief." Much of the faith which they had in the beginning has been dispelled by the repeated failures of such relief to materialize. The resourceful farmer has been able to provide his own relief by adopting better methods and lowering his production costs. Progress along this line has been remarkable, for while the politicians have been trying vainly to ignore the economic laws of supply and

demand, the engineers and scientists have been developing at a rapid rate the machinery of production.

The possibilities of production in farming today by the use of scientific methods, new power machinery, competent management, and adequate financial backing are so great that new and outstanding examples of farming are springing up everywhere. The leaders in this new farming are setting the pace and providing keen competition for their neighbors.

Wheat has been grown in Kansas during the past two years at a total cost of 40 cents per bushel, whereas in many sections it cost \$1 per bushel to produce it. This lowered cost of production has permitted the wheat grower to push out onto marginal lands where wheat growing was formerly unprofitable. The larger acreage which is thus brought under cultivation means more competition for the sale of the wheat on the world markets. Our present huge surplus of wheat is due largely to the improved methods of pro-



SEEDING WHEAT AT THE RATE OF ONE HUNDRED ACRES PER DAY

Wheat growers furnish striking examples of this competitive struggle. The wheat farmer of the Great Plains area, by the extensive use of power machinery and new tillage machines, has so lowered his costs of production that other sections cannot compete unless similar methods can be used. With present day methods, using tractors and combined harvester-thresher, an acre of wheat can be grown by 1 hour and 50 minutes of man labor. By the methods of 1910, which still prevail in many sections, it requires 7 hours to accomplish the same thing.

duction which science has developed and power machinery made possible.

The competitive struggle in wheat growing is not confined to our own country, but is international in its scope. Other countries are importing power machinery and expanding their wheat production. Argentina and Australia, already strong competitors in the world's wheat market, have great opportunities for expanding their acreage. Russia is now buying modern machinery and has at the present time a group of our foremost agricultural engineers employed to make

plans for placing their wheat growing on the most modern basis. Our future position in the wheat markets of the world will depend upon our ability to lower production costs.

The same competition in lowering costs of production is going on in other lines of farming. It requires on the average 20 hours of man labor to grow an acre of corn in the corn belt. But outstanding farmers by new and better methods are growing corn by 4.5 man hours per acre. Nebraska shows some striking examples in the results of their 10-acre

records kept by farmers in cooperation with the Iowa Agricultural Experiment Station. One farmer fed 13 bushels of corn in producing 100 pounds of pork, while another accomplished the same gain with 5 bushels. In the "ton-litter" movement, which is being pushed in Iowa, the results showed that the pounds of pork gained per bushel of corn fed ranged from 7 to 18.

The leaders in farm production are those who have adopted new methods and modern machinery, and have made use of those prac-



A COMBINE AT WORK ON THE FORT HAYS AGRICULTURAL EXPERIMENT STATION

corn yield contests. One farmer produced 76 bushels per acre with the expenditure of 11.2 man hours. Another farmer produced 76 bushels per acre with an expenditure of 3.3 man hours. The first man made a profit of \$12.63 per acre while the second one's profit was \$18.63. In Iowa one farmer has grown corn at a cost of 15 cents per bushel up to harvest time, while on another farm which was equally good, the cost was 75 cents per bushel.

Similar variation exists in the live stock enterprises. The cost of producing 100 pounds of pork ranged from \$7.40 to \$18.61 in one Iowa county last year according to

tics and tools which science has developed. Their success gives inspiration to their neighbors, but their low cost of production provides hard competition for those who do not or cannot adopt similar methods.

This increased competition is the natural result of an agriculture which can no longer depend upon rising land values to create profits. As long as the land was increasing in value, the land owner was satisfied to make a good living and a plus or minus labor income while the land was making him wealthy. But under present conditions, land must be farmed for profits, which means that

(Continued on page 26)

The Kansas Entomological Commission

Merrill M. Taylor, '30

The Kansas Entomological Commission was established by the state of Kansas to suppress and eradicate San Jose scale and other dangerous insect pests and diseases throughout the state. This commission was made an auxiliary of the State Board of Agriculture under the revised statutes of 1923.

Members and officers of the commission consist of the secretary of the State Board of Agriculture, chairman; the secretary of the Kansas State Horticultural Society, secretary; a professor of entomology at the University of Kansas; a professor of entomology at the Kansas State Agricultural College; and a nurseryman actively engaged in the nursery business who is appointed by the governor for a term of two years. The present members of the commission are as follows: J. C. Mohler, chairmanTopeka
James N. Farley, secretaryTopeka
George A. Dean, entomologistManhattan
H. B. Hungerford, entomologistLawrence
E. P. BernardinParsons

The main work of the commission consists of inspection for the San Jose scale. Inspection for other insect pests and some plant diseases is also conducted.

Under each entomologist is an assistant state entomologist who makes surveys of the San Jose scale during the spring, summer, and fall months and in the winter oversees a clean-up program with the application of dormant sprays on all places found to be infested with the scale. Usually for the three months of June, July, and August, each assistant state entomologist has an employee on the survey work.

This summer, the portion of Kansas supervised by Professor Dean in this inspection included the cities of Leavenworth, Lindsborg, Holton, and Horton, including all territory within a radius of two miles surrounding each city. The ten thousand acres of orchards in Doniphan county surrounding Elwood, Wathena, and Troy and the orchards around the city of Atchison in Atchison county were also included in the survey work supervised by Professor Dean last summer.

In addition to this inspection for San Jose

scale, all nurseries in Kansas that ship trees, shrubs, vines, plants, or root stocks within the state or into another state were inspected. The nursery inspection is carried on chiefly by the entomologists with the Kaw river as a dividing line. Prof. G. A. Dean inspects all nurseries north of the river while Prof. H. B. Hungerford supervises the inspection of those located south of the river. If no injurious insects or plant diseases are found on or surrounding the premises of the nursery, the entomologist then issues a certificate of inspection to the owner of the nursery upon payment of \$5 plus all expenses incurred in the inspection.

Besides the above San Jose scale and nursery inspection, the commission employed twenty men for apiary inspection during a period this last summer. Inspection for American foul brood, European foul brood, and many other diseases and infections of hives and apiaries is carried on by this department of the commission.

Each state entomologist must submit, annually, on or before December 1, a written report of his inspections and investigations to the State Entomological Commission. This report in turn is submitted to the governor of the state and the state legislature to be published the same as a report of other state organizations.

The commission's work has been very effective in the control of San Jose scale. Through thorough spraying a 55 per cent effective control was realized in and around the city of Leavenworth as was shown by the last survey. The sprays used for controlling and eradicating San Jose scale are lime-sulfur or miscible oils applied as a dormant spray. Effectiveness in control of American foul brood, European foul brood, and many other infections or diseases of hives and apiaries has kept down the loss of bees and placed the beekeeping industry on a safe basis in Kansas. When a hive or apiary is found where disease or infection exists it is unlawful for the owner to sell, barter, or give away any of the bees. This keeps down the spread

(Continued on page 28)

COLLEGE NOTES

THIRD ANNUAL BARNWARMER

The third annual Ag Barnwarmer was held in Nichols gymnasium Friday night, October 11, 1929. The occasion is the one big date on the Ags' calendar for the fall semester and the barnwarmer this year helped to fix this fact more firmly in the minds of all those who were present.

At the entrance to the gym were stationed some friendly farm animals that gave the couples the feeling that they were right back home and all set for a real night of fun. The interior of the gym was camouflaged so well that even the ones well acquainted with the physical torture which they endure there twice a week were able to relax and enter into the fun and merriment. Bales of hay and fodder shocks were placed around the edge of the dance floor and leaves were artistically displayed from the balcony above. The "feed bin" was located in one corner and all enjoyed the cider and apples. Pete Gormley's orchestra, which furnished the music for the dance, was placed upon a hayrack at the side of the gym. Games were provided for those who did not care to dance. The "moon room," a usual feature, was patronized by a majority of those present.

The queen, Miss Edith Bockenstette of Sabetha, Kan., was brought into the hall in a fine new Nash automobile and was presented to Dean Call, who immediately placed her crown upon her fair head and started the grand march around the gym. The dance started soon thereafter and the floor was filled to capacity the rest of the evening.

