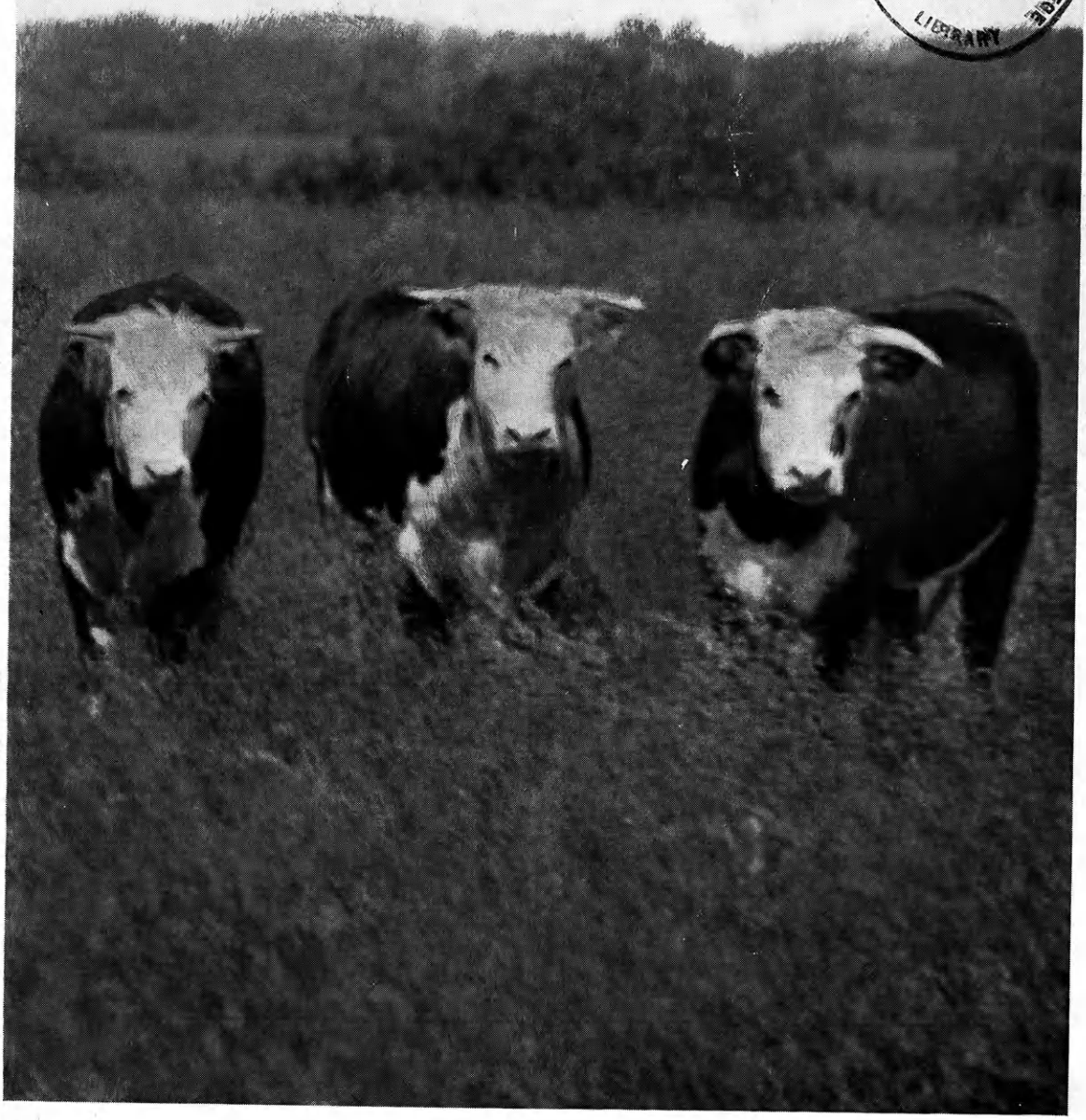
THE KANSAS AGRICULTURAL STUDENT



VOL. 2 MANHATTAN, KANSAS, OCTOBER, 1922 NO. 1

RESIDENCE ON AGRONOMY FARM, K. S. A. C.

CONTENTS

FAMILIAR SCENES AT K. S. A. C.

