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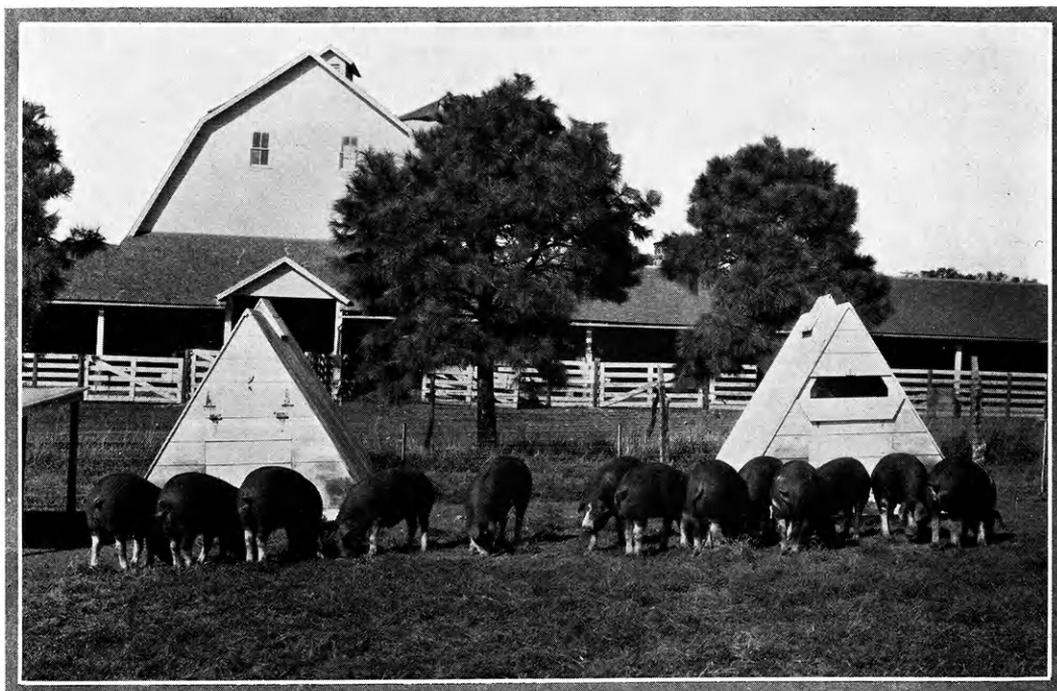
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EAST ENTRANCE TO THE CAMPUS ON A WINTER DAY

The Kansas Agricultural Student

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The Recent Rise and Fall in Wheat Prices¹

F. Dean McCammon, '32

The October advance in wheat prices was the most spectacular advance for that season of the year there has been since 1916. From the top for the first 10 days of October to the top for the first 10 days of November, best No. 2 hard wheat at Kansas City advanced 26 cents. This compares with a 25½-cent advance during the same period in 1916. Because wheat price so frequently, though not always, turns ahead of the average of commodity prices, the advance in wheat was hailed as another sign of business recovery. The advance, however, was dangerously rapid considering the present wheat supplies of the world. From the August top to the November top represented a price advance of about 68 per cent. This is getting close to the limit as indicated by past experience, except where unusual situations such as wars, corners, or disasters to supplies make for advances of 100 per cent or more.

There were four main supports to the October, 1931, advance. In the first place, and perhaps most important, was the fact that mill supplies of wheat were low; the large southwestern crop depressed prices into August and September and with farmers holding on to much of their wheat, mills felt the time had come to lay in supplies. Extensive mill buying and widening premiums for best milling quality wheat characterized the period. In the second place, the new southwestern wheat crop got off to about as bad a start in September and October, 1931, as it did in 1916 when the 1917 crop turned out to be only about 41 million bushels from 9½ million acres seeded. In the third place, and mainly adding a little spice to the speculative spirit, was the almost daily threat of war in the Far East. In the fourth place, the above

situations together with the extremely low prices reached by the first part of October encouraged more public speculation in the wheat market than had been present for months.

By November the first three props began to weaken and the fourth collapsed. September and October are most frequently the period of greatest mill activity. Buying by mills was heavy enough to take care of current needs and build up stocks. From October into December mill activity normally declines. Consequently, mill buying as a rule is less active during that period. By November there was evidence of this slowing up on the part of the mills. Secondly, instead of the September and October drought continuing as it did in 1916, November, 1931, turned out to be one of the wettest for many years in much of the state of Kansas. By early December much of the immediate concern over moisture for the growing crop was gone. In the third place, the threat of war in the Far East ceased to attract so much attention as the news got to be war one day and peace the next. This speculative excuse, therefore, weakened.

In the fourth place, by early November the advance in futures amounted to more than 20 cents. This was twice the margin put up in buying wheat futures and encouraged some to take profits. A decline of as much as 5 cents caught some of the late entries into the market who had put in stop loss orders of 2 to 5 cents. The selling out of these weakened the market further. A break of more than 10 cents caught some of the stronger holders of futures and forced them out. There was nothing left but purely speculative support given by the largest and strongest speculators. Finally overshadowing all and influencing the last and strongest

(Continued on page 64)

1. The author is indebted to Prof. R. M. Green of the Department of Agricultural Economics for sponsoring this article and checking it in detail.

Controlling Soil Erosion by Terracing and Contour Farming¹

O. E. Hays, '30

Even though at the present time there is a great excess of supply over demand for most farm commodities, there is no reason for the farmer to allow his soil to become so poor that when times become normal again he will have a hard struggle to make a living from the farm. The loss of soil fertility is one of the things that a farmer has to contend with if he expects to maintain a high yield of crops from his fields. The three main ways by which soil fertility is lost are: (1) The leaching of plant nutrients from the soil; (2) the removal of crop plants; and (3) the loss of plant nutrients by soil erosion.

In the humid sections of the country leaching is often responsible for serious losses in soil fertility. In the less humid sections the loss of plant food from leaching is not so serious. When the crops are sold from the farm the nutrients are entirely lost from the soil. This loss is greatly reduced if the grain and hay are fed to live stock and the manure returned to the soil. Experiments have shown that in many cases the loss of fertility due to erosion is greater than the loss due to the removal of crops.

Soil erosion may be divided into two types, gullying and sheet erosion. Gullies are caused by the runoff water collecting at low places in the hillside. The water flowing down these places will cut deep into the soil causing gullies. Sheet erosion is the removal of a thin layer of soil from the entire surface. Since the surface is the richest part of the soil, sheet erosion probably is more destructive of fertility than gullying.

Terracing and contour farming have been practiced for many years in certain parts of the South. It has been found that these practices make a very satisfactory combination to combat erosion. In the corn belt states there has been a limited amount of terracing, but very little contour farming. In order to save

our soil from washing down the river, we will have to practice terracing and contour farming along with other sound agricultural practices that will help reduce erosion.

By using a combination of contour farming and terracing, it is not necessary to make the terrace nearly so wide and high. Farmers have objected to the use of terraces because of the work required for construction and because of the difficulty of crossing them with large farm machinery. With smaller terraces, however, much less difficulty will be encountered.

The first terrace should be placed at a distance from four to six vertical feet below the top of the slope, the next at about the same distance below the first one, and so on. A surveyor's level may conveniently be used to run the terrace line to the proper grades which will usually be four to six inches per 100 feet. Some terraces are constructed so that there is a zero grade. Level terraces are the best for land that is not very steep and in sections of the country that are not bothered with torrential rains. In other sections there is more danger of their breaking over. There is also the disadvantage of having water standing within the level terrace until the soil can absorb it.

Various machinery may be used to construct the terrace. An ordinary road grader is probably the best. If it is impossible to use a road grader, a plow and V-shaped drag may be used. The base of the terrace should be about 15 feet wide. A slight ditch should be dug at the upper side and at the peak the soil should be piled to a depth of about 15 inches.

A good outlet for the excess water may be a source of some trouble. In the most desirable cases the terrace should be emptied into a road ditch or onto a pasture. In some cases it will be necessary for one to dig a ditch to carry away the excess water. In this case the ditch should be sodded down to prevent excessive washing. The ditch should

1. The author is indebted to Dr. F. L. Duley, professor of soils, for data used in writing this article.

have more slope than do the terraces so that the soil carried by the water will not settle out. If trouble is encountered because of ditches filling with soil, they will have to be cleaned.

In case it is desired to contour crop the land in addition to terracing, a good way to start planting is to make the first row on top of the terrace. If the land is not uneven in slope so that one would not have to cross the terrace often, it would be desirable to plant all of the rows parallel with the first one. If, however, the field is very uneven it will probably be desirable to start planting from each terrace and work toward the cen-

necessary to have the larger terraces in case of a torrential rain.

The carrying capacity of water increases faster than the increase of its flow. The terraces are placed close enough together so that a large volume of water will not accumulate. This permits very little washing between terraces. When the water flows along the terrace, its flow is retarded to such an extent that a large share of the soil it is carrying is deposited.

There are two things which are very essential, if one is to be successful in using terraces. First, he should have the terrace properly constructed. Second, he should keep the terraces up in good condition. When they break over, fill and reinforce them at these places so that it will not happen again. If these practices are carried out farmers will undoubtedly experience much less difficulty from gullies and sheet erosion than has taken place in the past.

Wilhelm A. Wunsch, '17, is county agricultural agent of Eddy county, N. Mex., with headquarters at Carlsbad. Mr. Wunsch visited in Manhattan recently.

Carl S. Channon, '29, is farming on rural route 1 out of Ottawa, Kan. He visited the college on Swine Feeders' day, Friday, October 23, hog production being of large interest to him. (The rider shown on the cover page is Carl. He made his expenses while in college by working on the animal husbandry farm, and he is shown in the picture on Tommy Greer's riding horse. The corn field is on the agronomy farm, and the picture was taken August 24, 1928.—Ed.)

T. Russell Reitz, '27, county agricultural agent of Wyandotte county has been made assistant professor of horticulture and February 1 will take charge of the new experiment fields in northeastern Kansas. Provision was made for these fields by the Legislature of 1931. Four fields are practically established now—one an old orchard in bearing, one a site for a new orchard, one a Kaw valley potato field, and one a general crop field. A fifth field, a tract for the production of small fruits, will be located later.



LAND BADLY ERODED OR CONTOUR FARMING, WHICH?

Upper: A field where erosion was so bad that it had to be seeded to grass. Terracing and contour farming would undoubtedly have prevented this.

Lower: Contour cotton farming with terraces. Note the better cotton along terraces and in low spots. (Spur, Tex.)

ter, filling in with point rows. Point rows will also be necessary at some of the corners.

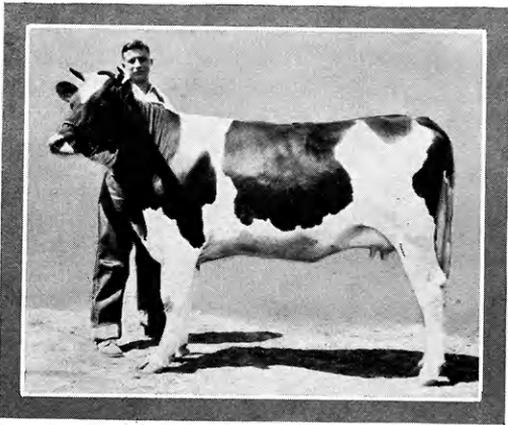
Each of these rows work as a small terrace. In other words the field is now covered with small terraces, one every 42 inches. When the crop is small there is a slight depression where the row is planted. Later on, the soil at the row is filled in higher than the surrounding soil. This unevenness tends to check the flow of the water down the hill and give the soil more time to absorb the rainfall. This will take care of a moderate rain, but it is

Kansas Dairy Champions

H. B. Harper, '32

In recent years the state of Kansas has come to the front with its now well-known dairy show cattle. Less than 15 years have elapsed since our only show animals in the dairy field were brought in the small show rings of the county and local fairs in a rough and unsightly condition. Many of these had never been trained to show and were not conditioned by proper feeding or given any of the many treatments with regard to care and management now known.