When the party broke up, all too soon, the Ags escorted their ladies home but all soon returned and in a short time there was no trace of the festival.

The Vets were invited and practically 100 per cent of the students in both divisions attended. The way in which the barnwarmer was put across was but another demonstra-

tion of the leadership and cooperation regularly manifest in the Division of Agriculture, a credit both to the division and the institution.

HONOR ROLL, 1928-29

One hundred and five students in the Division of Agriculture during the college year, 1928-29, received special commendation for outstanding achievements in scholarship. Each of these students carried on regular assignments not less than fifteen credit hours of work each semester (1), had practically no delinquencies against him throughout the year, and made a total of not less than fifty points on his two assignments, according to the K. S. A. C. point system (2).

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, 1928-29

	Home P. O.	Credit hours passed	Total points
Seniors			
Sam G. Kelly	Seymour, Mo.	37	97
C. Raymond Curtis	St. John	43	93
Hobart P. Blasdel	Sylvia	35	91
Juniors			
John J. Curtis	Toronto	38	107
Andrew P. Grimes	Greenwood, Mo.	37	106
Fredrick H. Schultis	Sylvan Grove	36	91
Sophomores			
John L. Wilson	Geneva	35	105
George D. Oberle	Carbondale	34	97
Bruce R. Taylor	Alma	33	94
Freshmen			
Will M. Myers	Bancroft	33	92
Leland M. Sloan	Leavenworth	34	91
Charles W. Naueheim	Hoyt	33	81½

1. A student carrying less than 15 credit hours a semester was required to make a total of 60 points to win a place on the honor roll.

2. 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.

HONOR ROLL, 1928-29

Seniors

	Home P. O.	Credit hours passed	Total points
Forrest B. Alspach	Wilsey	37	60
Scott R. Bellamy	Meade	34	61
Silas S. Bergsma	Lucas	35	67
James L. Blackledge	Sheridan, Wyo.	31	83
Roy E. Bonar	Washington	40	63
James B. Brooks	Garrison	38	63
Albert Brown	Circleville	43	85
Francis E. Carpenter	Wakefield	33	70
E. Garth Champagne	Oketo	39	60
Tudor J. Charles, Jr.	Republic	34	59
Laurence L. Compton	Manhattan	31	51
Edward Crawford	Stafford	31	60
Norman Curtis	Toronto	32	79
Clarence M. Dunn	Oskaloosa	35	60½
Marion K. Fergus	Garnett	37	70
Theodore R. Freeman	West Plains, Mo.	33	74
William W. Gosney	Goddard	37	59
Odgen W. Greene	Paradise	36	61
William E. Gregory	Walnut	38	55
Carl Heinrich	Durham	40	61
Francis W. ImMasche	Saffordville	28	66
Albert B. King	Centralia	33	55
Ralph O. Lewis	Parsons	33	64
J. Paul Lortscher	Fairview	35	57
Donald J. Martin	Fellsburg	38	82
Albert W. Miller	Manhattan	27	60
W. H. Polhamus	Parker	39	50
Walter P. Powers	Netawaka	35	75
Galen S. Quantie	Riley	35	60
Robert L. Rawlins	Whiting	43	69
Ray L. Rensberg	La Harpe	34	59
Hugh K. Richwine	Holcomb	38	56
John W. Roussin	Brewster	31	75
Marion L. Russell	Garden City	39	75
Dale A. Scheel	Emporia	33	51
James H. Sutton	Ensign	36	71
James F. True, Jr.	Perry	37	56
J. A. Watson	Sedon	38	53
Ralph R. Wood	Cottonwood Falls	32	57

Juniors

Howard R. Bradley	Kidder, Mo.	38	54
Paul R. Chilen	Miltonvale	34	50
Manford L. Cox	Goodrich	35	55
George J. Cunningham	Manhattan	32	55
John W. Decker	Holton	32	64
Harold E. Frank	Manhattan	33	55
Joseph H. Greene	Beverly	35	54
Edwin O. Habiger	Bushton	34	54
Kenneth M. Hall	Agra	40	50
George R. Hanson	Council Grove	35½	58½
Orville E. Hays	Manhattan	32	60
Glenn C. Isaac	Baldwin	36	56
Eugene M. Leary	Lawrence	42	81
C. Porter McKinnie	Glen Elder	37	66
Merle L. Magaw	mes	37	56
Paul A. Mears	Simpson	38	73
Wilmer A. Meyle	Holton	34	64
Warren D. Moore	Copeland	35½	60
Fay A. Mueller	Sawyer	32	58
Raymond W. O'Hara	Blue Mound	33	90
Francis J. Raleigh	Clyde	37	87
Oscar E. Reece	Hopewell	33	52½
Louis P. Reitz	Belle Plaine	32	82
Miner R. Salmon	Manhattan	38	68
S. Roger Stewart	Vermillion	34	59
J. Edward Taylor	Manhattan	34	54
Merrill M. Taylor	Perry	33	53
J. Allen Terrell	Syracuse	32	61
Roy H. Trompeter	Holton	33	51
Henry B. Walter	Wichita	33	83
E. LaVerne Wier	Blue Mound	33½	56½

Sophomores

Fulton G. Ackerman	Lincoln	31	87
John S. Boyer	El Dorado	33	83½
George S. Brookover	Eureka	36	51
Marvin O. Castle	Mayetta	35	61
R. Boyd Cathcart	Winchester	33	83
Arnold E. Chase	Manhattan	34	73½
Clarence B. Cunningham	Manhattan	33	70

Raymond G. Frye	Freeport	36	82
Ralph F. Germann	Fairview	35	76½
Alonzo Lambertson	Fairview	36	88
Marshall S. McCulloh	Stawnee	35	60
Alva M. Schlehuber	Durham	37	78

Freshmen

Lee H. Albin	Norcatur	33	58
Jay R. Bentley	Ford	30	63½
Sterle E. Dale	Protection	33	51
Phares Decker	Holton	34	51½
Luther A. Jacobson	Holton	33	62½
Paul L. Jameson	Garrison	33	52
G. Raymond Kent	Wakefield	33	58
John R. Latta	Holton	33	79½
Eugene B. Mangelsdorf	Atchison	33	76
Elvis E. Steele	Amoret, Mo.	33	53½
Clinton K. Tomson	Wakarusa	34	64



MISS EDITH BOCKENSTETTE, QUEEN OF THE THIRD ANNUAL AG BARNWARMER

MISS BOCKENSTETTE CHOSEN QUEEN OF THE AG BARNWARMER

Miss Edith Bockenstette of Sabetha made an ideal queen for the third Annual Barnwarmer. Miss Bockenstette is a second-semester freshman. She was in college the first semester of last college year but withdrew the second semester to assist her father in the management of his hatchery business.

While enrolled in commerce Miss Bockenstette is taking some work in the Department of Poultry Husbandry. She has some genuine agricultural interests and a large acquaint-

ance with both the work and the personnel of the Division of Agriculture. She is a member of the Pi Beta Phi sorority.

Queens of previous Ag Barnwarmers have been:

1927-'28, Miss Grace Madison, Everest

1928-'29, Miss Elsie Nuss, Hoisington

NEW MEMBERS OF ALPHA ZETA

The Kansas chapter of the student honorary agricultural fraternity, Alpha Zeta, holds one election of members each semester.

The requirements for membership, though rigid, develop the most commendable and worthy characteristics of each individual student. To be considered for membership a student must have completed three semesters of college work with an average scholarship high enough to place him in the upper two-fifths of his class; he must be of good moral character; and he must show that he has ability as a leader.

Those recently elected to membership in Alpha Zeta are:

Name	Address
Kenneth M. Gapen.....	Manhattan
Ralph F. Germann.....	Fairview
Henry W. Gilbert.....	Manhattan
Harvey E. Hoch.....	Alta Vista
Ray M. Hoss.....	Potwin
Alonzo Lambertson	Fairview
George D. Oberle.....	Carbondale
William G. Nicholson.....	Neal
Miner R. Salmon.....	Manhattan
Alva M. Schlehuder.....	Durham
Leland M. Sloan.....	Leavenworth
Carl Williams	Dodge City
John L. Wilson.....	Geneva

The initiation banquet given in honor of the new initiates was held at the Wareham Hotel, Tuesday evening, October 15, 1929.