Kansas State Agricultural College is known the country over for the enviable record of its judging teams in intercollegiate contests. There are reasons among which are the fine classes of livestock provided for class work; the first-class coaches giving instruction; and the hard and serious work done in livestock judging classes.

The Kansas Agricultural Student

VOL. II Manhattan, Kansas, October, 1922 NO. 1

Making Beef of the Farmer's Calf

Elmer D. McCollum, '21

A well known beef producer has remarked that "great honor should be given the man who can produce a 900-pound steer at 14 months." To take calves as they are produced by the general farmer and round them into 900-pounders at 14 months requires skillful feeding.

The average farmer keeps a few cows upon which he depends largely for his milk supply. Of course the calf is of considerable importance to him but in many instances he expects to sell this calf at or a short time after weaning. Such a farmer is not a beef-producing specialist and in most cases does not even expect to make beef of the offspring. This calf runs on grass and usually does not have access to the entire milk flow of the mother. Conseqeuntly, at the age of six or seven months such a calf is just a big nice growthy youngster. He carries some milk fat but cannot be considered other than just in feeder condition. His weight may be around 500 pounds by December 1, this being the time when he generally reaches the feedlot of the beef producer. If the calf were dropped in March the feeder has approxmiately six months to add the other 400 pounds, a daily gain of 2.2 pounds. In short the feeder has no time to lose if such a gain is to be put on the calf. It requires both the right kind of feed and skill in feeding.

Thus far only one case has been considered, the calf that has made a good growth in the hands of the farmer. Only one ancestry has been included. The problem the feeder has confronting him, if he expects to select a car load or more for his project, is the amassing of from 25 to 30 such calves. Here is the real problem. If it were possible he would no doubt like to buy either all steers or all heifers. This, however, is often out of the question for the farmer desires to sell either all or none of his crop. In the selection of 25 head of feeders it may be expected that about half of them will be heifers and the other half steers, a rather undesirable combination for the feedlot and particularly so if they are to be fed together. In the purchasing of the calves it probably will be necessary to visit four or five farm herds. This brings in another complication in the uniformity of breeding. The dams of the calves will not only differ in type and conformation but the various herds will without doubt represent just that many different kinds of sires. It will finally be necessary for the feeder to choose from this offering those calves which are of the best feeder type and conformation, paying attention to quality, uniformity, price, and the other details necessary to his successful feeding operations.

Twenty-six head of Angus calves, just the kind described above, were selected and put on feed December, 1921. They were from average farm cows and showed fairly good quality and uniformity, thus resembling their Angus sires. The bluegrass pasture had made an abundant growth during the fall growing season and for two weeks previous to the beginning of the feed they were allowed access to it. On the evening of December 24, they received their first feed. The feed table shows the amount and kind of feed used during the entire feeding period of 218 days, ending July 31, 1922. The first allowance of corn was four pounds per calf per day, and was gradually increased until at the end of the 15th day they were consuming about 10

pounds per head. In addition to the bluegrass pasture Sudan hay was used for roughage. This hay was badly damaged and did not prove a very efficient roughage, but provided a way of utilizing the crop which would otherwise have gone to waste. Oilmeal was to form the nitrogenous supplement but due to a delay in shipping, cottonseed meal was used for a few days. The oilmeal was increased from one-fourth to two pounds per head per day. This ration was continued until March 15 when timothy and heavy clover mixed hay were substituted for the Sudan hay.

Several attempts were made to increase the corn allowance but without success until after the end of 100 days. About the first of April the young bluegrass began to show in the pasture and the calves did not care to eat at the morning feed. Previous to this time they were fed equal amounts of corn and oilmeal morning and evening, but upon the arrival of the new grass and their anxiousness to go to the pasture in the morning, they were gradually accustomed to the entire concentrate in the evening. From April 2 until the end of the feeding period they were fed in the evening. The timothy and clover hay still formed part of the ration. By consuming large quantities of dry roughage the calves did not eat so much young grass, thus preventing any appreciable loosening of the bowels until they became accustomed to the change in pasture. This roughage, however, was discontinued on April 17. Since the young bluegrass contained nutrients similar to those furnished by the oilmeal, from May 22 to June 24 and again after July 14 the calves were fed nothing but corn and pasture. In order to put on the finish and prepare the yearlings for shipping, clover hay was added during the last few days of the feed. The corn allowance per yearling per day by this time had reached about 14.5 pounds.