Such practices have been laid on the shelf and up-to-date methods necessary to put an animal into condition for show have been



PRIZE-WINNING HOLSTEIN

Springrock Ormsby Aaggie Ona has been first in her class as a senior Holstein yearling at three state fairs this fall. She is owned and was fitted and shown by Ivan Meyer, the holder in the picture.

adopted. As a result Kansas now puts on high-class dairy live stock shows that are a credit to any seen in the United States.

This recent development can be traced to the building of better herds, more and better management, and an increased interest on the part of the public in better live stock. A great deal of credit goes to men who have been willing to invest in and breed better dairy animals. Such men as ex-Governor Stubbs of Mulvane, and Mr. Stone of Peabody, are responsible for early Holstein development here. Since their time, other men have fallen in line and continued the good work.

Among early Jersey breeders Mr. R. J. Linscott of Holton and Mr. T. F. Doran of Topeka deserve special credit.

There are now many representatives of the five major breeds of dairy cattle in Kansas. To these men is due the credit Kansas enjoys at present because of her well-known dairy animals.

At the several state fairs and two leading dairy shows this fall, including the National Dairy Show at St. Louis, Kansas was best represented by the following herds: Guernseys—Jo-Mar Farm, Salina; Glencliff Farm, Independence; and Ransom Farm, Homewood. Holsteins—G. G. Meyer, Basehor; Osawatomie State Hospital; and Ira Romig, Topeka. Jerseys—Shadowlawn Farm, Clay Center; Beal Brothers, Iola; and Charles Gilliland, Mayetta. Ayrshires—David G. Page, Topeka; and Fred Williams, Darlow. The Brown Swiss breeders of Kansas have recently made rapid progress. Not only is this breed young here but a majority of the winning show animals are owned by boys and girls in 4-H clubs. As is highly probable these young breeders will be in a good position to become Kansas master breeders in a few years.

According to Prof. J. B. Fitch of the Department of Dairy Husbandry, unless the boys and girls are kept interested in this work, there is grave danger of slow development in dairy showing. It is the work of the individual breeders who actually own live stock and who count on this live stock as a means toward a living that makes the work interesting and worth while. Too often the ring side at the shows is empty because of little interest from the public. It becomes a mere matter of competing for prizes by wealthy breeders who in turn have made their "hobby cash" in some other way.

The practical work of Kansas breeders in dairy live stock presents a different picture from the one just outlined. As was pointed out, the boy and girl element in our shows has helped tremendously. Professor Fitch further adds that the best source for our future dairy showmen is the 4-H clubs. Furthermore, the advantage had by these boys

and girls over present-day showmen is great and no doubt will place them in the limelight as our Kansas dairy showmen during the next decade. Already the names of these boys and girls are before the public. In the 4-H division, Ralph Robinson of Kingman county came to the front as a reserve champion Ayrshire showman. Richard Hafer of Smith county is the proud owner of the champion Holstein. Carl Lindquist of Saline county speaks up for the Guernseys. Then comes

his Holstein heifer, and he was the proud representative of Kansas in the National contest at St. Louis.

In the leading shows this season, Kansas comes to the front with several outstanding animals in the open classes. The Meyer dairy company of Basehor is proud of Springrock Ormsby Aaggie Ona, who stood first in her class as a Senior Holstein yearling at Nebraska, Missouri, and Topeka State Fairs. She also attracted considerable attention at



KANSAS PRIZE-WINNING PURE-BRED DAIRY CATTLE

Upper left: Fairfield Craig Denty, an Ayrshire winner, being repeatedly made junior champion at the shows this fall. Upper right: Fairfield Admiral, a splendid type of Ayrshire. Lower left: You'll Do's Laburnum, a prize-winning two-year-old Jersey with a record of 12,347 pounds of milk and 612.8 pounds of butter fat. Lower right: Cabium Carrie Princess Champion, pure-bred Guernsey bull, senior grand champion at the recent Topeka Free Fair.

Roland Fox of Harper county with his Brown Swiss heifer.

At Hutchinson, a showmanship contest was staged where 4-H boys and girls could compete for further honors. Their ability to fit and show a dairy animal to best advantage served as a basis in this event. Loren Dilsaver of Hutchinson came to the front with

many county fairs. Ona is a 4-H Club heifer owned by Ivan Meyer.

You'll Do's Laburnum, an outstanding producer as well as ribbon winner, takes our attention to Jerseys. She is a record junior two-year-old for Kansas with 12,347 pounds of milk and 612.8 pounds of butter fat. Her

(Continued on page 64)

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INTERCOLLEGIATE JUDGING CONTESTS

If we were to follow the custom of some magazines we might call this number the judging team number. We are pleased to present pictures of the six intercollegiate teams of the Division of Agriculture and a write-up of both current and historic interest and importance on the contests of each. The photographs used were taken by Mr. F. J. Hanna, the college photographer, and will speak for themselves as excellent reproductions of the teams.

A spirit of seriousness and hard work pervades the atmosphere of the college this year. It is certainly conspicuous in the Division of Agriculture and has been carried by our teams and others into these intercollegiate agricultural contests. Competing teams have never entered these contests better prepared and all contests have been hard fought. We are proud of our teams. They have made a creditable record, one probably unsurpassed by any other college of agriculture.

To the students competing, the work itself is largely its own reward. It is hard work, but that is the kind which when well selected

makes real men out of boys. Students who take up the various lines of competition may do so on the honest advice of teachers, but strictly on their own choice. They know what it means, put their best efforts into it, set their goal high, and come out the stronger whether or not they make the highest score, or "win" in the usual sense of the word.

The honor of representing the college on an agricultural judging team is one for which there is practically always keen competition. In many instances in the preliminary there are more than a score of serious, capable, and hard-working competitors. Agricultural students take college elective courses semesters in advance of judging contests to broaden their preparation for the contests. They often start early in their college career and repeat judging courses to broaden their experience. They thus approach their objective from many slants and work consistently over a long period of time for a coveted place on a team but the goal is worth the effort as the record of our intercollegiate contestants in college and after graduation will testify.

College Training for Professional Work in Agriculture

L. E. Call, Dean, Division of Agriculture

THERE are six million separate farm units in the United States. Each of these farm units needs and must have, for the most efficient operation, service of a technical and specialized character. The most of these individual units are too small to justify the expenditure necessary to provide at private expense such technical service for each unit. Collectively, these farm units constitute the most important industry in America, an industry upon which many other industries in this country depend for prosperity. It is important, therefore, both from the standpoint of the farming industry itself, as well as other industries dependent upon agriculture, that the technical service needed for the efficient improvement of the six million farms in this country be provided. Society has recognized this need and has made provision for the government to provide such service at public expense. The following are some of the services to agriculture provided in this way.

1. The service of determining new facts useful to agriculture. To provide this service, the government of both the state and nation have established agricultural experiment stations. It is the function of these stations to attempt to solve for farmers troublesome problems that probably would not or could not be solved by the farmers themselves.

2. The service of making new facts useful to agriculture available to the people who can use them. To provide this service, the government has established an agricultural extension service. This service, through the county agricultural agent system, reaches into all of the more important farming communities of the country. It places within easy reach of the majority of the six million farmers of this country, a source of reliable agricultural information.

3. The service of instructing the coming generation of farmers in the best methods of agricultural practice. To provide this service, colleges of agriculture have been established, 4-H boys and girls clubs have been organized, and agricultural instruction is offered in the public schools. More than one hundred Kansas high schools have taken advantage of the opportunity to offer with federal and state aid, vocational agricultural instruction to the young men of their communities.

Service of the character briefly described above can be provided adequately, only by persons thoroughly and efficiently trained. There is need in Kansas, therefore, as well as in other states, for men trained especially for professional work in agriculture. The training of men for these services should consist of a background of practical knowledge in the art of farming, best learned in boyhood on the farm, together with thorough training in the science of agriculture and agricultural business practices, best learned in a college of agriculture. There is an excellent opportunity for young men raised on Kansas farms to render service to the agricultural industry by securing the training in technical agriculture necessary to enable them to engage in professional agricultural work. The agricultural curricula of Kansas State College are organized to provide the type of training needed by those who wish to engage in work of this nature.

COLLEGE NOTES

DAIRY CATTLE TEAM WINS RECOGNITION

The dairy cattle judging team coached by Prof. H. W. Cave of the Department of Dairy Husbandry competed in two contests this year. The first was held at the Waterloo, Iowa, Dairy Cattle Congress, September 28, 1931. The second, the National contest, was held in connection with the National Dairy Exposition at St. Louis, Mo., October 12. The Kansas Aggie team composed of—

F. Dean McCammon.....	Manhattan
Earl C. Coulter.....	Willis
Arthur C. Thomson.....	McCune
Lee H. Albin (alt.).....	Norcatatur

placed first and seventh, respectively, in these contests.

At Waterloo the team placed first with eight teams competing. They were first on Ayrshires, Holsteins, and Guernseys; second on Jerseys, losing the Jersey trophy to the Iowa team by one point. McCammon was high individual of the contest, scoring 575 points out of a possible 600. Coulter was second high man with 572 points, and Thomson placed eleventh with 520 points. McCammon was high individual in judging Holsteins and Jerseys, tied with Coulter for first on Guernseys, and was third on Ayrshires. Coulter was high in judging Ayrshires, tied for first on Guernseys, and was second on Holsteins and third on Jerseys. Thomson was fifth on both Guernseys and Holsteins.

At the National contest in St. Louis, the team placed seventh with 24 teams from the United States and Canada competing. The team placed fifth on Guernseys, seventh on Holsteins, and ninth on Ayrshires. Coulter placed tenth in judging Ayrshires. The contest was won by the Nebraska team, a team that Kansas had defeated at Waterloo. The National contest is the largest dairy judging contest in the United States and annually draws teams from the leading colleges of agriculture in this country and Canada.

A list of the prizes won by the Kansas team in the two contests includes four permanent trophies for the college. Individual prizes won were: One wrist watch, two dress canes, two leather brief cases, one fountain pen and pencil set, four pewter goblets, ten medals, and four sets of book ends.

—A. C. T., '32.

DAIRY PRODUCTS TEAM

The dairy products judging team, coached by Prof. W. H. Martin, and composed of G. Raymond Kent, Wakefield, E. Dwight Chilcott, Jewell, and Keith B. Dusenbury, Anthony, won seventh place in the second annual intercollegiate contest sponsored by the Dairy and Ice Cream Machinery and Supplies Association, at the Dairy Industries Exposition, Atlantic City, N. J., October 26, 1931. Iowa State College was found to have the most sensitive palate by placing first in the contest with sixteen teams competing.