THE BLOCK AND BRIDLE CLUB

The Block and Bridle Club meets the first and third Tuesdays in each month. Its object is to encourage interest in live-stock judging contests, to encourage students to take up some phase of animal husbandry, and to promote scholarship and a general feeling of good will among its members.

In the winter the club sponsors a fitting and showing contest. At that time all the

would-be nationally known showmen curl the horses' tails, powder the cows' faces, and parade them in front of the judge. The judge awards a medal to the man he believes has come nearest to making a scrub look like a grand champion.

In the spring the club sponsors the annual animal husbandry live-stock judging contest and awards the winners suitable prizes. This is the biggest judging contest on the campus and creates a great deal of interest among the students of agriculture.

The officers of the club for this year are:

C. Porter McKinniePresident

T. Henry GileVice-president

J. Allen TerrellSecretary

Clarence E. NutterTreasurer

Ray M. HossReporter

The Block and Bridle Club has planned a number of interesting programs for its meetings this year and anyone interested in the club or its activities is cordially invited to them.

THE DAIRY CLUB

Membership in the Dairy Club is open to all students and members of the faculty who are primarily interested in dairying. The aim of the club is to promote cooperation among the students, to study the art of dairying more intensively, and to make better-qualified dairymen through aggressive efforts that will promote a wider acquaintance in the field of dairying and a broader outlook toward agriculture. Meetings are held the second and fourth Mondays of each month and some fine programs have been planned for this year.

Officers for the year are:

Richard W. Stumbo, Bayard.....President

John L. Wilson, Geneva.....Vice-president

Ralph F. Pettit, Humboldt.....Sec'y-treasurer

Harold B. Harper, Hepler.....Marshal

The club sponsors the dairy fitting and showing contest in the winter and the dairy judging contest in the spring. All students are eligible to these contests.

Kay H. Beach, '28, is instructor in vegetable gardening in Massachusetts Agricultural College, Amherst. Kay attended the Michigan State College at East Lansing last year.

KANSAS DAIRY JUDGING TEAM WINS

The Kansas Aggie Dairy Judging team placed first in the Collegiate Dairy Judging Contest at Waterloo, Iowa, September 30, 1929, held in connection with the Dairy Cattle Congress. The team is composed of Richard W. Stumbo, Bayard; Howard R. Bradley, Kidder, Mo.; John L. Wilson, Iola; and Walter P. Powers, Netawaka (alternate). Prof. H. W. Cave coached the team. Twelve teams from as many states competed.

The ranking of the Kansas men and their score out of a possible 600 were:
Richard W. Stumbo, 541, 1st high individual
Howard R. Bradley, 537, 3rd high individual
John L. Wilson, 524, 5th high individual



K. S. A. C. DAIRY JUDGING TEAM
Standing: Prof. H. W. Cave (coach) and Richard W. Stumbo.
Seated: John L. Wilson, Walter P. Powers (alternate), and Howard R. Bradley.

The scores of the first five teams were: Kansas, 1,602; Minnesota, 1,521; Missouri, 1,509; Wisconsin, 1,492; Michigan, 1,481.

The team won the following awards: Silver loving cup for high team; silver cup for high team on Jerseys; bronze plaque for high team on Guernseys; two gold bound canes to first and third high individuals; \$35 Elgin gold watch to high individual; \$5 to Stumbo for placing seventh in a special Brown Swiss contest; seven medals for individual rankings in the respective breeds; five sets of book ends given by the Guernsey Breeders' Association.

The total score of 1,602 for the team is one

of the highest scores ever made in the Waterloo contest.

WILL M. MYERS WINS ALPHA ZETA MEDAL

In the spring of 1921 the Kansas chapter of Alpha Zeta announced that as a means of stimulating scholarship it would award a gold medal annually to the freshman in the Division of Agriculture highest in scholarship. The record of Will M. Myers of Bancroft, freshman in 1928-'29, wins for him this coveted honor and distinction. Leland M. Sloan of Leavenworth was a very close competitor



WILL M. MYERS, CHARLES W. NAUHEIM, AND LELAND M. SLOAN

The scholarship of these three freshmen students in the Division of Agriculture in 1928-'29 placed them on the high honor roll for their class. Each is pursuing sophomore work in the division this year.

for the honor. Charles W. Nauheim of Hoyt placed third. Scholarship figures on these three high freshman for last year will be found in the "High Honor Roll, 1928-'29," for the division, printed elsewhere in this issue.

William F. Turner, '10, is a breeder of pure-bred Jersey cattle at Belton, Mo.

Miss Shirley Blanch French, '19, is living with her father and managing a grape fruit ranch near Combes, Tex.

THE HORTICULTURE CLUB

The Horticulture Club, better known as the Hort Club, was organized to broaden the knowledge of those students who major in horticulture. The personnel of the club includes faculty members of the Department of Horticulture and students majoring in horticulture.

The club, which meets regularly the first and third Tuesday evenings of each month, brings to its members discussions of topics of large interest along horticultural lines. Socially, the club sponsors a fall party and a spring hike. In athletics, the horticulture football team has won all their games for several seasons.

The officers for the present semester are:

Henry B. Walter.....President
 R. Bruce MatherVice-president
 Merrill M. TaylorSecretary-treasurer
 Mrs. Samuel G. Kelly.....
Chairman of program committee

THE KLOD AND KERNEL KLUB

Tri K, the Klod and Kernel Klub, is a professional organization composed of members of the faculty in the Department of Agronomy and students majoring or taking considerable college work in the department. The regular membership at the present time consists of 18 members of the faculty and 33 students.

Meetings are held on the second and fourth Tuesdays of each month, the purpose of which is to bring the professors and students together so that they may become better acquainted with each other and with the problems in their chosen field of work.

Tri K sponsors the students' annual grain judging contest. It encourages intercollegiate competition along agronomic lines. Just recently it had a prominent part in promoting the 1929 intercollegiate grain judging contest at Kansas City.

The present officers are:

J. Edward Taylor.....President
 Harland StevensVice-president
 W. J. Braun.....Secretary
 J. J. Curtis.....Treasurer
 John S. Boyer.....Sergeant at Arms
 C. A. Hollingsworth.....Reporter

THE AGRICULTURAL ECONOMICS CLUB

The Agricultural Economics Club meets regularly on the second and fourth Tuesdays of each month. Membership is open to undergraduate students in the Curriculum in Agriculture majoring in agricultural economics, to undergraduate students pursuing the Curriculum in Agricultural Administration, to graduate students majoring or minoring in agricultural economics, and to members of the faculty whose work is of an agricultural economic character.

Officers of the club for the year 1929-'30 are:

Walter P. Powers, Netawaka.....President
 Fredrick H. Schultis, Sylvan Grove...Secretary
 Howard R. Bradley, Kidder, Mo.....Treasurer
 Edwin O. Habiger, Bushton.....Marshal

The purpose of the club is to further the professional interests of its members and others along agricultural economic lines; to encourage sound economic thinking; and to further the acquaintanceship of faculty and students.

THE AGGIES' GARDEN OF EDEN

A beautiful place on a beautiful campus is the formal garden just east of the horticulture building. Although redesigned and planted in 1928, it has developed into a beautiful garden in less than two years. While a place of beauty it is also an experimental garden used to find species of flowers that bloom well under Kansas conditions. Data are kept of the blooming periods, type of growth, and quality of blooms. Those not blooming well are readily discarded and new species are planted in their places.

The garden, being surrounded by trimmed red cedar, is divided into five sections each a separate garden in itself. The two end gardens are devoted to perennials. The border of these is made up of perennials, then between and to the front of these are planted lilies. The section adjoining the north perennial garden has a sun dial as its central figure, while the section adjoining the south end garden has a bird bath as its central figure. These two sections are devoted to bulbs and roses. The central section contains the formal pool and garden seat. In the pool

there are many water-loving plants, while clipped compact arbor vitae are used as accents.

There are 19 varieties of roses, almost one hundred species of perennials and many varieties of hardy bulbs in these gardens.