On the day previous to shipping the yearlings were watered in the morning and were not permitted to drink again until they reached the Kansas City market. The usual amount of corn was fed, together with all the clover and timothy hay they would consume. In fact the last 10 days of the feeding period were in the dry lot.

The steers and heifers were fed together, but the heifers were taken from the pasture and feedlot on the days of their heat periods. This prevented their losing weight by being milled around. Blackleg vaccination was administered at the beginning of the two-week grass period previous to feeding.

Items of interest in summarizing the results of the feeding project are included in the following table:

RESULTS OBTAINED IN A FARMER'S FEED LOT

(This mixed bunch of 26 calves were fed from December 24, 1921, to July 30, 1922.)

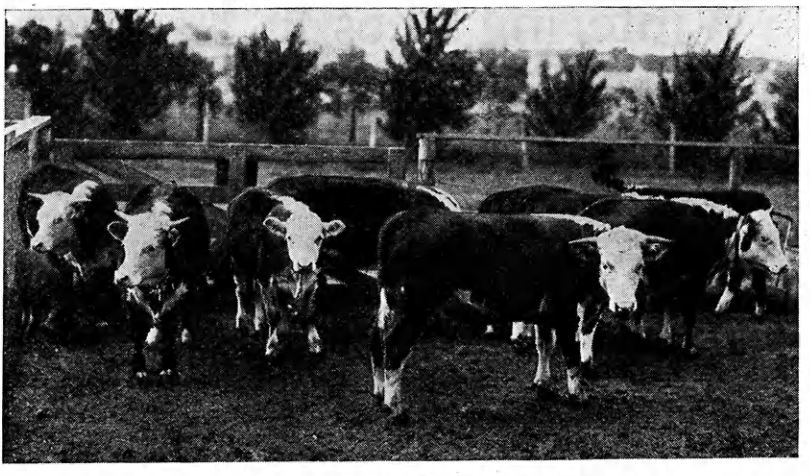
	Feeding Period	
Av. feed consumed per calf:	120 days	218 days
Corn, bus.	22.5	46.6
Oilmeal, lbs.	190.0	244.0
Cottonseed meal, lbs.	3.8	3.8
Sudan grass hay, lbs.	384.6	384.6
Timothy and clover hay, lbs.	153.8	153.8
Clover hay, lbs.	.....	71 4
Rock salt, lbs.	3.8	5.8
Av. cost of feed per calf:		
Corn,	$11.83	$28.05
Oilmeal	4.95	6.36
Cottonsedd meal	.10	.10
Sudan grass hay (badly damaged)	.20	.20
Timothy and clover hay	.54	.54
Clover hay	.....	.35
Rock salt	.02	.03
Total	17.64	35.63
Other items of expense:		
Int. on feed at 8 per cent	.47	1.72
Int. on initial cost of calf	.90	1.61
Vaccination of calf	.12	.12
Total expense per calf		
Initial cost per calf, 560 lbs. at $6 per cwt.	33.60	33.60
Total cost per calf	52.73	72.68
Freight, yardage, and commission per calf	.....	3.00
		75.68
Av. net profte per calf,		12.02

Av. daily gain per calf, 1.74 lbs.

Av. shrinkage in shipping, 6 lbs.

Price of feeds: Corn, 52.62 cents per bushel for the 120-day period and 60.2 cents per bushel for the 218-day period; oilmeal, $2.61 per cwt.; cottonseed meal, $2.50 per cwt.; Sudan grass hay (badly damaged), $1 per ton; timothy and clover hay mixed, $7 per ton; clover hay, $10 per ton; rock salt, 50 cents per cwt. The calves were on pasture during the entire feeding period.

In summarizing the amount of feed and the cost, figures were compiled for both a 120-day period and a 218-day period. The former would have ended on April 23. At this time the calves would have sold for about $8 per hundredweight. Using the daily rate of gain and estimating the calves to sell at that price, freight and commission deducted, a net profit of $5.61 per calf would have been realized. If the market had remained at this price until the end of the 218 days, no great profit would have been made. However, an advance of $1.33 per hundredweight during the next 100 days showed an increased profit of $6.41 per head, thus justifying the longer feed. Another interesting point in this summary is that the feed and total expense for



BABY BEEF FATTENED AT K. S. A. C.
These calves were fed a "heavy silage no grain" ration for 120 days and finished on corn and silage for 90 days.

the first 120 days amount to approximately the same as the feed and expense for the last 100 days. Considering this fact, should one sell upon the early summer market or continue to feed? This would depend upon the prospects of the market and the cost of continuing the feed.