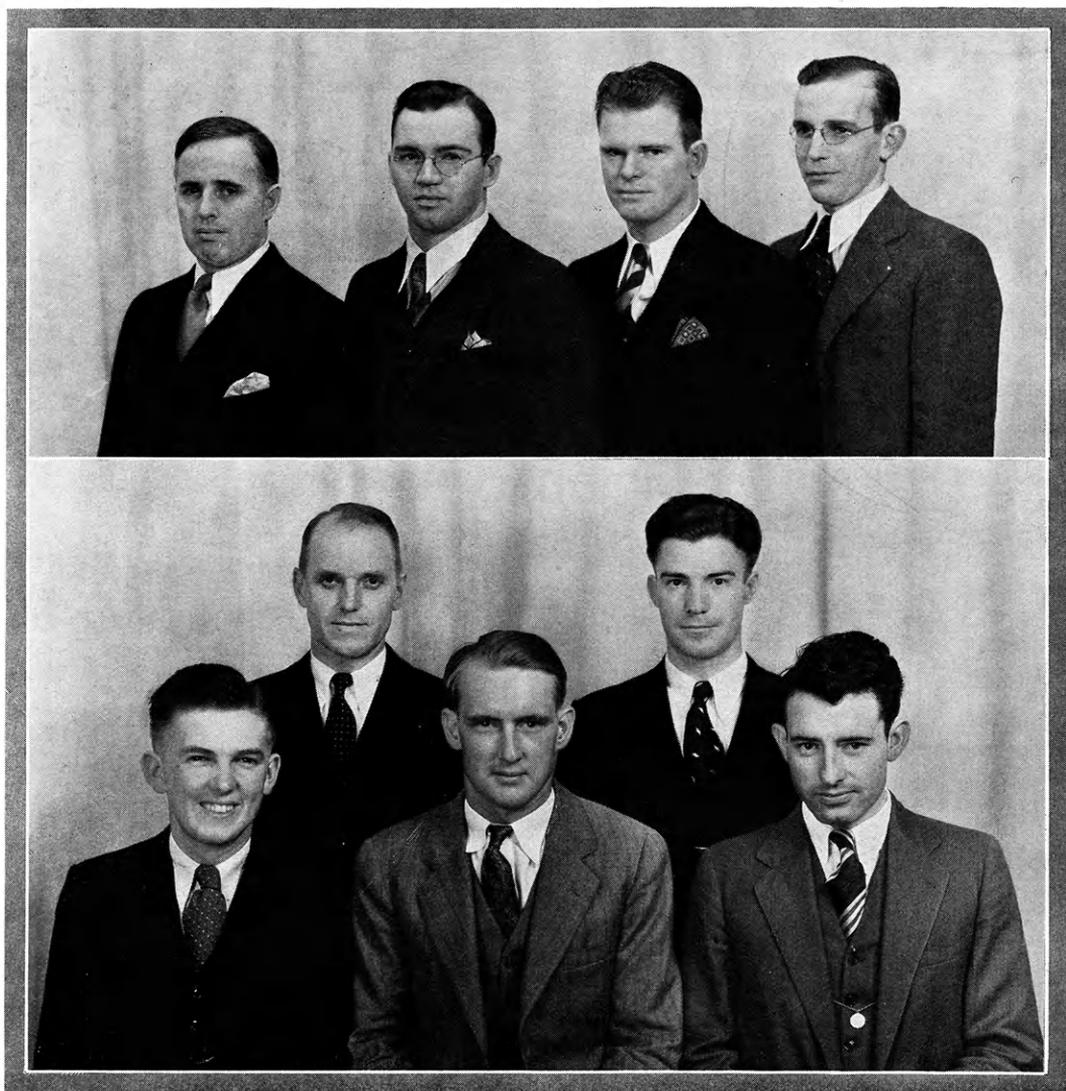
The ranking of the individual members of the Kansas team was as follows:

G. Raymond Kent.....	16th
Keith B. Dusenbury.....	19th
E. Dwight Chilcott.....	30th

The team visited a number of important cities on the trip, including Washington, D. C., Philadelphia, Atlantic City, New York City, Pittsburgh, and Chicago. Among the points of special interest to the boys on the Kansas team were the Mississippi river, mountains of West Virginia and Pennsylvania, Atlantic ocean, and Horseshoe Bend near Altoona, Pa.

The Dairy Industries Exposition was held in the Atlantic City municipal auditorium—the largest of its kind in the world. Five acres of exhibits of modern machinery, equipment, and supplies were displayed—the finest and latest dairy supply producers had to offer. During the week 12,500 people inspected this great exposition.

—K. B. D., '32.



DAIRY JUDGING TEAMS: DAIRY PRODUCTS (UPPER), DAIRY CATTLE (LOWER)

Dairy Products Judging Team: Prof. W. H. Martin (coach), G. Raymond Kent, Keith B. Dusenbury, and E. Dwight Chilcott.

Dairy Cattle Judging Team: F. Dean McCammon, Prof. H. W. Cave (coach), Arthur C. Thomson, Lee H. Albin, and Earl C. Coulter.

NEW MEMBERS OF ALPHA ZETA

Membership in student honorary agricultural fraternity of Alpha Zeta is one of the most coveted honors open to students in the Division of Agriculture. In the first place no student is considered for membership whose

scholarship does not place him in the upper two-fifths of his class. Having passed this first door, possible candidates are carefully scrutinized and thoroughly investigated as to character and leadership—especially potential leadership. It is the genuine student whose

character rings true and whose personality and actual leadership indicate more marked and outstanding agricultural leadership in the future that Alpha Zeta seeks to honor.

Alpha Zeta elects new members twice a year—once each semester. The following agricultural students were elected this semester:

Ervil S. Fry, senior, member of the recent victorious grain judging team, whose home is in Porterville, Calif.

John I. Miller, junior, high freshman in 1929-'30, high sophomore in 1930-'31, member of the recent poultry judging team, whose home is Prescott, Linn county.

Franklin L. Parsons, junior, well known on the campus for his diversity of interests and leadership, whose home is Ruleton, Sherman county.

Andrew B. Erhart, junior, second high freshman in 1929-'30, and second high man in scholastic standing in the junior class (considering both freshman and sophomore grades), whose home is Timken, Rush county.

Lee H. Albin, junior, a member of the recent dairy cattle judging team, whose home is Norcatur, Norton county.

Herbert W. Clutter, junior, associate editor, whose home is Larned, Pawnee county.

Floyd E. Davidson, sophomore, well known by his associates for doing well whatever he undertakes, whose home is Madison, Greenwood county.

—L. A. W., '32.

SOPHOMORES RECOGNIZED FOR SCHOLARSHIP

In the annual Phi Kappa Phi recognition program December 3, 1931, the following sophomores of the division were commended for high scholarship during their freshman year:

- Vernon E. Burnet.....Manchester, Okla.
- Richard H. Campbell.....Grenola
- Kenneth S. Davis.....Manhattan
- Raymond J. Doll.....Ellinwood
- D. Ross Haney.....Marceline, Mo.
- Louis B. Hanson.....Jamestown

- Pius H. Hostetler.....Harper
- Wayne W. Jacobs.....Harper
- Clarence E. Keith.....Ottawa
- Edwin J. Krasny.....Topeka
- James W. Mather.....Grinnell
- C. Dean McNeal.....Boyle
- James C. North.....Kansas City, Mo.
- Wilfred H. Pine.....Lawrence
- Maurice I. Wyckoff.....Waldo

Arlyn E. Conard of Timken, Rush county, and Burton C. Filkin of Wilsey, Morris county, not in college this semester, were also recognized for their high scholastic standing as freshmen.

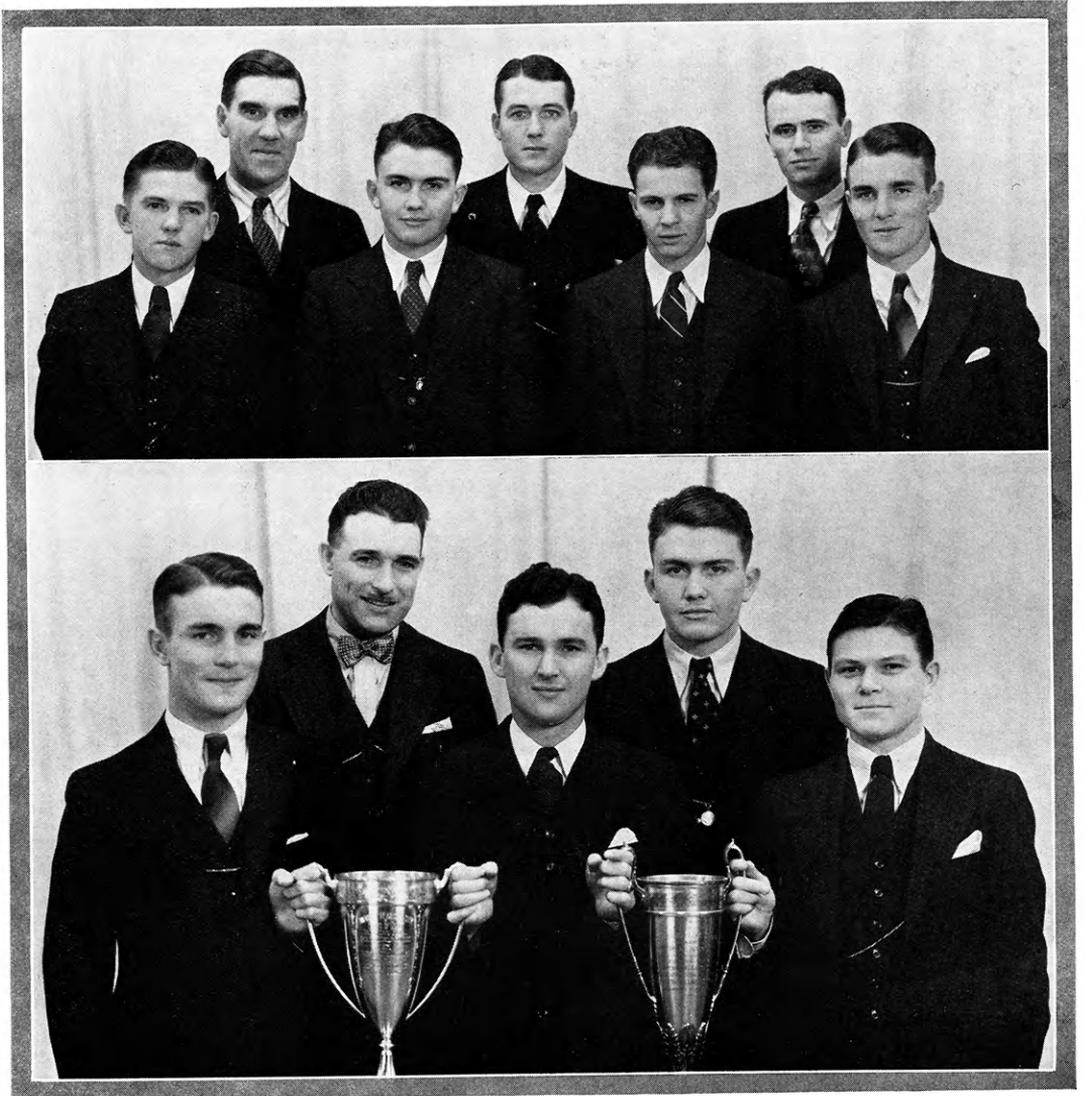
THE LIVE STOCK JUDGING TEAM LEADS ALL COMPETITORS

Making a total score of 11,800, the 1931 live stock judging team of Kansas State led all competitors in the three major contests of the season—the Kansas National Live Stock Show at Wichita, the American Royal Live Stock Show at Kansas City, and the International Live Stock Exposition at Chicago. Although the team won but one of these contests, the Kansas National, its consistent placing near the top gave it the highest grand total score. Much of the credit for this record is due Prof. F. W. Bell of the Department of Animal Husbandry who has always produced teams that place at or near the top. The team was composed of the following students:

- Robert O. Blair.....Coleman, Tex.
- W. Loy McMullen.....Oberlin (alt. at Chicago)
- F. Dean McCammon.....Manhattan (alt. at Wichita)
- Lawrence D. Morgan.....Manhattan
- Ralph C. Munson.....Junction City
- Taylor L. Jones.....Garden City (alt. at Kansas City)

The ranking of the seven leading live stock judging teams which competed in the three national contests is shown in the following tabulation. The numbers following the scores designate the rank of the teams in the American Royal, the International, and the Kansas National contests.