Four rose archways connect the various sections. All walks are the flagstone type.

A FEW CHANGES IN THE AG FACULTY

W. P. Mortenson has been appointed associate professor of agricultural economics to take the place of Prof. R. M. Green, who is away on leave of absence for the year. Professor Mortenson graduated from the North Dakota Agricultural College and received his master's degree there in 1923. For two years



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.

Much work is left to be done on the garden but it is a beautiful spot as it appears now.

Prof. Albert Dickens, '93, is now building up his health at Albuquerque, N. Mex.

John Frost, '92, is proprietor of the Blue View Farm at Blue Rapids, Kan.

he was assistant professor of agricultural economics in the University of Wisconsin. Later he was extension agricultural economics specialist and 4-H Club leader in Wyoming. Professor Mortenson specializes in marketing of fruits and vegetables, poultry, and dairy products.

(Continued on page 22)

FARM NOTES

SOIL EROSION STUDIES

The losses due to soil erosion constitute one of the greatest drains upon the agricultural industry. Experiments have shown that the removal of plant food by erosion often exceeds many times that removed by crops. These losses in Kansas are not so severe as in some of the southern states, nevertheless the control of erosion is the most important problem confronting a large number of Kansas farmers today.

Many farmers do not realize how severe these losses are, especially when they are due to sheet erosion, a process by which a thin unnoticed layer of surface soil is removed by every rain. However, after several years of continuous cultivation and continuous erosion the decreased yields bear witness to these losses. The farmer should not wait until the productivity of his land is gone but should begin to check these losses when the land is still fertile and thereby conserve and make the maximum use of the original plant food.

Very little work has been done by the Federal Government to help solve this important problem. However, appropriations were recently made available for the United States Department of Agriculture to conduct research work for erosion control and moisture conservation. This work will include studies to determine the losses of runoff water and the soil it carries, the most practical and efficient types of terraces for controlling these losses, tillage methods and their relation to soil and moisture conservation, the types of vegetative cover that allow the minimum losses, and other problems that are closely related to the general subject of soil erosion and moisture conservation. These experiments will be conducted on each of the important soil groups of the country.

—R. H. D., '27.

4-H CLUB MEMBERS AT THE STATE FAIRS

At the Kansas Free Fair at Topeka 4-H Club members won prizes amounting to \$4,038.70. In the 4-H Club department more than 35 counties were represented. As usual the 4-H Club members more than filled the building allotted to them for their exhibits. In fact, it was so crowded that it was difficult for spectators to view the exhibits. A special baby beef barn was provided for them this year which was filled to overflowing. The dairy calves, which in former years have been few in number, this year reached a new high total of approximately seventy-five. In the poultry, swine, and sheep classes, entries were equally as crowded and at the 4-H Club encampment more than a hundred participated for the week.

At the Kansas State Fair at Hutchinson, 4-H Club members out-did themselves in the quantity and quality of their work. The total number of 4-H entries reached a new high mark of 3,015. There entries were made by 1,010 4-H Club exhibitors who were awarded prizes totaling \$4,936.25. More than 40 counties were represented, which shows the widespread interest 4-H Club members are taking in this program. For the State Fair 4-H Club Encampment a building is provided on the fair grounds. At this encampment more than 325 club members enrolled and participated for the entire week. The building provided for this purpose is so inadequate that it was evident on the part of all that additional quarters would have to be provided next year.

At both the state fairs, 4-H Club members participated in a program including demonstrations, judging contests, health contests, athletic events, club meetings, music, and a large variety of similar endeavors which not only hold their interest but provide features of real educational value.

A PRACTICAL SEED SEPARATOR

The Agricultural Experiment Station has experienced much trouble in separating rye and vetch seed to be planted in experimental plats. The machine formerly used was a common fanning mill with sieves.

A new type of separator was used the past season that did very satisfactory work. This separator is composed of a set of three banked or conical spirals attached to a central vertical stem. These spirals vary in width, the smaller ones being hidden by the widest one which has a two-inch rim on the outside to retain the grain. On the upper end of the central stem is a hopper from which the flow of mixed grain can be regulated. The grain runs from the hopper into the narrowest spiral and starts sliding and rolling downward. As it gains speed, the heaviest and most nearly round seeds go the fastest. The circular motion given the grain causes the swiftest grain to flow toward and over the outer edge of the spiral and into the next wider spiral. This again divides the grain, allowing the fastest and heaviest seeds to go into the wider spiral. No rye ever gets into the widest spiral.

The widest spiral has an adjustable dividing wing at the bottom making four grades of grain possible. The four grades are: Light rye which comes from the narrowest spiral; heavy rye and very light vetch from the next wider spiral; light vetch and heavy vetch from the widest spiral. The heavy vetch runs to the outside of the spiral and the operator adjusts the division of the vetch to suit his needs.

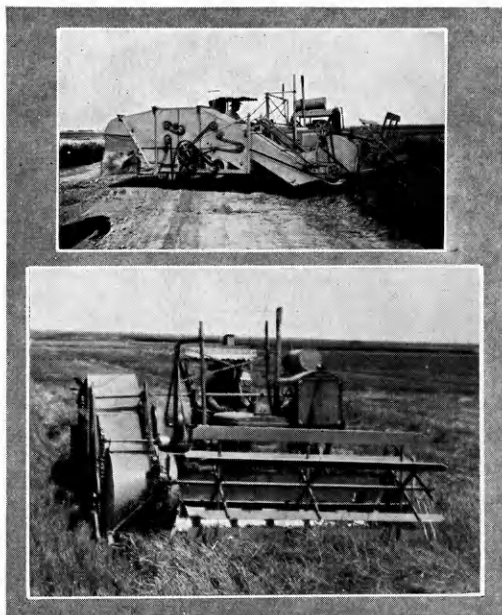
Such a machine as this must be hand-made and at the present time it is made only by S. Howes and Company, Silver Creek, N. Y.

—R. B. M., '30.

THE COMBINE NOW HAS A PLACE IN INVESTIGATIONAL WORK

The tractor and the combined harvester-thresher have gradually but permanently been established in the wheat belt of Kansas. In 1927 Kansas had 38,061 tractors and 7,562 combines; in 1928 there were 45,994 tractors and 11,203 combines. Figures are not available but similar increases in numbers will likely be shown for 1929.

The establishment of combines in the wheat belt made a need for the development of a small combine to be used on experimental plats in order to leave the plats in the same condition as the wheat fields. The tall stubble left after the combine makes it more difficult to till the land, also more moisture and time are required to decompose the large amount of straw and to make the nitrates available. If the binder were used to harvest these experimental plats the results would not be comparable to what the farmers



A SMALL COMBINE

These views show the small combine used on the experimental plats at the Fort Hays Agricultural Experiment Station. The view above shows the combine turning in the roadway to make another swath on a small plat. The view below shows the combine in action. Note that the machinery is on three sides of the little caterpillar.

could expect on their fields harvested with a combine.

Beginning with the harvest season of 1926, the Fort Hays Agricultural Experiment Station began to design such a combine. The success of the 1926 season proved the possibility of developing such a machine. At present the machine consists of a Holt Caterpillar tractor, a Gleaner combine, and a model T Ford motor. The Gleaner has been rebuilt

and fitted on the Caterpillar, which carries the weight of the Gleaner and furnishes tractive power. The Ford motor is mounted on the machine to furnish power to run the combine. The Caterpillar type of tractor distributes the weight of the outfit over enough ground to prevent damage to the surface soil and makes possible shorter turns, which is an important point in combining small plats.

The outfit modernizes harvesting methods on the experimental projects and permits more efficient and effective work. This probably was the first combine used to harvest small plats at any state or federal agricultural experiment station.

CHANGES IN THE AG FACULTY

(Continued from page 19)

Mrs. Mortenson, formerly Miss Luella Sherman, graduated from K. S. A. C. in '22 and was extension nutrition specialist here for some time.

Another new man who comes to the college highly recommended is Lowell R. Tucker, instructor in horticulture. Mr. Tucker was graduated from the University of Illinois in 1926. He received his master's degree in horticulture from the University of New Hampshire in 1928 where he was graduate assistant for two years.