The shrink on these yearlings in route to market was hardly noticeable. The time elapsing from leaving of the feedlot until reaching the market was one day and one night and included a haul of 148 miles. A shrink of only six pounds per head proves that it pays to prepare for shipping.

At the beginning of the feed the aim was a 900-pound steer at 14 months, in other words a daily gain of 2.2 pounds or a total gain of 400 pounds per calf in 180 days. With a group of good beef-type calves this result can no doubt be attained, but with a mixed class of steers and heifers and of different breeding, special difficulties and irregularities must be expected. The farmer's calves are not an inferior lot, but they are not bred and raised primarily for the feedlot. Furthermore, they are not handled by specialists prior to the feeding period. However, these calves, showing good Angus breeding, gained 380 pounds per head in 218 days, a daily gain of 1.74 pounds, and made an average net profit of $12.02 per head. The average weight at the market was 940 pounds and the average price $9.33 per hundredweight, the top for that weight on that day's market. While these results are nothing unusual and are not far different from the achievements of other cattle feeders they clearly demonstrate that the calf produced by the average farmer has a place in our national beef-making program.

Professor Winchester Accepts Position

Prof. H. B. Winchester, who since 1919 has been connected with the Department of Animal Husbandry, engaged in nutrition investigations, has resigned to enter commercial work. He is to become manager of a large livestock enterprise in north central Nebraska, where he will receive an attractive salary and a percentage of gross profits.

While here Professor Winchester has done a great deal of valuable experimental work and has gained the friendship and admiration of his colleagues and of the students with whom he has been associated as a teacher. His departure is sincerely regretted by faculty and students.

The Horticultural Club held its first meeting of the fall semester on Tuesday, September 20. There were 14 members present and after a short business meeting the members adjourned to the greenhouse where they had an excellent watermelon feed and a good social time.

Wintering Bees in Kansas

W. R. Harder, '22

Anna B. Comstock states, "We think that we know the essentials of perfect wintering of bees, but only frequently are we successful." When an expert beekeeper makes such a statement, we, as amateurs, have much to learn in the business. This is true especially for Kansas beekeepers since most of the bees in the state are kept as a hobby or sideline rather than as a major business, and as a result the small apiary suffers rather than the main industry.

Unfortuately, Kansas has a few winters in each decade that are rather mild, and too frequently the task of preparing our small friends for winter is delayed until a storm or bleak blizzard approaches. Many times swarms are destroyed and others weakened in this way.

Outdoor wintering, especially as it is practiced in Kansas, requires strong colonies. A large number of bees must be reared in the late summer and early fall in order to have strong colonies for winter. Stimulative feeding to produce an extra brood may be practiced in regions where fall nectar is not available, as is frequently the case in northern districts. Soft sugar is commonly used for this purpose.

With a strong colony, or prospects for one, a second requirement is faced. Like human beings, or any other form of life, bees must eat, and they are particular what they eat. Rather than eat poor food that will endanger the health of their communities, bees will starve. Bees consider the health of their community even more than the human race does. Honey must be present in a sufficient quantity to feed the swarm at least until the hives are unpacked, and preferably until new honey is available. As little as 30 pounds may be consumed by a colony during the winter but frequently 50 pounds are needed. If honey is available, an abundant supply should be provided because the strength of the spring brood, and indirectly, the future honey crop, may be determined by it. The queen will thus be well nourished so that an early deposit of eggs will result.

Protection from the weather is very important along with the other essentials of wintering. This protection may be of two types—natural and artificial. The first should be considered in locating the site for an apiary. Such barriers as hills, bushes, timber and even stone walls are very beneficial in protecting colonies.