Team	Total score	International	American Royal	Kansas National
Kansas State	11,800	4,523 (3)	4,524 (4)	2,753 (1)
Oklahoma	11,764	4,528 (2)	4,507 (5)	2,729 (2)
Iowa	11,731	4,542 (1)	4,544 (1)	2,645 (6)
Texas A. & M.	11,592	4,482 (5)	4,486 (8)	2,624 (7)
Wyoming	11,440	4,367 (11)	4,392 (11)	2,681 (3)
Minnesota	11,395	4,326 (14)	4,401 (10)	2,668 (4)
Texas Tech.	11,265	4,272 (16)	4,441 (9)	2,543 (8)



AGGIE INTERCOLLEGIATE JUDGING TEAMS: LIVE STOCK (UPPER), MEATS (LOWER)

Live Stock Judging Team: F. Dean McCammon, Prof F. W. Bell (coach), Ralph C. Munson, Robert O. Blair, Taylor L. Jones, W. Loy McMullen, and Lawrence D. Morgan.

Meats Judging Team: Lawrence D. Morgan, Prof. D. L. Mackintosh (coach), George Washington, Ralph C. Munson, and Alfred T. Helm.

At the Wichita contest, November 12, the Kansas team placed first with eight teams competing. R. O. Blair was high individual of the contest. In the eight classes judged Blair made a placing score of 399 out of 400 and a total score of 582 out of 600. This ex-

cellent record, comprising an average of 97 per cent, according to all available statistics of the national judging contests, has never been equaled. The record at the Chicago contest was broken this year by an Oklahoma judge with an average of 94.2 per cent;

therefore, the record made by Blair on a comparative basis is very outstanding. Munson was second high individual, and McMullen, eleventh.

In the Kansas City contest, November 14, the team placed fourth being only twenty points behind the winning team, Iowa. Munson was ninth high individual out of the 75 contestants and made the highest individual score of the contest on cattle. McCammon was eleventh in individual rank.

In the Chicago contest, November 28, the team placed third with 20 teams competing. Munson was second high individual of the 100 contestants, McCammon third, and Jones eleventh. The team placed first in judging sheep, third on hogs, and fourth on cattle. High individual rankings on the team were: Morgan first on hogs, Blair first on sheep, Jones first on cattle, and Munson first on horses.

The live stock judging teams of previous years have made trips through Missouri, Iowa, and Illinois. This year in place of this trip the team visited Oklahoma A. & M. College at Stillwater and worked for three days on their fine live stock just previous to the National contest at Wichita.

The experiences encountered in training for the team and competing in these judging contests constitute some of the most valuable experiences of a college career. The knowledge acquired of the very best in live stock, together with the personal contacts made with the biggest men in the live stock industry, has a value which cannot be overestimated and is an inspiration to all lovers of live stock.

—R. C. M., '32.

MEN'S MEATS JUDGING TEAM MAKES AN OUTSTANDING RECORD

The men's meats judging team, composed of Alfred T. Helm, Chanute, Lawrence D. Morgan, Manhattan, Ralph C. Munson, Junction City, and George Washington, Manhattan, was successful in capturing first-place honors at the American Royal Live Stock Show. There were five teams competing and their scores were: Kansas State, 2,338; Iowa State, 2,287; University of Illinois, 2,281; University of Missouri, 2,221; and Pennsylvania State, 2,165. The Kansas State team

placed first in judging of pork, second in beef (really a tie for first, but they lost to Iowa State by flip of coin), and fourth in lamb. Alfred Helm, second high individual in the entire contest, placed second in beef, second in pork, and sixth in lamb. L. D. Morgan, third in the entire contest, placed first in lamb, fifth in pork, and tenth in beef. R. C. Munson ranked seventh in the entire contest, placing seventh in beef and third in lamb.

Since the records show that never before in the history of meats judging contests at the American Royal and the International has the same team won both contests, it was the general thought of most judging team followers that Kansas State team would not be at the top again. But when the smoke had cleared after the International contest at Chicago, it was found that Kansas State again stood at the top with a score of 2,404 points out of a possible 2,700. This was the highest score ever made by a team in any meats judging contest. The other eight competing teams and their scores were: Iowa State, 2,384; Pennsylvania State, 2,351; University of Nebraska, 2,314; University of Illinois, 2,293; West Virginia University, 2,248; South Dakota State, 2,221; Ontario Agricultural College, 2,216; and University of Missouri, 2,208. The Kansas State team was first in the judging of lamb, first in beef, and sixth in pork.

R. C. Munson was high ranking individual in the contest with a score of 819 points, the second highest score ever made at any meats judging contest. He tied with L. D. Morgan for fourth place in judging of lamb, and tied for fourth place in pork and beef. L. D. Morgan was third in the entire contest, tied for fourth place in judging lamb, and was eighth in pork and sixth in beef. Alfred Helm placed eleventh in the entire contest and was seventh in judging beef.

The meats judging contests are really sponsored and managed by the National Live Stock and Meat Board. This board has constantly striven to make the contests more educational, interesting, and enjoyable, and has done much to further the interests of meats work in our colleges and universities.

The Kansas meats team made a very commendable record. Without question, a great



AGGIE INTERCOLLEGIATE JUDGING TEAMS: POULTRY (UPPER), CROPS (LOWER)

Poultry Judging Team: Prof. H. M. Scott (coach), Gilbert C. Moore, Carmy G. Page, Virgil A. Unruh, Leonard E. Croy, and John I. Miller.

Crops Judging Team: Tom D. Dicken, Prof. J. W. Zahnley (coach), Luther A. Jacobson, Ervil S. Fry, and Will M. Myers.

deal of credit is due Prof. D. L. Mackintosh, coach, who so diligently and patiently worked with the team since the beginning of the school year. His untiring instruction was efficient, and his ever inspiring enthusiasm and zeal made the team put forth all that was in them.

The enjoyment and benefit derived from judging work can never be fully realized until one has actually been a member of a college judging team. The competitive spirit which so fully equips one to meet the every-day problems of life is ever present. The acquaintances one makes with noted agricul-

tural men while attending these live stock shows, is of great value to one after he has completed his college work, regardless of what line of work he may pursue. The benefits are so great that to be a member of an intercollegiate judging team should be a goal which every agricultural student should strive to attain.

—L. D. M., '32.

CROPS JUDGING TEAM PLACES HIGH

The Kansas crops judging team entered two contests during the fall and finished the season with one first place and one third place. Members of the team were:

Ervil S. Fry.....Porterville, Calif.
Luther A. Jacobson.....Horton
Will M. Myers.....Bancroft
Tom D. Dicken (alt.).....Winfield

In the contest at Kansas City in connection with the American Royal Live Stock Show the team made a total score of 4,955, leading the second place team, Nebraska, by 94 points. Other teams in the contest in the order of their placings were: Iowa, Oklahoma, and Texas Tech. The Kansas team made the unusual record of placing all of its men in the high four. Jacobson was high individual with 1,665 points; Fry, second with a score of 1,664; and Myers fourth with 1,626. There were three sections in the contest: One in grain judging, one in commercial grading, and one in identification. Fry was high man in judging and Myers, second.

The second contest was in Chicago in connection with the Grain and Hay Show of the International Live Stock Exposition. Here the team, working under unusual contest conditions and under the psychological handicap of a previous victory, placed third, trailing both North Carolina and Iowa in total scores. Nebraska placed fourth, Michigan, fifth, and Oklahoma, sixth. The individual rating of the members of the team was reversed in this contest with Myers placing fifth, Fry, tenth, and Jacobson, sixteenth.

Much credit for the high showing of this year's team goes to Prof. J. W. Zahnley of the Department of Agronomy, whose record as a crops judging coach is not surpassed by anyone in the Middle West. In eleven intercollegiate contests for which he has prepared grain judging teams his team has placed first

four times, second once, third three times, fourth twice, and sixth once.

—W. M. M., '32.

POULTRY TEAM MAKES GOOD SHOWING

In the Mid-West Intercollegiate Poultry Judging contest held at Chicago, Saturday, December 5, 1931, the Aggie poultry judging team placed third in competition with eight of the strongest collegiate poultry judging teams of recent years. The scores of the nine competing teams were as follows:

Team	Score
Oklahoma	3,116.7
Iowa	2,968.3
Kansas	2,950.0
Missouri	2,911.6
Pennsylvania	2,905.0
North Dakota	2,748.4
Nebraska	2,726.7
Arizona	2,595.1
Ohio	2,585.1

The team was composed of the following students:

Leonard E. Croy.....Norcatour
John I. Miller.....Prescott
Virgil A. Unruh.....Pawnee Rock
Gilbert C. Moore.....Louisburg
Carmy G. Page.....Norton

In the entire contest, Croy was fourth high individual and Miller was ninth. The team placed second in exhibition judging, fourth in written examination over the American Standard of Perfection, and seventh in production judging. Croy was tied for first in exhibition judging. Miller was sixth in the written examination and tied for sixth in production judging. Unruh was tied for third in the written examination and for fifth place in exhibition judging.

Although the team did not place so high as Professor Scott's poultry teams in the past, they made a very creditable showing considering the nature of the competition. A Kansas team has never fallen below third place at any of the Mid-West Intercollegiate Poultry Judging contests. This enviable record is due to a large extent to the excellent work of Prof. H. M. Scott who has coached these teams.

—J. I. M., '33.

Louis P. Reitz, '30, is teaching crops courses and coaching the grain judging teams in Montana State College, Bozeman. His team placed second in the recent Pacific International Grain and Hay Show at Portland, Ore.

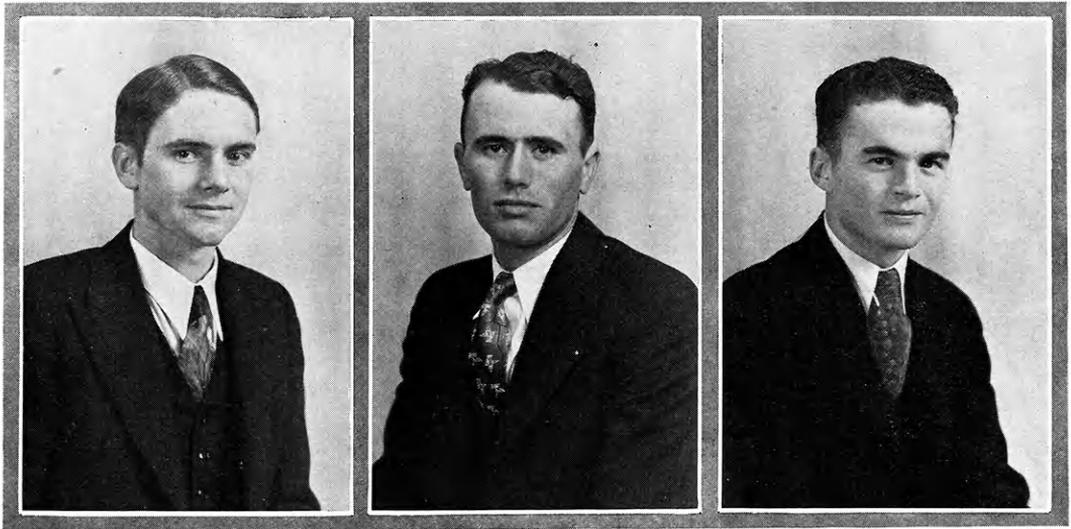
AG ASSOCIATION SMOKER

The Ag Smoker held at the Manhattan Community House, December 15, proved successful in its attempt to strengthen the divisional spirit and cooperation among the Ag students of Kansas State College.

The success of the smoker is largely due to W. M. Myers, Bancroft, president of the Agricultural Association; J. R. Bentley, Ford, chairman of the committee on refreshments; E. H. Regnier, Spearville, chairman of the

Loveless, Denton, Tex.; judges, Profs. R. I. Throckmorton and R. J. Barnett.