Harold E. Myers, '28, has been appointed instructor in agronomy, succeeding Assistant Professor Eugene S. Lyons, '21, who resigned to take up fertilizer investigations in the United States Department of Agriculture. Mr. Myers was assistant in soil biology in the College of Agriculture of the University of Illinois last year and received his master's degree from there last August. In K. S. A. C. Mr. Myers was high freshman during his freshman year, 1924-'25, editor-in-chief of *The Kansas Agricultural Student*, 1927-'28, and uniformly outstanding in scholarship.

W. H. Riddell has accepted a position as assistant professor of dairy husbandry. His work will be primarily research in dairy production.

Professor Riddell received the degree,

bachelor of science in agriculture, from the University of British Columbia in 1922. After graduation he farmed for one year. In 1923-'24 he was graduate assistant in the University of Minnesota, receiving his master's degree from that institution in 1924. He came to the Department of Dairy Husbandry in K. S. A. C. in 1924 and was superintendent of official testing for Kansas, 1924 to 1926. He then returned to the University of Minnesota as a graduate student and part-time assistant and during the next two years completed the residence work for his doctor's degree. Last year, 1928-'29, he was superintendent of official testing for Minnesota.

Professor Riddell is thoroughly prepared to handle the research work in dairying to which he has been assigned in the Agricultural Experiment Station. His teaching work will be largely irregular—substitutions in the department and short course and special assignments.

Mrs. Riddell will be remembered by many K. S. A. C. people as Miss Mina Bates. She was a member of the teaching staff of the Department of Institutional Management, 1922 to 1926, being at the time of her resignation director of the college cafeteria and associate professor of institutional management.

FORT HAYS AGRICULTURAL EXPERIMENT STATION

(Continued from page 5)

Agriculture in the distribution of forest seedlings. During the past season 23 species of evergreen and deciduous trees and about 20 species of shrubbery were distributed. The trees most commonly sold were American elm, Green ash, Red cedar, Austrian pine, Western Yellow pine, and the Chinese arbor vitae. Trees were distributed to 74 counties in Kansas.

Experiments indicate that the sour cherry is one of the few fruits which can be grown successfully in western Kansas. The nursery has not failed to raise a cherry crop in the past seven years, while apples produced one partial crop, and pears produced two fairly good crops in that time. Several varieties of hybrid plums are being tried, as well as 21

(Continued on page 32)

The Cost of Your Yearly Bread

R. E. McCormick, F. M. E., '29

Flour is now so common and cheap that its manufacture is taken for granted. Flour, which forms about one-third of the average person's food, costs between \$7 and \$9 per year. This would be cheap living if all food were as cheap as flour, but, even though bread is the staff of life, one cannot live on bread alone.

Milling like all other industries has made great strides during the last 40 to 50 years. There are many people living today who can well recall the pioneer days when the mill was a landmark in history, and also how grandfather had to haul his wheat many miles to have it milled. His milling bill was not paid in cash but was paid by giving the miller a toll in wheat or part of the manufactured products.

In these days the head of the family seldom knows anything about milling, as there is always a ready supply of high-quality flour at his nearest grocery store.

The annual per capita consumption of flour in the United States in 1922 was 198 pounds. Flour in large quantities is measured in barrels. This is probably because in earlier days the flour barrel was an essential part of the family kitchen. One barrel of flour weighs 196 pounds. Thus it may be seen that the average annual per capita consumption of flour is just a little more than one barrel.

What does the miller actually receive for grinding the flour consumed by the average person each year? That is to say what does he charge for passing 4 bushels and 40 pounds of wheat through the elaborate milling process and producing a finished product which is the finest the world has ever known?

The United States Tariff Commission has made a study of the cost of producing flour in this country. This study was not made for the purpose of furnishing material for the benefit of the milling industry, but to see how the cost compared with that in Canada. This fact should mean something in favor of the reliability and impartiality of the figures. The study was made on 40 representative mills, many of which are among the most efficient plants in the world today. The fig-

ures compiled by the Tariff Commission are as follows:

Wheat	\$4.6666
Labor cost	\$0.1198
Factory expense1485
Administrative expense1364
Interest0288
Containers3151
Advertising expense.....	.0641
Other selling expense....	.3255
	<hr/>
Total mfg. cost	1.1382
	<hr/>
Grand total	\$5.8048

This low labor cost is due to efficient automatic machines. Every man's labor for eight hours of time is found to produce in a well equipped mill as much flour as 20 to 30 adult men will eat in a year's time, the amount produced varying with the size and efficiency of the mill. Thus it can be said that the actual cost of grinding all the flour consumed by one person in one year is about 50 cents or the wages of a skilled mechanic for about one-half hour of time. The difference between the cost of flour at the mill and the cost to the consumer is due to the cost of handling, freight, and final retail charges.

RECENT PUBLICATIONS

Recent publications of the Agricultural Experiment Station are: Circular 146, "Making Cottage Cheese on the Farm," and Circular 147, "Culling Poultry."

Circular 146 gives directions for the making of both the rennet and the acid type of cottage cheese and for incorporating it into a wide variety of dishes for serving.

Circular 147 is Circular 93 revised. Part I contains essentially the same material as the old circular which deals with the general problems in culling. Part II, "Head Characters and Their Relation to Culling," gives an illustrated discussion of recent studies as regards predicting future production by head characters.

A request for a copy of either or both publications should be addressed: Agricultural Experiment Station, Manhattan, Kansas.

THE FAIR AND THE FARMER

(Continued from page 9)

creased profit available to every hay producer by proper handling and curing.

The vegetable show included Irish potatoes, sweet potatoes, tomatoes, cabbages, turnips, pumpkins, radishes, carrots, beans, peas, cantaloupes, huge watermelons, and what not that help to make farm life most attractive by adding variety to the table.

The fruit show with its wonderful Kansas grown apples, peaches, grapes, pears, plums, and persimmons fairly made the mouths of the visitors water.

Three different sets of booths showed convincing proof that quality and variety are both possible in any county and even on any individual farm. These booths were prepared by individuals, counties, and county agricultural agents. There were six farms entered in the individual class any one of which must be a veritable horn of plenty. One realizes there should never be any lack of weekly pay checks from the farms represented and that similar programs can be worked out on many of the 165,000 farms in Kansas. County booths showed an even wider variety of products assembled and showed again the advantage of diversification. The county agricultural agent project was a new development of this year's fair and a very interesting and valuable one. The lessons these booths taught range from lime and legumes to the "feed, weed, and breed" maxim of the dairy industry.

A group of minor exhibits such as the honey, meats, dairy products, and the Canadian expansion project all presented interesting and valuable teachings.

The live stock show proved to be the real center of attraction as judged not only by the large number of entries but also by the crowds that gathered to watch the judging. Here indeed was proof that live stock was king as was evidenced by the admiration of the sleek beef cattle, massive draft horses, matronly dairy stock, leisurely moving porkers, and anxious appearing sheep. The poultry, goat, dog, and even the pet bird shows all attract a constant circle of admirers. The world's champion six-horse team of Belgians

owned and exhibited by the Chicago Stockyards Association never failed to draw the intense admiration of the crowd whenever they appeared. The one central idea expressed in the entire live stock show was one of improved breeding, type, and production, all of which eventually will lead to but one end in the farmer's practices; namely, that of greater profits. It is worthy of note that the premiums offered were carried off mostly by Kansas breeders in competition with breeders from most of the surrounding states.