Present indications from the experimental work of Dr. J. H. Merrill, State Apiarist, on wintering bees at the Kansas Agricultural Experiment Station, are that the natural protection of trees and shrubs saves considerable stores. Often the best protection is not near the feeding grounds. It may prove more economical, however, to build an artificial windbreak or sacrifice protection for the advantages gained by having the apiary near plants with a heavy honey flow. Although not often practiced, it may prove profitable to move the apiary in the spring from the windbreak to fields of heavy honey flow. The least one can do is to recognize good natural protection and to use it to the best advantage.

Since natural protection cannot eliminate the loss in the apiary in unfavorable winter weather, it is necessary and also profitable to furnish artificial protection. For Kansas conditions this usually consists of packing of some form.

Bees are able to endure extreme cold. Temperatures as low as zero Farenheit have been endured, but only with some loss and a general weakening of the colonies. Near this temperature or lower, bees meet death by freezing or by over exertion in attempting to keep up the temperature in the hive by muscular activity. In such activity the bees consume excess amounts of honey. A. D. and A. E. Root state that overeating causes overloading of intestines, and eventually causes the fatal disease of dysentery, which destroys the vitality of the colony very rapidly. Overeating may be prevented by keeping the colony so warm that muscular activity will be reduced to a minimum. Proper packing costs less than the extra honey which is required for feeding bees in unpacked hives. With packed colonies, the stores will be larger in the spring, and the hives will be warmer, both of which are necessary in order to have active queens. Active queens in the

spring mean early broods and early broods are essential in order to have bees for gathering the early honey flow.

Doctor Merrill states that the only time that there was not a greater reduction of stores in the unprotected hives than in the hives that were protected, was when there was heavy brood-rearing in the protected hives, which if not too early is usually desired.

With assurance that packing is essential, it is well to study the best practical methods of packing colonies. The method of placing a large packing box outside of the hive and packing the space between with leaves, shavings, or hay is very satisfactory. The box should be water tight on the sides and roof. This method is generally used in Kansas, especially for comb honey production. It requires more time and is more expensive than some other methods, but is very efficient for saving the bees, and strong colonies are usually assured in the spring. The packing case may be large enough to contain two or four hives. This reduces the cost of packing over that of the single hives.

A simple method of packing used at the Kansas Agricultural Experiment Station has proved satisfactory, is inexpensive, easy to put on, and easy to remove. The hive is placed on a hollow base which is packed with leaves, straw, wood shavings, or even shredded fodder. Leaves are the best. A shallow, empty super is placed on top of the hive and packed full. Woven chicken wire the height of the hive is then attached to a front corner and extended around back of the hive to the opposite front corner. The wire is left loose enough that six or eight inches of packing may be pressed between the wire and the hive. The front may be left open but should be faced toward the south or a southerly direction. This permits energy from the sun to warm the front of the hive. The packing should be removed as soon as the possibility of extreme cold is past.

The size of the entrance is important under Kansas and Colorado conditions. There are frequently times during the late fall or early spring or even in winter when the temperature permits the bees to fly. Because of this it is necessary that the entrance be fairly large. It must also be large enough to permit the removal of dead bees, which might otherwise stop the entrance. However, too large an entrance must be avoided as it cools the colony.

THE K. S. A. C. APIARY PACKED READY FOR WINTER

By keeping such points in mind as a good natural protection, strong colonies in the early fall, proper and early packing, early removal of the packing, and plenty of good stores, the average beekeeper can keep his colonies in fairly strong condition over the winter. The importance of winter care should not be underestimated because bees respond very readily to good care.

Farming in Louisiana

Lewis E. Long, '23

Louisiana is divided into several rather distinct farming sections, based upon the crops produced. The northern part of the state makes cotton its principal crop, though this section practices much more diversification than is followed in other parts of the state. The rice-growing section is found principally in the southwest, though considerable rice is grown along the Mississippi River. Sugar cane farming is carried on in the lower part of the state adjacent to the Mississippi River, while truck farming forms the principal type of farming in a portion of the parishes, known as the Flordia parishes, east of the Mississippi River, as well as in some rather large areas adjacent to the city of New Orleans. Besides these farming areas, there are thousands of acres of unimproved land which falls into two general classes—the cut-over pine lands which are generally too poor to pay for the clearing of stumps, and the swamp lands which are very fertile, but which present such a drainage problem that private capital hesitates to undertake a solution.