Following the athletic performance the program continued with a clever monologue, "The Radio Announcer," by Edwin Krasny, Topeka; a xylophone and trumpet duet, by Harold Kugler, Abilene, and Kenneth S. Davis, Manhattan; a humorous reading by L. A. Wilhelm, Arkansas City; and music by the Collegiate 4-H Club quartette composed of Dale H. Edelblute, Keats, John Hanna, Clay

**HONORED BY ELECTION TO PHI KAPPA PHI**

These three students of the class of 1932, Division of Agriculture, constitute the upper 5 per cent of the class in scholarship and by virtue of this distinction were elected to membership in the college honorary scholastic society, Phi Kappa Phi, at the regular first semester election. From left to right they are: Will M. Myers, Bancroft; W. Loy McMullen, Oberlin; and Jay R. Bentley, Ford. Their scholarship averages are 2.61, 2.55, and 2.52, respectively.

program committee; and Glenn S. Fox, Rozel, chairman of the committee on arrangements.

The meeting opened with four wrestling bouts (Ags versus Ags). Joe P. Neill, Miltonvale, and G. W. Watson, Vining, wrestled to a draw; Dave W. McGee, Liberal, won judges' decision from Wayne Burbank, Benton; Edwin R. Lamb, Mendon, Mo., and Hampton Nett, Edwardsville, wrestled to a draw. The light heavyweight bout between D. R. Haney, from the Missouri Ozarks, and Douglas H. (Push and Grunt) Burbridge was thrown out by the judges. The officials were: Referee, Carl E. Elling, Lawton, Okla.; timer, Elbert

Center, E. H. Regnier, Spearville, and Leonard A. Rees, Abilene.

After the program the Association held a short business meeting for the purpose of electing a new vice president to fill the vacancy left by Robert M. Hodgson, Little River, who did not return to college this fall. John G. Bell, Atchison, senior in agronomy, was elected.

Short talks were given by Prof. R. I. Throckmorton, Prof. R. J. Barnett, Dr. W. E. Grimes, and Dean L. E. Call. Refreshments of doughnuts and coffee were served at the close of the meeting. The estimated attendance was 275.

—E. H. R., '32.

QUESTIONS & ANSWERS

FARM & COLLEGE

Q. Is pork the only meat that can be cured satisfactorily at home?

A. Any meat can be cured or preserved if so desired but pork blends itself to the process to a little better advantage.

—Ralph C. Munson, '32.

Q. Are artificial substitutes such as liquid smokes and smoked salts practical for the home curing of meat?

A. While liquid smokes are fairly satisfactory substitutes they are acids and do not exert any preservative action while smoked salts only impart a flavor with no preservative coating to facilitate a cure. —R. C. M.

Q. What effect does burning have on the yield of pasture vegetation? Under what conditions is burning advisable?

A. Burning of pastures decreases the yield of vegetation 10 to 30 per cent. The greatest decrease results when burning is done in the fall.

Burning of pastures may be advisable if there is a heavy aftermath of last year's growth in order to get more uniform grazing and increase the palatability of the vegetation. Burning late, or in the forepart of May, may be practiced also to kill weeds and brush.

Short grass pastures, tame grass pastures, and Kentucky blue grass or other early grasses should never be burned.

—Tom D. Dicken, '32.

Q. Can fungous diseases be cured by applications of proper fungicides? If not what is accomplished by spraying?

A. Fungous diseases of fruit plants cannot be cured by the application of fungicides. The principle underlying spraying to control fungous diseases is one of prevention and not of cure. The point to be emphasized is that the protective coating of spray must be applied in advance of the germination of the

fungous spores. Then when the spores start growth they will find a toxic substance which will prevent the development of the parasite.

—Edwin Abmeyer, '33.

Q. Is there an effective winter control practice against the chinch bug? Describe briefly.

A. Winter control of chinch bugs can be made very effective. These insects overwinter as adults in bunch grass and similar places of refuge from the cold and do not lay their eggs until after migrating to the grain fields in the spring. The destruction of these refuges by burning—especially roadsides and other waste places—is a practice highly recommended. This practice either kills the insects from excessive heat or leaves them exposed to the rigors of winter which kills them before migrating time in the early spring.

The burning should be done after the bugs have become well settled for the winter months, usually in December, provided weather conditions are favorable. If the grass is tall, sufficient heat will usually be generated to kill all bugs present but ordinarily it is best to choose weather conditions which will allow the grass to be burned to within a half-inch of the ground. It is quite obvious that community burning of large areas is necessary for the best results.

—Ervil S. Fry, '32.

Q. Is it a good time to buy some pigs and have them ready for the April market?

A. Hog prices since September, 1928, have declined about as long and about as far as they have in any continuous period since 1880. Even if hog prices, like wheat prices, break to new lows, that is most likely to happen in the fall of 1932 rather than during the first six months of the year. Even in years of generally declining prices, there is usually a seasonal price advance by March or April.

This makes the winter or early spring market safe for feeding operations if stocker pigs are bought on December low spots. —R. M. Green, Professor of Agricultural Economics.

Q. Is there anything in sight to favor further holding of wheat?

A. There are a good many reasons for believing that last August was the low point for top No. 2 hard winter wheat of good milling quality. Of twelve advances from extreme lows since 1894, six of them have lasted 12 months or less, five have lasted from 18 months to 2 years, and only one has lasted longer than 2 years. This one exceptional period was from 1906 to 1909 when the general price level was advancing strongly and there were two small world wheat crops in succession—in 1907 and 1908. The shortest advancing period was five months long during which time price advanced 42 per cent from the low. Five months from the August, 1931, low would be January, 1932. Furthermore all twelve of the extreme high prices since 1894 have fallen in the period January to June, inclusive. There is enough uncertainty as to the growing crop during the January to June period to make it likely that wheat prices will make at least one more important advance before next year's crop. Five to ten cents at most, on top of the early November high, however, is about as good as has been done in the past except during the war period. —R. M. G.

Q. If one cow in a small herd lost her calf because of infectious abortion, what procedure should be followed to protect cows and young heifers in the herd?

A. Have all cows' blood tested by a veterinarian and sell the reactors. The calves may be kept but should be isolated from the rest of the herd and fed milk from a clean herd. They should be tested at frequent intervals. If it becomes necessary to buy replacements the new cows must be subject to the blood test, isolated for 30 days, and retested before placing them in contact with the clean herd.

—A. F. Van Meveren, '32.

Q. How shall I go about having my dairy cows tested for infectious abortion? What are the details of securing the blood for test-

ing and keeping it from spoiling while in transit?

A. The process of bleeding requires one that understands the work and who is more or less expert in this work. The small 5 c. c. vials that are used to hold the blood must be thoroughly sterilized and dried, and antiseptic precautions must be taken throughout the process to prevent contamination and an error in the test. The one best qualified to do this work is a graduate veterinarian.

The Department of Pathology of the Division of Veterinary Medicine of K. S. C. sponsors an "Abortion Eradication Program," further particulars on which will be sent on request.

—W. S. Hornsby, '32.

Q. Why are plant diseases more serious during certain seasons?

A. Plant disease pathogens have optimum and minimum temperature and moisture requirements. Weather conditions also affect the vigor of the host plant and the number of insects which in some cases act as distributing agents. Wind and water are very important as carriers of disease-producing organisms. In years in which climatic factors favor the growth of pathogens, while making the plant host more susceptible, there are often many insects to transmit diseases, and with other means of spread an epidemic results. In other years only one factor may be favorable, or none, with a resultant low loss of host plants.

—Paul W. Archer, '33.

Q. Just how effective is creosote as a repellent against termites?

A. Experiments have shown that wood thoroughly impregnated with creosote, especially if treated under pressure, may be expected to give satisfactory protection against termite infestation for a period of 25 years. Superficial treatment, if done thoroughly, will give protection for several years, after which the treatment must be repeated.

—Milton E. Saffry, '32.

Q. Is there an effective winter control practice against garden insects? Describe briefly.

A. Yes. And January is not too late to dispose of rubbish and trash left on the garden by previous crops. Insects are harboring

here in surprisingly large numbers. By plowing under this trash a two-fold purpose is accomplished. First, the insects overwintering as eggs on the trash or as adults protected by the trash are exterminated. Secondly, the insects overwintering in the soil are disturbed, exposed to freezing, and thereby killed. Burning trash around the garden also kills many insects. If disease has been prevalent among the garden crops it may be well to remove the trash and burn it, thus killing diseases in various stages. By all means practice sanitation as a winter control practice against insects.

—Glenn S. Fox, '33.

Q. How can buckbrush be eradicated from pastures? Why is the time of cutting important?

A. Buckbrush may be eradicated from pastures by mowing close to the ground the first part of May or about May 10. The time of cutting is important since the food reserve in the roots is very low about this date. Cutting the plants at this date will allow insufficient leaf growth to take place. Thus, no food will be manufactured or stored, and death will result, due to starvation of the plants.

—Charles W. Nauheim, '32.

Q. Can "alternate bearing" of the apple be prevented or cured by thinning the fruit or by pruning?

A. Thinning of the fruit will not correct the alternate bearing of apple trees after the habit has become established, but there is evidence that this practice will prevent or delay the onset of alternate bearing. Pruning may be employed to reduce the tendency toward alternate bearing as it stimulates larger shoot growth. The twig growth increases the supply of new spurs just coming into fruiting and so maintains annual bearing.

—Carl E. Elling, '32.

Q. What are the comparative demands of the sour cherry for soil nutrients and soil moisture?

A. In comparison with other fruits such as the apple, peach, and grape the comparative demands of the sour cherry for soil nutrients and soil moisture are relatively low. Cherry trees are more sensitive to free water

in the soil, but will withstand drought better than apple trees. Also, the period of maturity of the cherry fruit is shorter than that of the apple. This causes a lower total water requirement.

—C. E. E.

Q. Are all plant diseases caused by parasitic organisms? If not, discuss other causes.

A. A large number of plant diseases are caused by parasitic organisms; but there are diseases that are produced by other agencies.

A plant disease may be defined as an abnormal condition of a plant that threatens the life of the affected plant or some part of the plant, or that impairs its economic usefulness. Causes of plant diseases may be grouped as follows:

1. Parasitic organisms.

2. Virus diseases—diseases caused by an infective principle in the juice of a plant which may be transmitted to other plants. No organism has been discovered. This type of disease is becoming so widely spread and destructive that it provides a serious agricultural problem. Virus diseases may be spread by (a) juice from diseased plants; (b) grafts; (c) seeds; (d) cuttings; (e) insects. Typical virus diseases are (a) cucumber mosaic and other mosaics; (b) peach rosette; (c) spindle tuber of potato; (d) peach yellows; (e) curly top of sugar beets.

3. Non-parasitic diseases (physiologic). No organisms are involved in these diseases but the plant does not function normally. Such diseases are caused by (a) malnutrition; (b) sunscald, lightning, and heat injury; (c) lack of air circulation; (d) spray or other mechanical injury; (e) frost and freezing injury; (f) hail injury; (g) gas or fume injury; (h) dust (cement) injury.

4. Diseases of undetermined origin. Under this class come some plant diseases that are not yet thoroughly understood. When eventually their causes are determined they may be placed in the proper group.

—Claire W. Munger, '32.

Q. What is "foie gras"?

A. Fattening geese under the name of "noodling" is often practiced. "Noodled" geese have enlarged livers due to forced feeding. These livers are much prized by epicures

under the name of "pate de foie gras." The demand for these enlarged livers is not anywhere nearly supplied and considerable quantities are imported from France and other European countries. —Dale E. Halbert, '32.

Q. In what forms are eggs most easily digestible?

A. Ease of digestibility is one of the characteristics which make eggs a desirable food. Beaumont, a United States army surgeon, secured the following data on time of digestion of different forms of eggs:

Raw—whipped	1½ hours
Raw—not whipped	2 hours
Roasted	2½ hours
Soft boiled	3 hours
Hard boiled	3½ hours

Tests also show that the total digestibility of both the protein and the fat in eggs varies from 90 to 97 per cent. Eggs compare favorably with milk in respect to ease of digestion.