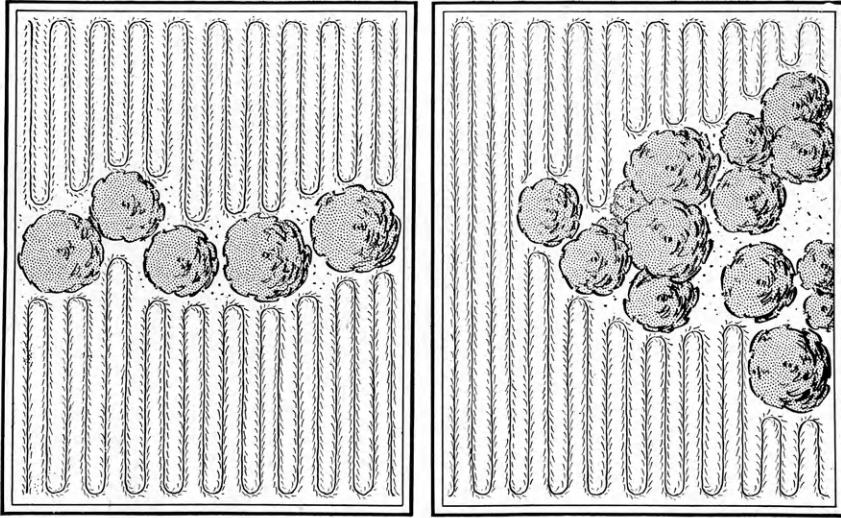
One of the most interesting exhibits was the display of farm machinery and no young lad received more pleasure from the fine specimens of newest types of machinery than did many a mature farmer. Power machinery was predominant, while horse-drawn machinery was conspicuous only by its total absence. The wheat farmer saw all the latest equipment for his type of agriculture whereby he can make huge savings, such as by use of the one-way disk, the combine, the windrower with pick-up and all combined with any type of tractor one desires. The corn grower saw improved multi-row listers, cultivators, harrows, weeders, binders, and even two-row corn pickers. With these he saw newer and better silos and ensilage cutters along with feed mills and grinders all designed to in-eight-cylinder machine suitable for any occasion as one salesman expressed it. One new innovation in this line was a front-wheel drive model recently appearing on the American market for the first time though quite popular in Europe.

crease profits and decrease waste.

The motor show is a never failing source of attraction where one may see a car for every purse, ranging from the modest four-cylinder affair up to the huge glass-enclosed

Although only the high spots can be touched upon in a brief article, one must mention the 4-H Club work, the meat and dairy congress, the health and eugenics department, the foods and culinary exhibits, the horse and auto races along with the grandstand performances and the work of the extension departments of K. S. A. C. and the University of Kansas.

Throughout the entire varied program there was but one central idea: "Let's make



How would YOU clear these fields?

A FARMER had two fields that were hard to cultivate. As shown above (on the left) because of a row of trees that cut the field in half, the farmer made four instead of two turns to the furrow. The row of trees occupied a rod of ground. In the other field (on the right) a point of wood-lot extended into the field making plowing and cultivating difficult. This wooded point accounted for about three and one-half acres. Less production and more time and labor required! How would you clear these two fields?

Obviously the only way to straighten out these fields was to get rid of the row of trees and the wooded point. And probably blasting is the cheapest, quickest, easiest way. But just how would you go about it? How would you plan the shots; how would you load them; fire them and clear away?

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Wilmington, Delaware



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COLLEGE.....COURSE.....

this a bigger, better, and more educational fair, and thus increase the prosperity and happiness of the Kansas farmer." Indeed, Kansas farmers make this fair. Were it not for the excellent live stock and crops exhibited and the farmer's ability to adapt new features for advancement to his industry there would be no fair. Such a fair is a mark of accomplishment, the advance agent of progress.

COMPETITION IN AGRICULTURE

(Continued from page 12)

the cost of production must be lower than the selling price. Hence, the new interest in cost of production and efficient methods. One of the most outstanding facts of agriculture has been the limited use made of the available knowledge of how to produce more profitably.

Another development in the competitive struggle in agriculture is the tendency toward larger farms and the growth of large-scale farming. Modern power and power machinery have furnished the basis for larger farms. A man's ability to cultivate the soil, to plant, cultivate, and harvest crops has doubled and tripled in recent years. He now plows 50 acres per day, seeds 75 to 100 acres, and with the modern "combine" may harvest and thresh 45 acres of wheat in a 10-hour day. In order to exercise these abilities the farmer must have larger acreages to work upon. Prof. M. L. Wilson, speaking of the growth in size of farms in Montana, says: "In 1924 a group of successful tractor wheat farms being studied by the Montana Agricultural Experiment Station averaged 598 acres; in 1925 the average size of these farms had increased to 670 acres; in 1926, to 812 acres; in 1927, to 998; and in 1928, to 1,265 acres."

A similar change is taking place in the size of the wheat farms in Kansas and in the rest of the Great Plains country. The farmers are increasing their wheat-producing facilities per man by providing larger areas upon which to operate their machines. These larger farms are more efficient because they are using their machinery to better advantage, getting more hours of service, and lowering their depreciation charges. The larger

farms are able to compete more advantageously against the smaller farms because of more adequate financial backing, better managerial ability, and more extensive use of the technical information available. The farmer who grows wheat on the small diversified farm will find it difficult to compete successfully with the large producer of the plains country.

It is but a step from this large individually-owned and operated farm to the large-scale or corporation farm. Just how much development we may see along this line is hard to predict. There are already many large incorporated farms in existence. Some of them have years of profitable operation to their credit.

The most notable examples of these farms are in the fruit and vegetable growing business. The United Fruit Company with a capital of over two hundred million dollars operates two million acres of land in several countries. The American Fruit and Vegetable Shippers' Association operates over forty thousand acres of irrigated land in the southwestern states. These large companies have carefully worked out systems of handling their farms according to the best available information. They are farming in direct competition with the old-style American farmer who owns and operates his own farm.

The large corporation farm has possibilities of revolutionizing our entire agricultural system. If this type of farm ownership and management proves to be profitable, and there are many who think it will, there will be opened a flood of capital for financing these enterprises. Agriculture would in this way be adequately financed for the first time in history. The way would be opened for the organization of farming upon an efficient and business-like basis. Under the pressure of such competition, the small-family type of farm would be operating at a greater disadvantage than at the present time.

F. Dale Wilson, '28, is attending the Oregon Agricultural College this year. He is working toward his master's degree.

Kenneth H. Platt, '26, is superintendent of the Washington County Cooperative Creamery at Linn, Kan.

Has the FARMER MADE HEADWAY?

ANY ONE familiar with farming need only look back a few years to get a picture of the marked progress that has taken place in agriculture and to visualize some of the possibilities the future holds in store for the farmer.

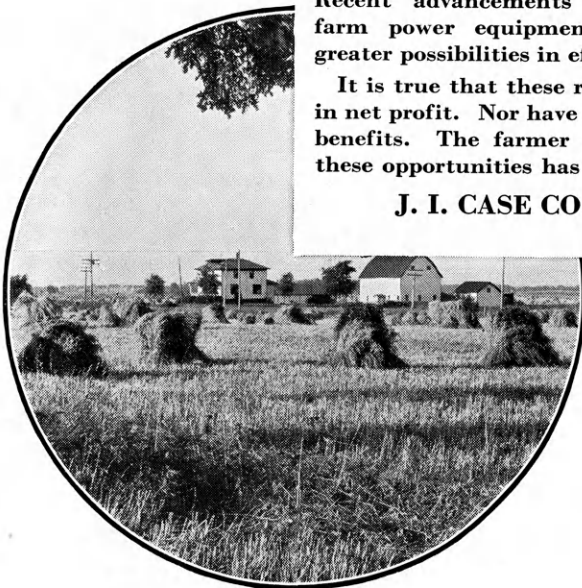
The quality of farm products, both crops and live stock, has been raised. There has been a slight gain in the acre yield of the principal crops despite the depletion of soil fertility. Diversification has been extended with attendant increase and stability in income. Better utilization of farm crops and by-products is opening new opportunities. The standard of living on the farm is substantially higher.

But the most amazing change has taken place and is now taking place in farm operations. The operating efficiency of the farmer has more than doubled in the last generation due to continued development of new and better farm machines. Recent advancements toward the perfection of farm power equipment and accessories offer still greater possibilities in efficient production.

It is true that these results cannot all be measured in net profit. Nor have all farmers shared alike in the benefits. The farmer who has taken advantage of these opportunities has made headway.

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*Quality Machines for
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KANSAS ENTOMOLOGICAL COMMISSION

(Continued from page 13)

of disease and infection over the state and other states as a whole. The same thing holds true for nursery stock quarantine for diseased trees, plants, vines, and shrubs.