The climate of Louisiana is far better than the average person of the North supposes. The annual rainfall is about 52 inches, the season of heaviest rainfall being in the early spring. The temperature varies to some extent in different parts of the state. At Baton Rouge, the capital city, the summer temperature rarely goes higher than 98 degrees F., while the coldest winter weather is about 30 degrees F. In the northern half of the state, it gets somewhat hotter in the summer and colder in the winter, while in the southern half, the summer weather is pleasant and freezing weather is rare.

The principal crops grown in Louisiana are cotton, sugar cane, and rice, though the possibilities for growing other crops are great. Corn, oats, and hay are grown rather extensively, and trucking crops such as strawberries, potatoes, cabbage, lettuce, tomatoes, beans, cauliflower, cucumbers, and melons contribute no small part to the state's agriculture. The keeping of livestock has not appealed to the Louisiana farmer in times past, but now he is coming to appreciate more and more the part which livestock should play on every successful farm.

Cotton at one time was crowned King in Louisiana. That was in the "old days" before the advent of the boll weevil when an acre of land with average tillage methods would produce a bale of cotton. Now the average yield is around a third of a bale per acre. Most of the cotton is produced by negro tenants under the general supervision of the land owner. A negro family may farm from two to ten acres, the area depending largely upon the size of the family. The land owner usually furnishes everything needed by the tenant. These are a mule, a plow, a number of hoes, cotton baskets or bags, seed, and the "supplies" of groceries and clothes needed by the tenant and his family.

The cultural methods for cotton are about as follows: Two rounds are made with the plow, throwing four furrows together to form a ridge or "row" as it is called in the South. On this row the cotton is planted, being dropped by hand and covered with a hoe. The first cultivation consists of "offbarring" or throwing one furrow away from the plants on each side, leaving a ridge of from six to ten inches in width on which the cotton stands. The next operation in order is the "chopping out" or thinning to the proper stand, which is done with the hoe. Subsequent cultivation consists in throwing the soil back to the cotton which is done with the plow, requiring two rounds for the cultivation of each row. Picking is performed by hand and is the limiting factor in the acreage which one family can operate as even with the crude methods of tillage a family can produce much more cotton than they can pick.

The growing of sugar cane is perhaps the most unique farming enterprise in the United States in that it involves under the same ownership and management all of the equipment and operations necessary for the production of the product, and the first step in the marketing operations of the finished commodity. The average cane farm is very large, many of them having areas of 5,000 acres or more. The present tendency, however, is toward smaller acreages of which

more will be said later. The larger cane farms operate their own "sugar houses", as they are called, where the cane is made into either sugar or syrup. Very few farming enterprises call for as great an outlay of capital as does cane farming. When one considers the large acreage required to justify the erection of a sugar house and the installing of the necessary equipment, the cost of the house and equipment, the difficulty of using a crop rotation on so large a farm, the dependence on hired labor, and the large number of managerial problems which must arise in a business so varied in its aspects as this, he may imagine something of the capital involved and the risks attendant on cane farming.

Sugar cane does not grow from the seed in the United States. Propagation is by planting the stalk in rows five feet apart, the "row" being a ridge as with cotton. Sugar cane is a perennial plant, but gradually grows poorer. Therefore plantings are made every second or third year. Machinery for sugar cane culture is especially designed, being larger in every way, but otherwise similar to the two-horse implements used for cultivating corn in Kansas. The cane harvest usually begins during the latter part of October and runs well into December. On the larger holdings, the steps in harvesting are briefly these: The cane is first stripped, topped, cut, and placed in small piles on every third row by negro women and children. From these piles it is taken up by negro men and placed on large two- or four-wheeled carts drawn by four mules. Usually the two-wheeled cart is used as it can be drawn over a muddier field by swinging the team first one way and then the other, pulling a wheel at a time. The carts are equipped with sling chains so that unloading may be done with a crane. The carts may convey their loads directly to the sugar house or they may take them to a crane which transfers the load to an open car on a narrow guage railway which in turn carries the cane to the sugar house.

As previously mentioned, the present tendency is for the cane farm to become smaller. This has been brought about by the lack of economy under the old system. Many smaller farms are beginning to use sugar cane in their farming operations, selling their cane by the ton to the larger growers or making it into syrup themselves and selling the syrup locally. The cutting up of the larger holdings and the separation of the cane-growing interests and the manufacturing interests are doubtless movements for the best.