—Marvin E. Vautravers, '33.

Q. Will the small incubator hatch turkey eggs successfully?

A. The incubator that will successfully hatch chicken eggs will hatch turkey eggs. For turkey eggs the bulb of the thermometer should rest level with the top of the eggs and record 100°, 101°, 102°, and 103° for the first, second, third, and fourth week, respectively. An abundance of moisture should be supplied at time of hatching. —H. M. Scott, Assistant Professor of Poultry Husbandry.

Q. How may one tell the variety and quality of the alfalfa seed he purchases?

A. Poor seed in a great many cases has meant failure to obtain satisfactory stands by alfalfa growers. To eliminate many of the possibilities of failure, buy Kansas-grown certified seed or home-grown seed from old well established fields, or if Grimm is preferred, buy certified Grimm. By the use of certified seed you know its origin, germination, and purity. When buying seed other than certified seed one cannot be sure of getting what is desired as one variety cannot be distinguished from another by the looks of the seed. —C. O. Grandfield, Agent, Office of Cereal Crops, Bureau of Plant Industry, U. S. Dept. of Agriculture.

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Progress in the Cooperative Grain Marketing Movement¹

W. G. Nicholson, M. S., '32

In many situations perhaps the first 100 years are the worst as is commonly said. In business, however, getting the first 20 per cent of the total business is the easiest and getting the last half of it is a task for a giant. Yet the youthful dream of the cooperative business as of most other businesses is of the day when they will be getting 100 per cent of the business. It is a goal at which to aim, but not something to be discouraged over if it is not attained. There are perhaps as many obstacles in the way of cooperatives getting 100 per cent of the business as there are in the way of private ownership retaining 100 per cent of it.

About half of the common stock of corporations now in existence pays no dividends. The original value of these stocks is legally collected from people and nothing given in return. This being the case there might even be considerable question as to the national economy of such large organizations as can persist in this kind of financing compared with more moderate-sized organizations that have to make returns for their relatively few supporters or close up. At least every business should realize that it must be supremely good, in fact as well as in advertising, to warrant 100 per cent of the business it is engaged in, and that there is no easy, simple, single plan of reaching the goal.

Cooperative grain marketing started out to assemble grain at local stations. Farmers were induced to enter the local grain market to correct certain abuses. They furnished competition in the local market of a kind that would be interested in returns to the farmer. Beyond the local market wheat traveled 100 per cent in non-cooperative channels. Then cooperative elevators in the country began to be interested in establishing cooperative commission companies at the central markets so that they would have their own representation in the competition at central

markets. At first these central agencies were purely commission houses, handling the grain of country elevators that was shipped on consignment. This meant, however, that country elevator sales made on track or to arrive went around the central cooperative marketing agency. The central cooperative commission company could expect only that portion of the cooperative country elevator's grain that was sold on consignment. In the case of many country elevators this meant only one-third to one-half of their business. This was the laying of the first two sections of a cooperative pipe line, so to speak, intended to take producers grain to consumption channels, and there was a big leak at the joint.

The next step was for the cooperative commission companies to take on the function of buying grain outright as well as selling for the account of the shipper. This permitted the country elevator to sell to his own cooperative as well as consign to it. In spite of the addition of this function to the cooperative marketing of grain, there are still considerable quantities of grain originating at country points in cooperative houses, that do not go through the central cooperative commission companies, the second link in the cooperative chain.

THE KANSAS SITUATION IN 1930

In 1930 there were about 2,034 elevators, all told, in the state of Kansas. Of this number 493 or about 24 per cent were farmers' cooperatives. About 12 per cent of the total number of elevators, or one-half of the cooperatives were members of one or the other of the four cooperative agencies at central markets; namely, the Kansas Farmers Union Jobbing Association, the Farmers Cooperative Commission Company, the Equity Union Grain Company, or the Kansas Cooperative Wheat Marketing Association. The cooperative elevators controlled about 30 per cent of the elevator capacity of the state and about 16 per cent of the country elevator capacity was affiliated

1. Most of the data for this article were supplied by Prof. R. M. Green of the Department of Agricultural Economics.

with one or the other of the four central agencies mentioned above. The cooperative elevators handle a bigger proportion of the wheat crop than the above figures would suggest because a large number of the more recent cooperatives are large and the number of times an elevator is filled and emptied will average a good deal higher than for other kinds of elevators, especially larger than that for local elevators belonging to mills. The cooperatives have made progress. At the same time there is still a considerable proportion of the grain handled by local cooperative elevators in Kansas that does not go through the hands of the terminal cooperatives of which the locals are members.

A study of 30 Kansas local cooperative elevators in 1930 showed that the per cent of total cars shipped that went through terminal cooperatives varied from 2 to 3 per cent up to 85 or 90 per cent. Thirty elevators, shipping more than 7,000 cars, sent only about 44 per cent of them to the terminal cooperative of which they were members.

This situation comes about largely for two reasons. In the first place a number of local cooperatives sell direct to mills. This in itself may not be such a bad thing. In fact, many favoring the most direct marketing possible would say it was a good thing. The point is that it gives the grain cooperatives a problem not entirely unlike that of direct marketing versus consignment to the open market in the live stock trade. In the second place a number of the local cooperatives are shipping to other central commission companies because of personal contacts, accommodations, and belief that they are getting a better price at the time they are ready to sell.

If the terminal cooperative is going to stand ready to take all grain of its local elevator members at any such times as they are ready to offer the grain and bid for it as high as anyone else, it may mean that the terminal cooperative will have to take on the storage function at terminal markets more extensively than in the past. The movement for some years has really been under way, but it is a relatively new function that conditions have forced the cooperative to assume

in order to meet the service offered by competitors.

It is evident that cooperative grain marketing organizations have made progress by degrees, but progress nevertheless. There are still problems in stopping some of the leaks in the pipe already laid. The 100 per cent idea is a nice dream at the end of a good day's work, but there are the more pressing nearby problems that will have to be solved before further real progress is made.

New Experimental Iris Garden

A. J. Howard, M. S., '32

During the past summer the Department of Horticulture set apart a plot of ground north of the college greenhouses to be used as an experimental testing garden for different varieties of iris. The nature of this experimental work is to determine the hardiness of these varieties, their adaptability to Kansas conditions, and their general value from a landscape point of view.

Considerable credit for the success of this new project is due Dean R. A. Seaton, for it was through his negotiations with Mrs. W. H. Peckham, former president of the American Iris Society, that the department was able to secure the plants for this purpose.

Most of the 250 varieties that are now planted were sent by E. A. S. Peckham, who is in charge of the Test Gardens of the American Iris Society located at New Rochelle, N. Y.; others came from the gardens of Cornell University.

Aside from being primarily an experimental garden it is also planned to be instructive and attractive. It will give students and the public a large, representative selection from which to study and pick out those varieties that suit their particular needs and desires. Each plant is to be distinctly and correctly labeled according to the Check List published by the American Iris Society.

At present, the ultimate extent of the experimental work has not been fully planned. It is, however, the desire of the Department

(Continued on page 56)

The Use of Kansas Wild Flowers in Planting the Farm Home Grounds

Margaret M. Knerr, '33

One of our most valuable sources of perennials is often overlooked in making a landscape planting on the home grounds. This unfailing landscape material is often admired during an outing in the woods or a pleasure drive but forgotten when perennials are desired for home landscape planting.

Kansas wild flowers offer to the home gardener an unending opportunity in planting a perennial border. If one wishes to maintain a certain color scheme he may do so by selecting those which fit into his desired scheme. Perhaps the most pleasing effect, however, may be obtained by a careful grouping of wild flowers as near to their habits in nature as possible.

In the background of a border, which may be in front of shrubs, a hedge, or even a building, a well-known flower may be placed. This flower is one of the sunflowers, *Helium autumnale*. Another orange flower, similar to this sunflower, is *Rudbeckia sp.*, coneflower, which is easily adapted to landscape planting. Also in the background, *Liatris spicata*, Kansas gay feather or blazing star, might be placed. It would add a bright touch to a border. It also offers a winter bouquet to its admirers, for when its blossoms are picked just before opening, the spikes retain their color during the winter months and give a delightful winter decoration.

For the middle portion of the border numerous species may be used. There are blues offered including: *Baptisia australis*, blue wild-indigo; *Tradescantia bracteata*, spiderwort; *Penstemon cobaea*, cobaea penstemon; *Salvia azurea*, blue sage; and *Lobelia siphilitica*, large blue lobelia. Although many shades of blue are included in this grouping, the difference in the flowers and their forms do not make the effect monotonous. For a yellow color, *Solidago sp.*, common goldenrod, may be used very effectively. A few plants of *Asclepias tuberosa*, butterfly weed, are needed for their bright orange color.

Of the lower-growing plants *Eupatorium coelestinum*, mistflower, and *Boltonia latifolia*,

quama, violet boltonia, are easily adaptable and provide blue shadings. In orange an old garden favorite, *Gaillardia aristata*, common gaillardia may be used. *Achillea tomentosa*, sneezewort, gives a soft hue to the garden in the white. The various asters are fall bloomers. They provide many shades of flowers and a variety in size of blooms and plants. *Monarda fistulosa*, wild bergamot (horse mint), will add a flower of value as well as a minty tange to the air.

The garden may well be bordered with *Phlox divaricata*, wild sweet william, which has beautiful foliage when not in bloom; *Verbena canadensis*, wild verbena; and *Callirhoe involucrata*, poppy mallow, a much sought for plant where it must be cultivated and does not grow wild.

Many other wild flowers may be adapted for use. There is almost an unending list of suitable ones. When considering the perennials needed for plantings it should be remembered that Kansas hills and prairies offer a supply, which although plentiful now should be guarded. Their use in home plantings is one method of perpetuating the existing colorful pictures found on Kansas hills and prairies today, as well as beautifying home plantings inexpensively and tastefully.

NEW IRIS GARDEN

(Continued from page 55)

of Horticulture to have eventually 500 named varieties of Iris and to give accurate information regarding each.

As soon as undesirable species have been discarded and data recorded on the favorable varieties a permanent location for the garden is to be considered and it will become an established unit on our college campus.

Paul C. Mangelsdorf, '21, M. S., '23, D. Sc., '25 (Harvard), is agronomist in charge of corn and small grain breeding investigations in the Texas Agricultural Experiment Station, College Station, Tex.

Horticultural Students Annual Tour

H. S. Dinsa, M. S., '33

The annual trip to the northeastern part of the state was taken this fall, as usual, by the students in horticultural courses. Dr. G. A. Filinger, assisted by Mr. C. R. Bradley, was in charge of the trip, which was made October 7, 1931. The chief purpose of the trip was to study methods of producing and marketing apples in the apple section of northeastern Kansas. Packing houses were studied as well as cultural methods, soil profiles, and fertilizer and pruning problems.

The association packing houses at Wathena and Blair, and the privately-owned packing sheds of Mr. G. W. Kincaid and Mr. George T. Groh were visited to observe the handling of fruit on both a large and a small scale. The Wathena packing house was the largest one visited. The association owns and issues lug boxes to the grower for picking fruit. Each grower bringing his fruit to the house is given a lot number. Each lot is run through a power-driven washer, grader, and sizer, and the grower then credited for the number of boxes in each grade. The main container used is the basket, packed in a ring-pack. Iced cars, right next to the packing shed, are loaded directly from the packers. Methods of arranging the baskets in the car were studied.