The work of the Entomological Commission has been conducted intelligently and economically. Its value to the state in the one item of San Jose scale control and eradication has far exceeded the meager appropriations granted it by the state legislature. Much larger funds could very profitably be expended by this commission.

THE TWINS STEP OUT

(Continued from page 6)

where she still leads and where she displaced a cow whose record had stood for seven years. It ranked her the third highest producer in the state in all divisions for all time, and it registered for her the highest record ever made in the college dairy herd.

Ina is not the type to rest on past glories for she is now completing a third record and in 339 days has produced 18,713 pounds of milk and 715 pounds of butter fat. At the end of the 365-day period she will have produced approximately 740 pounds of fat. On the basis of 740 pounds for this last record, her three lactations averaged 739 pounds of butter fat. In comparison with this record, Old Inka had an average of only 642 pounds of butter fat for her best three lactations up to six years of age. Ina has yet her best producing period to go through and there is every reason to believe that she will far surpass her dam in her later lactations.

The great production and type exhibited by these twin daughters marks Old Inka as one of the most outstanding examples of type, production, and reproduction to be found in the college herd.

TURKEY PRODUCTION

(Continued from page 7)

a radius of a few miles of Lincoln one may visit a dozen commercial turkey farms that are growing the birds successfully on a large scale by employing modern methods.

One of the largest and most successful growers in Kansas to accept the newer ideas

is the Robbins Ranch of Belvidere. Mr. Lloyd E. Rogler, '27, and Mrs. Josephine Coblentz-Rogler, f. s., manage the turkey division of this large ranch. During the 1929 season they maintained a breeding flock of 750 female turkeys. They sold 14,000 eggs, 7,000 day-old poults, and raised 5,000 poults themselves. This is some enterprise and there is room for many more such enterprises in Kansas.

What are some of the advantages enjoyed by Kansas in producing turkeys that are not enjoyed by many other states? The four major advantages are as follows: (1) Cheap feed. (2) Ideal climatic conditions. (3) Extensive ranges. (4) Nearness to market.

Kansas is one of the leading grain-producing states. Not only are grain feeds comparatively cheap but much grain is wasted in harvesting that could be converted into turkey flesh. Turkeys are primarily grain consumers and experimental data indicate that the turkey makes exceptionally cheap gains.

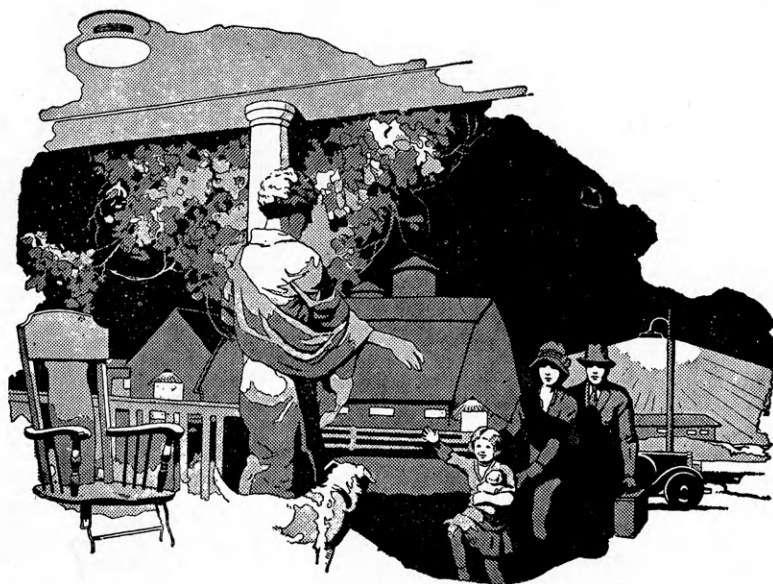
The spring season in Kansas is early enough to permit early brooding. The fall is cool enough to allow the growing stock to make the best gains in weight.

Extensive clean ranges are of little use if the poults have not been raised clean before turning on the range. They are ideal when the poults have been brooded under sanitary conditions and then placed on clean ranges clean. (See accompanying illustration.) Not only do such poults develop into strong vigorous turkeys but they are able to convert waste grains and insects into turkey flesh. It is folly, however, to force the growing turkey to rustle its entire menu.

Obviously the nearness of Kansas to the larger consuming areas is a distinct advantage in marketing. Turkeys from Kansas can be placed in Chicago to advantage over California, Utah, and Texas turkeys.

Artificial incubation, artificial brooding, and correct feeding, all carrying out the principle of sanitation, when finally grasped by more Kansas people, will make this state a great turkey-producing center.

Loren F. Ungeheuer, '28, is teaching vocational agriculture for his second year in Paxico Rural High School.



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Importation of Dairy Cows Into Kansas

R. L. Remsberg, '29

One of the problems confronting the agricultural world today is a way or ways of increasing the efficiency of production, whether it be by live stock or machinery. Increase in efficiency means more money with the same effort. This is the demand made of the dairy industry of Kansas today. The farmer is through fooling with the scrub cow which produces 125 to 150 pounds of butter fat in a lactation period that requires the same care, shelter, feed, and nearly the same investment as the high-grade or pure-bred dairy animal that produces 300 to 400 pounds of butter fat and returns \$100 to \$160 over cost of feed.

In the past ten years Kansas has shown some increase in number of cows milked. However, the value of dairy products produced in the state increased from 16 million in 1919 to 37 million dollars in 1928. It is possible that the interest in dairying will not increase so rapidly the next few years as it has the past, but there are many reasons which lead one to believe that the development will continue.

The main method of increasing efficiency in the production of dairy herds is by the use of pure-bred sires from tested dams or sires that have offspring of proved worth. A few pure-bred females are a great asset and make it possible to secure eventually a pure-bred herd. Kansas need not worry about a surplus of dairy cattle, but should there be a surplus, Kansas breeders will have an advantage in location for the sale of these cattle. Farmers in the South and West are not going to spend money for travel and for freight on cattle from the northern dairy centers if they can purchase the same quality animals in Kansas.

Relief from the present shortage of efficient dairy cows in Kansas can be secured to some extent by the purchase of carefully selected pure-bred cattle from the dairy centers. It is an established fact that animals of superior merit are not produced by making one or two crosses, but by an indefinite number of years of constant effort. Such is the

case in Wisconsin and some of the other sections devoted to intensive dairying. In these sections are herds that have used pure-bred sires for 25 to 35 years and are forced to severe culling due to the high value of land, congested conditions which force the farmers to small farms, and diversified type of farming. These conditions are quite different from those existing in Kansas today.

One of the causes of dissatisfaction with importing cattle lies with the men who are doing the buying. They go into these sections not knowing the type of animal that they should look for or the locality and proper men to buy from. Thus a large number of the foreign cattle which gain entrance into Kansas are culls from herds that discriminate against poor type and low production. Cows such as the ones described often sell at a price far above their value just because they are from Wisconsin.

Kansas farmers are very fortunate at present in having two good extension dairy specialists in Kansas State Agricultural College. These men know cattle, they understand pedigrees, and are acquainted with dairy conditions in other states. They are also acquainted with the larger breeders and know something of the production records and show winnings of their dairy animals. The method used by the extension men is first to get an order from the buyer stating the nature of the animal that he wishes to buy, also the limit that he cares to pay. This gives the men who do the purchasing something to work from. They consult the county agricultural agents, live stock agents, and breed association representatives in order that they may get a better view of the stock for sale. It often means lots of travel in locating the type of animal requested by the order, but the requests are not filled unless a suitable animal is found.

Young stock, whether heifers or bulls, makes the best buy. The high cost of feed and high prices received for the fluid milk make calf raising in the dairy centers very

(Continued on page 32)

Tattooing Hogs

J. A. Terrell, '30

The first work in tattooing hogs was done in Ogden, Utah, by a packing company under federal inspection. It is a system by which hogs on foot are tattooed in such a way that the carcass of the hog may be identified and if need be traced back to the owner. Although still more or less in the experimental stages hog tattooing is becoming popular, so popular that in the month of December, 1928, there were 45,532 tattooed hogs on the Kansas City market.