Two types of rice growing are found in Louisiana: the river section type and the prairie section type. In the river section, the rice occupies the land on each side of the lower Mississippi between the cane land, which is adjacent to the levees, and the swamps, which lie from one to ten miles back from the river. The fields are plowed with heavily constructed gang plows and traction power, as a rule, and the rice sown by hand. Small levees are then constructed and when the rice is well up it is flooded by siphoning water over the levee from the river and carrying it across the cane fields in open ditches. The water remains on the land until near harvest time, when it is allowed to drain back into the swamps. Weeds and grass are serious pests and are pulled out by hand while the land is flooded, the laborers distinguishing between rice and weeds (which include grass) by the sense of touch. Harvesting, as a rule, is done with a binder, though on very small areas or in rainy seasons it is done with a reap hook.

In the prairie section, rice growing is conducted in a manner similar to the growing of wheat in western Kansas except that the fields are flooded by pumping water from wells and that much heavier machinery is necessary to handle the stiff heavy soil. The farms in this section are much larger than in the river section, and no weeding is necessary.

Rice in either section is usually grown every other year on a given piece of land, the land being rested during alternate years. In the prairie section, considerable attention is given to grazing cattle on the land when it is not occupied with rice.

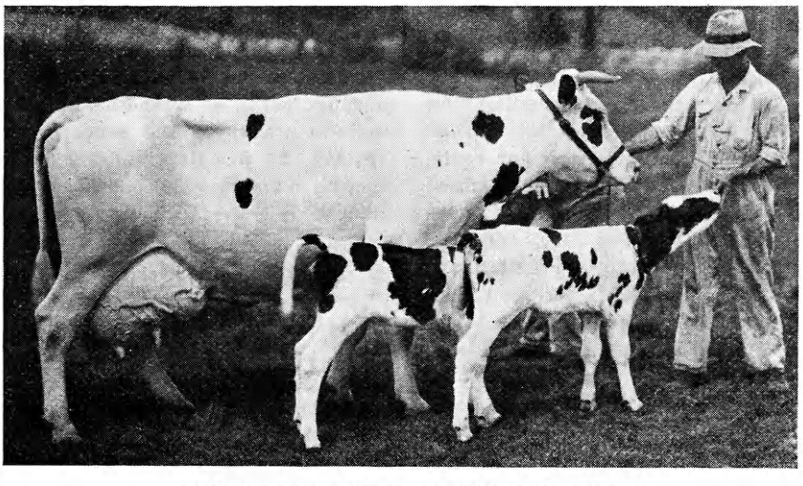
Corn and oats are being grown in greater quantities each year in Louisiana. The average corn yield for the state is 21 bushels. Cultural methods for corn are somewhat similar to those for cotton, but are more advanced. The same spirit which leads the farmer to diversify his crops leads him to adopt more up-to-date methods of farming. A number of varieties of corn suitable for Louisiana's conditions have been developed and corn is taking its place on most of

the farms of the state. Oats are grown largely for winter pasture, being sown in the fall. It matures in June and is used for hay as it is difficult to get threshing done in communities where oats are produced. Rust-resisting varieties have been developed for the humid climate where rust is the limiting factor in oat production.

Among the leguminous crops which Louisiana produces are cowpeas, soy beans, velvet beans, vetch, white clover, lespedeza, sweet clover, burr clover, and some red clover, crimson clover, and alfalfa. Cowpeas and soy and velvet beans are usually planted as a companion crop for corn, being put in at the last cultivation. Vetch grows wild to some extent, but is quite often sown with oats for hay. White, burr, and sweet clover grow wild and are used principally as pasture crops and for building up run-down land. Lespedeza, or Japan clover, forms one of the principal hay crops. It is usually sown in the oat field in February or March. The oats come off in June and the lespedeza is cut for hay in August or September. If cut at the latter date, enough seed will shatter out to seed the land for another year. However, the second year's crop is usually inferior due to a mixture of native grasses. Red clover, crimson clover, and alfalfa growing are still in the experimental stage.

Inka Hijlaard Walker Scores a Double Point

C. C. Button, '23



A PUREBRED HOLSTEIN AND HER TWINS

This cow, Inka Hijlaard Walker, is one of the best types of the Holstein breed. The twin heifer calves were born August 1, 1922.