This same procedure of washing and packing was used in the other packing houses except the one owned by Mr. G. W. Kincaid. He had a washer, but he was using an automatic cloth wiper at the time and it gave just as good results, according to him. It was a machine with rags on rollers revolving at high speed. The apples passed between the rollers and came out all clean and polished in appearance.

A plot having received excessive nitrogenous fertilizer was also observed in Mr. Kincaid's orchard. The group of trees were healthy and vigorous, but the fruit was small in size and off in color when compared to adjacent trees receiving the correct amount of fertilizer.

The K. S. C. Extension Horticulture Service has a pruning demonstration plot of trees, five to six years old, in Atchison county. Pruning is done according to the central lead-

er type, but the effect of wind in bending young trees was distinctly shown by Delicious trees whose tops were bent away from the direction of the prevailing winds. This plot provided an interesting study.

In the tour through the orchards care was taken to observe the sod culture used on steep hillside orchards, in direct contrast to clean cultivation practiced in the Agricultural Experiment Station orchard at K. S. C. Soil profiles along the road cuts were observed, character and depth of soil studied, and the relationship of soil types to orcharding discussed. To show the effect of age on productivity a visit was made to Mr. Groh's orchard. The trees in this orchard are 42 years old. They are rather high trees but under good pruning and soil management. They are producing as heavily as any other trees in full bearing. The last stop was made at the Appleton Orchard Company's orchard, where Mr. Wayne Whitney, a former K. S. C. student of horticulture, was in charge of picking operations. Here the students had an opportunity to study a large collection of varieties.

On trips like this students see real high-class fruit varieties and widen their knowledge as to the value of scientific training in intelligent and efficient orcharding.

M. L. Russell, '29, is farming near Garden City.

Eugene M. Leary, '30, is farming near Lawrence.

A. A. Mast, '30, is field man for the Great Western Sugar Beet Co., with headquarters at Fort Morgan, Colo.

C. C. Dethloff, '22, is agricultural agent of Plaquemines parish, La. This is the largest parish in Louisiana, being 150 miles long. Mr. Dethloff's headquarters is Belle Chasse.

W. P. Albright, M. S., '30, is teaching in the Department of Poultry Husbandry of Oklahoma A. & M. College. He received his bachelor's degree from North Carolina State College in 1929.

The Alfalfa Situation in Kansas

John G. Bell, '32

Alfalfa is one of the most important crops in Kansas, and in some ways the alfalfa acreage may be considered an index to the agricultural prosperity of the state. In 1915 Kansas harvested 1,360,000 acres of alfalfa, leading all other states in acreage devoted to alfalfa production. Since that time conditions have changed, and in 1930 Kansas had only 640,000 acres, a 53 per cent reduction since 1915. The chief factors that have been responsible for this decline are: (1) Economic conditions, (2) unadapted varieties, (3) insects and diseases, and (4) soil conditions.

The fact that other crops are being handled with more modern machinery requiring less labor, along with market prices and cost of marketing, has also had its effect on the reduction in the alfalfa acreage. The big decline in acreage began in 1915 in the early part of the World War. A study of crop acreage data in Kansas will show that, in general, during the World War when wheat was in great demand, those sections of the state where the wheat acreage increased show a corresponding decrease in the acreage of alfalfa, corn, and the sorghums.

The increased demand for high-quality hay, which commands a premium on the market, has caused the more frequent cutting of fields and later fall cutting. This practice depletes the plants of food reserves stored in the roots, thus leaving them in a rather weakened condition to go into the winter.

The decline in alfalfa production in 1915 and 1916 was attributed chiefly to economic conditions brought about by the World War. During this period weather conditions were unfavorable for alfalfa seed production in Kansas. As a result there was a great deal of seed shipped into the state from South America and the Mediterranean countries. The major portion of this seed was of varieties unadapted to Kansas conditions and would not stand the rigors of drought and severe winters as would the more hardy Kansas-grown alfalfa. The importation of this unadapted seed played an important part in the decline in acreage from 1920 to 1923, along with other factors such as soil conditions and insect damage.

In 1921 pea aphids destroyed nearly one hundred thousand acres of alfalfa in various parts of the state. Climatic conditions that year were favorable for the emergence of this insect in large numbers. Since 1921 pea aphids have not done serious damage except in local areas. Grasshoppers cause serious damage to new stands of alfalfa, especially in the western alfalfa-growing sections. Effective control methods have been employed for the eradication of this insect in some sections, though control by artificial methods is not universally practiced. Cut worms have caused considerable damage in certain years in localized areas. This pest occurs only occasionally when conditions are favorable for the emergence of the larvae in large numbers. Other insect pests of minor importance are the army worm, garden webworm, and clover-leaf weevil.

Some of the important diseases of alfalfa are the leaf spots, bacterial wilt, violet root rot, and crown rots. Of these diseases bacterial wilt is by far the most important and is largely responsible for the decrease in alfalfa acreage since 1927. It is believed that winter injury and wilt infection have a direct relationship. Evidence of resistance in varieties of alfalfa has been pointed out, though in no case does it appear that any variety is entirely immune to infection by the disease organism. Securing resistant varieties and strains, however, seems to be the only practical solution to the problem.

Soil conditions are constantly changing and with these changes come new problems. It is generally known that it is more difficult to obtain and maintain a stand of alfalfa at the present than it was several years ago. This condition is due to reduced soil fertility, increased acidity in some parts of the state, erosion, and depletion of sub-soil moisture. Many Kansas soils are becoming rapidly depleted of their plant food nutrients. To correct this difficulty, commercial fertilizers will have to be used. In eastern Kansas the soils seem to be deficient in phosphorus and calcium and the lack of these elements causes the greatest difficulty. In many eastern sec-

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tions it is necessary to apply lime to correct soil acidity before alfalfa can be seeded.

It has been shown at both the Kansas and Nebraska Agricultural Experiment Stations that alfalfa depletes the subsoil of moisture to a depth of 20 feet or more. At the Nebraska station it was found that fields having never been in alfalfa contained a higher per cent of moisture from 11 to 25 feet than those fields that had been in alfalfa for several years. It was also shown that fields formerly in alfalfa, plowed up 10 to 20 years ago, were lower in moisture content at the above depth than fields having never grown a crop of alfalfa. This fact shows that restoration of subsoil moisture is very slow under ordinary cropping conditions. Yields were greater on those fields in alfalfa for the first time than on those replanted to alfalfa after a period of years in a general crop rotation. This is probably due to the fact that the strata at this depth once depleted of their moisture, regain it very slowly and the roots of the second seeding cannot penetrate this dry layer. Thus such plants do not have so abundant a supply of water as do those plants on land in alfalfa for the first time. The effect of drought is much more noticeable on such fields than on those in alfalfa for the first time. This is due to the fact that the stand is dependent on the upper layers of soil for its moisture making it more susceptible to fluctuations in rainfall.

For many years Kansas Common and Grimm alfalfa have been the leading varieties in Kansas, and as far as yield of hay, winter hardiness, and drought resistance are concerned, they are still outstanding. Many other varieties are being tested by the Agricultural Experiment Station with Grimm and Kansas Common plots seeded in the same field for comparison. As yet there are not sufficient data to warrant substituting any of these other varieties for the already well-distributed Kansas Common or Grimm. Several strains of Turkestan alfalfa show some resistance to wilt along with good yield. It is possible that some of these strains might be adapted to Kansas conditions and help to solve the problem of selecting a variety of alfalfa resistant to wilt and desirable for any hay and seed production in Kansas.

In selecting varieties for Kansas several factors must be considered, the chief of which are, yield and quality of hay, winter hardiness, drought resistance, and resistance to bacterial wilt. Variety tests are being conducted at Manhattan with the above factors in view. There are a number of varieties and strains that give larger hay yields than do Kansas Common and Grimm. This fact alone does not necessarily mean that any of these strains will come into commercial production. Their resistance to severe winter conditions is not yet known. The dry weather of the past summer had a very marked effect on the yield of several strains growing on upland fields. Many of these strains have just recently been imported from various parts of the world and their resistance to bacterial wilt has not yet been determined. Experiments indicate that Grimm is more susceptible to wilt than is Kansas Common and that the Turkestans are the most resistant to this disease.

As a result of experimental work in the Kansas and Nebraska Agricultural Experiment Stations, two new varieties, Hardistan in Nebraska and Kaw in Kansas, have shown considerable promise in regard to resistance to bacterial wilt, as well as being desirable from a production standpoint. Comparative yield data are meager but those available indicate these varieties will yield less hay per cutting than Kansas Common or Grimm. The main characteristics on which the new varieties are to be recommended are wilt resistance and winter hardiness, resulting in longevity of stand.

William C. Hall, '20, is a prominent and successful live stock farmer on route 2 out of Coffeyville.

W. H. von Trebra, '24, formerly county agricultural agent of Rice county, is taking graduate work in plant breeding in the Department of Agronomy.

I. Milburne Atkins, '28, is junior agronomist in the Division of Cereal Crops and Diseases, United States Department of Agriculture. At the present time he is located at Denton, Tex.

Nitrogen a Factor in Wheat Production in Kansas

F. G. Ackerman, '31

For 20 years the Kansas Agricultural Experiment Station has studied the relation of the nitrate nitrogen supply in the soil at seeding time to the yield of wheat. In the various tests conducted on the central station at Manhattan, yields correlate closely with the amount of nitrate nitrogen present in the soil at seeding time. This does not, however, include seasons when moisture becomes a limiting factor in crop production.

The problem of maintaining the nitrogen supply of the soil has been attacked from several different angles. Much data have been gathered on the subject but no definite conclusions have been reached in most cases. There are a number of ways by which the nitrogen of the soil can be kept up or even increased but no one method is satisfactory for all parts of the state. Regions of low rainfall and hot winds will not demand the same treatment as a region of higher rainfall and a more humid climate. The growing of legumes in a crop rotation is a possible means of replacing the nitrogen removed by the other crops. The amount of nitrogen, however, that may be so added where the legume is grown for hay is not definitely known.

In order to study the questions involved in the symbiotic fixation of nitrogen through legumes in eastern Kansas and in free fixation of nitrogen in western Kansas, a definite experimental project was established in 1926 entitled "The Influence of Legumes and Free-living Organisms on the Growth of Plants and on the Nitrogen Balance in Kansas Soils." From this work it was fairly definitely concluded that free-fixing organisms would keep the nitrogen of the soil up to a constant but rather low level, and that rotations profited by the use of a legume where a legume could be grown.

Granting that free-fixing organisms may maintain a rather constant level of nitrogen, is this amount of nitrogen sufficient to produce the maximum crop yield provided the season is favorable? Is there any profitable means of increasing the amount of nitrogen?

What is the most economical method for each section of the state? These are some of the questions for which agriculturists are seeking answers.

In western Kansas the average annual precipitation is from 16 to 22 inches. With the development of modern machinery this region has become a part of the great wheat belt. There is no legume very suitable for this area, and with the continuous cropping year after year to wheat, the problem of keeping up the soil nitrogen has become a serious one. The precipitation does not seem to be great enough to permit profitable use of commercial fertilizer so free fixation seems to be the satisfactory solution for this problem. The condition most suitable for the fixation of nitrogen by free-fixing forms can best be obtained by summer fallow, a practice which is rapidly gaining favor in western Kansas.

Dr. M. C. Sewell, formerly of the Kansas Agricultural Experiment Station, made a two-year test with some commercial fertilizers in order to determine the relative importance of commercial fertilizers as compared with each other and with other sources of soil nitrogen. Calcium cyanamid (Ca CN_2) was the chief fertilizer in this test. It contains only nitrogen while some of the others used contained phosphorus or both nitrogen and phosphorus. The rate and time of application was an important feature of the test.

The investigation was greatly aided through a contract with the American Cyanamid Company in which the company agreed to furnish the material and pay the traveling expense involved in making the various tests over the state.