The tattooing apparatus consists of a holder about 2½ by 4 inches, a handle, blocks of letters or figures, and coloring. The blocks of letters are about 1 inch square and made of solder into which are fastened needles, point downward. The needles are shaped into a letter or figure so that each square in the tattoo makes a letter or figure. When a hog is to be tattooed the blocks with the desired letters are slipped into the holder and the needles dipped into some indelible coloring, preferably lampblack with lubricating or linseed oil or black automobile enamel. With the hog standing in a natural position, probably in a chute, he is struck sharply with the painted needles just in front of or over the shoulder. The pain to the hog is very small since there are very few nerves in the outer layer of fat. The indelible coloring leaves a mark on the carcass by which it may be identified after slaughter.

Now that the hog carcass is identified what good will come of it? The practical use it has been put to has been in tracing where the hogs have received their infection of tuberculosis. Hogs that have been shipped by a cooperative shipping association and are condemned because of the tuberculosis are marked up against the original owner instead of the whole association. In that way the farmer who has tuberculosis on his farm pays for it himself instead of all his neighbors helping him.

Tattooing has been of large service in helping to eradicate tuberculosis and make accredited free areas. Hogs take tuberculosis from either poultry or cattle. They are very susceptible to either. Therefore, if any tu-

berculosis is on the farm, hogs will contract it. If hogs contract it other stock on the farm are quite certain to be affected. Thus it is a means of locating the sources of infection. Diseased hogs may be traced to the farm from which they came. Federal authorities then get busy and clean up that source of infection.

The following figures show that this scheme has been effective. On the Kansas City market in 1928 there were 5.6 per cent of all slaughtered hogs retained because of tuberculosis and 0.14 of 1 per cent condemned and sterilized, but of 220,651 Kansas "Klean County" hogs shipped during this period only 2.24 per cent were retained and only 0.049 of 1 per cent were condemned.

This is all very well for the packers and federal authorities. The disease is being reduced and that is the essential thing, but what does it mean to the farmer? It takes some time to tattoo all hogs that are marketed and if tuberculosis is found on his place it costs lots of money to get rid of it. Why should he take the risk of having to dispose of a lot of stock because one carcass was marked "spotted" by the tuberculosis authorities?

Few farmers realize the seriousness of the disease. Fewer still would take the trouble to tattoo were it not for one thing—packers having recognized the importance of the whole business will pay a premium of 10 cents per hundred weight for hogs from accredited free areas. This helps make it worth while for a farmer to have his place clean, his community accredited, and his hogs tattooed. Since this was started, Kansas City packers up to January 1, 1929, had paid out as premiums \$188,096.20. Premiums have been paid on 765,105 hogs since the first county was accredited in June, 1924. Of the total \$188,096.20 paid out in premiums, Kansas growers have received \$110,282.73 on 443,389 accredited hogs from 31 counties. Jackson county heads the list with premiums amounting to \$19,542.59, Jewell county took in \$17,565.09 extra money this way, Johnson, \$13,388, and Leavenworth, \$11,240.43.

Tattooing hogs is becoming popular among hog breeders and feeders. It gives a check on tuberculosis infections, it helps farmers and federal authorities to eradicate tuberculosis, and it pays the farmer a premium of 10 cents per hundred weight on his hogs. In all, it promises to be a practical means of locating diseased live stock and with proper follow-up methods it will be a big aid in tuberculosis eradication.

IMPORTATION OF DAIRY COWS

(Continued from page 30)

costly. In Kansas the abundant pastures and cheap roughages eliminate this extreme cost. A price list recently received from the secretary of the Guernsey Breeders Association of Waukesha, Wis., showed pure-bred calves ranging in price from \$75 to \$100, yearling heifers, \$125 to \$150, heifers ready to freshen, \$200, \$250, and up. Bull prices correspond favorably with the prices quoted for heifers; all animals listed above are from dams producing 300 pounds of butter fat or over and must pass medical inspection before shipped.

According to these prices the cost of raising a heifer to breeding age in Wisconsin, is \$125. In Kansas this same heifer may be properly raised for \$40 to \$60, a saving of \$40 to \$50. While the saving in growing out calves is pronounced the additional value of having young stock well cared for must not be forgotten and this is done only by doing our own feeding. Animals arriving as calves have time to get acclimated and adapted to Kansas conditions before freshening. Heifers purchased at freshening time or cows may be handicapped during their first lactation period due to climatic changes.

The time is coming as Kansas dairying develops that a farmer need not go out of the state to get his pure-bred cattle, but at present animals of superior quality may be purchased and raised to producing age at a saving.

D. E. Bellairs, '28, is teaching vocational agriculture in Chilhowee, Mo.

Ragnar N. Lindburg, '28, is county 4-H Club leader in Butler county. His headquarters is El Dorado.

FORT HAYS AGRICULTURAL EXPERIMENT STATION

(Continued from page 22)

varieties of grapes. Some of the grape varieties are promising.

THE GENERAL FARM

The general farm is used to try out on a large scale the best practices as determined by experimentation, and to serve as a source of revenue to carry on the operations. Nearly two-thirds of the expenses of the station are obtained from the sale of products produced on the general farm.

The general farm has over 300 head of beef cattle, consisting of 200 head of cows and calves and 100 head of young stock. Investigations are being made in the utilization of crops grown in western Kansas for the maintenance of stock cattle during the winter months. For the past 17 years annual roundups have been held in the spring, at which time the results of the feeding experiments are discussed.

The dairy herd consists of 50 head of grade and pure-bred Holstein cattle. The milking herd is supplied with sweet clover and Sudan grass pasture during the summer months. The pastures are seeded on summer-fallowed land; sweet clover usually provides pasture during May and June, then Sudan grass furnishes pasture from July until November. By this method the herd may be pastured six months of the year. During the winter months sorghum silage and grain sorghum constitute a large portion of the ration.

The growing and distribution of pure seed has become one of the major functions of the general farm. Pure seed has been distributed to 86 counties in Kansas, to 12 neighboring states, to Mexico, and to Canada. Winter wheat, grain sorghums, barley, and corn are the grains distributed.

Frank W. Houston, '23, is now located near Jerome, Idaho. He has a fine herd of Holstein cows and has recently purchased a farm. Indications are that Frank knows his business.

Paul A. Axtell, '27, has been teaching vocational agriculture at Waterville, Kan., since graduation. Paul has recently joined the matrimonial ranks.



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New De Laval Magnetic Milker Supremacy Sensationally Recognized

THE manner in which dairymen the country over have recognized the all-around supremacy of the new De Laval Magnetic Milker has been nothing short of sensational. Hundreds of these new milker outfits have been installed for use with herds of every size and character. Users are unanimous in declaring this modern method of milking cows another stride forward in the reduction of the time and labor required for milking, in enabling the production of cleaner milk with greater ease and the definite assurance of a better job of milking day after day.

* * * * *

From the first announcement the new De Laval Magnetic Milker has been swept into prominence by the swift current of popular interest and approval. The ingenious application of electro-magnetic force, by means of which the pulsations are created and controlled, has engaged widespread attention, and many articles have appeared in the leading newspapers and farm and dairy publications commending the progressive step through which one of industry's hardest and most efficient workers has at last been harnessed for the agricultural field.

* * * * *

De Laval policy has always been to create and maintain the highest standards—in products and service. It is therefore with honest pride that the De Laval Company acknowledges the splendid recognition given the new De Laval Magnetic Milker.

* * * * *

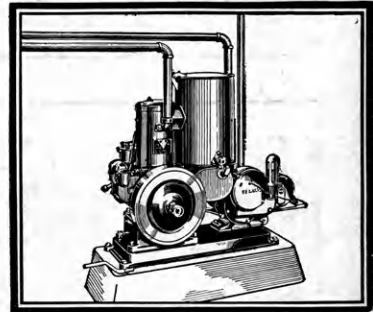
If you have not already seen this new milker that has created new high standards of milking efficiency and economy, ask your nearest De Laval dealer to demonstrate it on your own farm, or write to the nearest office below for complete information.

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The Alpha Dairy Power Plant is built like a modern automobile engine. It has automatic governor control, oil pump, counter-balanced crankshaft running on roller bearings, and many other features. In addition it has a built-in water heater that heats water at no extra cost for washing the milker while the engine is running for milking.