For the wheat-crop year, 1929-'30, 94 cyanamid tests on hard red winter wheat were put out in 33 counties of the state. Each of these tests included three different cyanamid treatments; namely, (1) August application at a full rate (200 pounds per acre in the eastern one-third of Kansas and 100 pounds in the western two-thirds); (2) one-half the

rate of application in August and one-half in March; and (3) a full application in March. Of these tests the March application proved most satisfactory in west central and south-western Kansas. There was very little difference in the tests in eastern Kansas and the fall application proved most satisfactory in northwestern Kansas. The amount and time of rainfall of a section of the country will determine largely which method will prove most satisfactory.

The plots were one-tenth of an acre in size and ten rod-rows were harvested from each plot as well as the surrounding field by the county agricultural agent. These samples were sent in to the Department of Agronomy, where they were threshed for yield data. Protein tests were run on the wheat from each plot.

In 1930-'31 a similar test was run which included 59 tests in 30 counties. These tests were extended to include a spring application of Ammo-Phos B, which carries both nitrogen and phosphorus; and a plot where superphosphate was applied at seeding time.

The average increase in yield per acre for the various treatments in 1930-'31 is shown in the following tabulation:

Region	August Ca CN ₂	March Ca CN ₂	March Ammo- Phos	Fall Super- phos- phate
S. E. Kan.....	5.3 bus.	6.5 bus.	3.0 bus.	5.2 bus.
N. E. Kan.....	1.2 bus.	4.1 bus.	5.3 bus.	1.3 bus.
W. C. Kan.....	2.1 bus.	3.5 bus.	3.0 bus.	1.04 bus.
E. C. Kan.....	4.4 bus.	5.7 bus.	3.6 bus.	0.4 bus.
S. W. Kan.....	3.4 bus.	5.0 bus.	4.7 bus.
N. W. Kan.....	4.6 bus.	4.0 bus.	3.0 bus.	3.7 bus.

Not all the tests over the state made a favorable showing although most of them did. Enough of them were good to give an average increase in yield of 30 per cent over the nontreated areas in the eastern part of the state and somewhat less than this in the remainder of the state. A number of individual tests showed an increase of 60 per cent or more.

The following may be said in answer to the unsettled questions concerning the use of fertilizers on wheat in Kansas. The two-year test with cyanamid showed that the soil in all parts of the state may respond somewhat to nitrogen treatment. Yield increases in the eastern half of the state and the south-

(Continued on page 64)

An Outstanding Litter

Bruce R. Taylor, '31

The contents page picture is just another proof that modern methods of swine production applied to modern-type hogs produce results never equaled by hit and miss methods on nondescript hogs. Fortunately, the more progressive Kansas farmers have discarded the latter method long ago as undesirable.

This litter of 13 pigs was farrowed in a central house yet under rigid conditions of sanitation; moved at seven days of age to a clean alfalfa pasture provided with an A-type hog house for shelter; given access to shelled corn and shorts in a creep until weaning, by which time they had been vaccinated for hog cholera and the boars castrated.

After weaning, a self-feeder containing shelled corn and tankage and an automatic waterer were provided and the pigs left to themselves to live, eat, and grow—indeed a "Pig's Paradise." Look at the result—every pig of a large litter alive, healthy, and vigorous; no runts, no necro, no feed wasted on worms and lice, no condition powders, and no medicines needed.

This is the method by which the splendid litter you see in the picture was handled from March 26 when they were farrowed, to October 20 when they weighed 2,740 pounds or 210.75 pounds per head at less than seven months of age. This is not an outstanding individual weight, but the pigs are very uniform in size, and 2,740 pounds is a praiseworthy weight for any litter of their age.

This system requires nothing expensive, nothing extraordinary, nothing out of the reach of the average swine producer; but it embodies modern methods, emphasizing sanitation, worm-free ground, balanced rations, and is the best known assurance of maximum pork production at minimum cost.

C. E. Crews, '28, foreman of the Agronomy Farm at Manhattan, has been promoted to the rank of assistant professor of agronomy and February 1 will take charge of three experiment fields recently established in south central Kansas. One of these fields is near Pratt, one near Basil in Kingman county, and one about 11 miles west of Wichita.

Colby Agricultural Experiment Station

Leland M. Sloan, '32

It was the disastrous soil blowing in 1912 that played a large part in determining the location of a branch agricultural experiment station at Colby. It was hoped that a station in this territory could work out methods of soil management and tillage practices that would prevent soil blowing. Persons in this region at that time have said that even large areas of buffalo grass sod were moved by the wind.

The Colby branch of the Kansas Agricultural Experiment Station was established in 1914 with Mr. S. P. Clark as superintendent, and Mr. J. B. Kuska as the federal dry-land agriculture agent. Mr. Kuska is now Federal Agronomist at the station.

The station consists of 280 acres of land, all of which is well suited to tillage. The average annual rainfall at Colby is 18 inches, and the growing season is approximately 156 days in length.

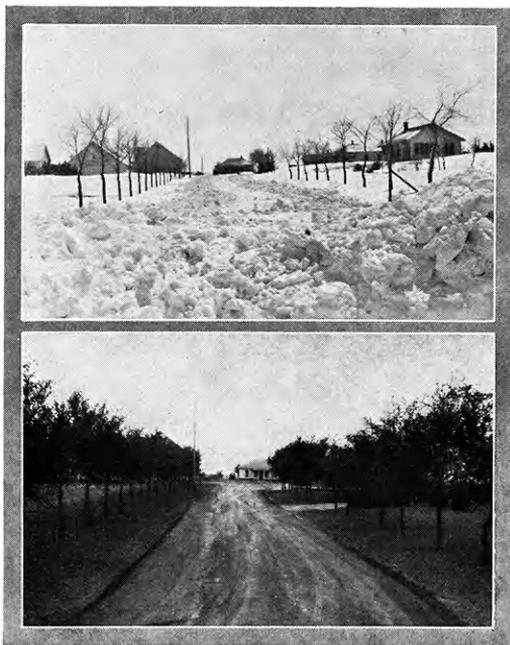
The Dry-land project which is the major project carried on at the station consists of 270 one-tenth-acre plats, 90 new plats having been added to the project this spring. These plats will be used for a study of tillage practices in the production of wheat. Experiments on the D. L. A. project as a whole are being carried on in an attempt to determine the tillage practices, rotations, and crops best adapted to northwestern Kansas conditions.

An irrigation project was maintained at the station for a few years, but because of the impracticality of pumping the water from deep wells the project was discontinued. Other projects of an experimental nature are the variety testing of major crops; crop improvement nurseries for wheat, barley, and corn; date-of-planting tests for various crops; drill tests; an orchard; and a dairy herd. In addition some general crops are grown to be sold for cash or fed to the station live stock.

The dairy herd proves to be one of the most interesting projects at the station, as it is one of the few Ayrshire herds in this part of the state. This herd consists of 25 head, approximately half of which are registered in the breed association records. The

grade cows of the herd boast as one of their members the champion grade Ayrshire cow in Kansas.

In 1929 a five-year building program was instituted, which under the direction of Supt. E. H. Coles has already transformed the station into an extremely attractive farm. The building program calls for landscaping the



ENTRANCE DRIVE, COLBY BRANCH AGRICULTURAL EXPERIMENT STATION

grounds, moving and improving the dwellings, razing the oldest buildings, and erecting a new dairy barn, milk house, silo, seed house, and office. To date the landscaping and repairing of the houses have been completed.

The Colby Agricultural Experiment Station is serving a real purpose in northwestern Kansas. The station offers a treat to visitors with its driveway of Chinese elms, attractive buildings, landscaped grounds, well-kept fields, and good live stock. It is truly a station of which Kansans may well be proud.

NITROGEN IN WHEAT PRODUCTION

(Continued from page 62)

western Arkansas valley region were much more outstanding than in the extreme west and northwest. The yield, as well as the per cent protein, is increased by the use of nitrogen. Weather conditions greatly influence the response to nitrogen treatment, since moisture controls to a large degree the plant growth and biological processes within the soil. Also the previous cropping system and cultivation practices affect the degree of response. In general the better the seed bed preparation the greater will be the increase provided the land is not in fallow. While it may never be profitable to use fertilizers in nonirrigated areas of western Kansas, they can be used to a good advantage in the eastern one-third of the state when economic conditions provide a better price for grain.

KANSAS DAIRY CHAMPIONS

(Continued from page 39)

show field has been somewhat limited to county fairs and smaller local shows in Kansas. She has stood first in all contests entered so far this season.

Fairfield Craig Denty has given the keenest competition to animals of her class in the Ayrshire breed. She was second calf in the national futurity last year and was made Junior Champion at Central States, Missouri, Indiana, and Kansas fairs in the 1931 season. Fairfield Admiral, junior herd sire owned by David G. Page of Topeka, is another winner who is making Ayrshire history for Kansas.

Cabium Carrie Princess Champion of Glencliff farm stands at the top of Guernsey show bulls. His record as Senior Grand Champion at Topeka gives him a good stand in competition with others of his breed at future leading shows.

Live stock admirers everywhere will take off their hats to Kansas dairy show ring winners this year. Their record means \$36,362,000 annually to the Kansas dairy industry according to the 1930 Agricultural Yearbook of the United States Department of Agriculture.

The return from having farm boys and girls interested in growing live stock cannot be measured in dollars and cents, according

to James W. Linn, extension dairyman for Kansas. Through their efforts combined with the interests of larger breeders on a background set by the former dairy cattle showmen of this state, Kansas has reason to be a show ground for more and better dairy live stock.

WHEAT PRICES

(Continued from page 35)

speculative holders was the bad turn taken in foreign finances, the effects of which were reaching this country by December and affecting speculative sentiment in the stock market as well as in the grain market.

In 1916 the decline from the first 10 days of November to the first 10 days of December amounted to 9 cents. The decline this year was about 5 cents. In 1916 there was an advance in January, a decline in February about as heavy as the January advance, and then a strong continued spring advance. In the spring of 1917, the growing crop continued to decline. This year there has been improvement in November and December. Unless growing crop conditions turn decidedly worse, there is little chance of another important wheat price advance until mill buying picks up again in the spring. Improvement in spring business will then be an important factor in determining the amount of the advance.

Charles J. Boyle, '09, and Nelson Boyle, '20, are owners and operators of the Boyle Brothers ranch located three miles south of Spivey, Kan., in Kingman county. These brothers have four sisters who graduated from this college: Marie, Edith, Nelly, and Edna who were graduated in 1915, '16, '17, and '18, respectively. Miss Lucy Hovey of Kingman, sophomore in Ottawa University, taught the rural school last year in the district in which the Boyle ranch is located. Nelson's daughter was one of her beginners, and three children of the Charles Boyle family were among her students. The Boyle ranch is well known for many miles around for the methods of farm management followed and for the care used in making it an exceptionally attractive and homey place. Each of the brothers has his own farmsite on the ranch.

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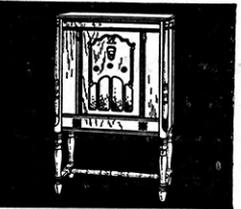
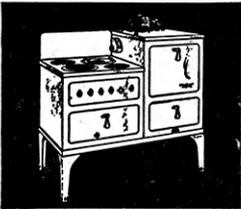
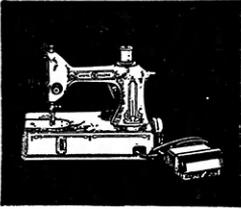
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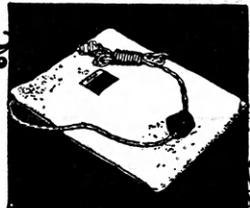
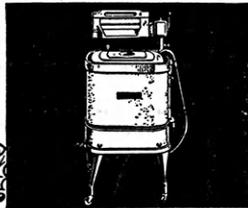
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