Inka Hijlaard Walker is the second high-producing cow in the college herd. Although only six years old she has completed three records and is now on her fourth which promises to surpass all her former achievements.

As a senior two-year-old she produced 16,021.8 pounds of milk and 585.07 pounds of butterfat in 365 days, breaking the state record for her class at that time. As a junior four-year-old on a 305-day test she produced 12,264.5 pounds of milk and 426.01 pounds of butterfat, a state record for butterfat in her class. During the past year she produced 19,250.8 pounds of milk and 770.5 pounds of butterfat in 365 days. For butterfat this is the second highest record in the college herd, being surpassed only by Carlotta Empress Fobes, another college purebred Holstein, with a year's butterfat record of 803.33 pounds.

At the completion of her last record (August 1, 1922) she dropped twin heifer calves weighing 75 and 85 pounds, respectively. Her first calf, Canary Paul Inka, was a member of the 1920 Kansas show herd. She was first-prize yearling heifer at four state fairs and stood second in her class at the National Dairy Show at Chicago that year. Her sec-

ond calf, Canary Paul King Inka, a full brother to Canary Paul Inka, is now head of the purebred accredited herd owned by the State Sanatorium for Tuberculosis at Norton, Kan.

Inka Hijlaard Walker was bred by H. B. Cowles of Topeka. She is the daughter of Walker Copia Champion and her dam is Inka Hijlaard Johanna 3d, a paternal sister to Genesta Knoll De Kol, the leading milk producer of the state, whose record is 28,633.9 pounds of milk and 855.5 pounds of butterfat. Besides being a high producer and a dam of excellent show animals, Inka Hijlaard Walker is one of the best examples of Holstein type and individuality in the college herd. Such cows, combining high production with prepotent reproduction, are rapidly building up and improving the quality of the college dairy herd.

Origin of the Name "Alfalfa"

Frank W. Kerns, '23

As is the case with many other domesticated plants, there is much uncertainty as to the identity of the wild species from which the present cultivated species of alfalfa is descended. In fact, the botanical name was first given to the domesticated plant and has never been associated with any wild species.

The early Persian name has not come down to us, but the Romans, who learned of it and its culture from the Greeks, accepted both the Greek name and the account of the introduction of the plant into Greece from Persia, which is said to have occurred about the time of the Persian invasion, 490 B. C. Thus the names "medike," by which it was known to the Greeks, and "Herba Medica", by which it was known to the Romans, refer to its Persian or Median orgin. Some time early in the Middle Ages it came to be known popularly under the name "Luzerne," (spelled also luserne, lucerne, and lucern) which was probably derived from the name of a river valley in northern Italy.

Alfalfa was undoubtedly known and cultivated as a forage crop in northern Africa nearly quite as early as it was known in Italy, but whether the culture was carried into Africa by the Romans or was brought westward direct from Asia is not clear. The Arab invasion, which swept across northern Africa and into southwestern Europe in the seventh century, seems to have carried the culture of the plant and the Arabian name with it into Spain, so at about the time the southern Europeans were beginning to know the plant as "luzerne" the north African and Spanish people, under Arabic and Moorish influence, were calling it by the name "alfalfa" or "alfacfacsh," which in the Arabic language means "the best kind of fodder."

With the discovery and colonization of America, the English and west European colonists brought the plant and the name "lucern" to eastern North America, while the Spanish colonists carried the same plant, under the name "alfalfa," to Mexico and South America. Until recently the name "lucern" has been the more popular in eastern United States, and it was carried west by the pioneers of the Mormans into Utah, where it is still commonly used.

The culture of the plant from the European introduction did not prosper in eastern United States and it has never secured a very important place in eastern agriculture. Alfalfa was found to be well adapted to many places in Central and South America, however, and its culture and the name "alfalfa" spread together very rapidly throughout that part of the hemisphere. The plant was carried northward by the Spanish settlers along the Pacific Coast to California, where it has become the most important forage crop of the region. More recently it has been spread through the eastern states again, until now it is known and cultivated to some extent in every state in the Union, and at the present time the Arabic-Spanish name "alfalfa" has almost entirely replaced the European name "lucern."

C. H. Morgan, who received both his bachelor's and master's degrees with the class of 1922, writes from Fairbanks, Alaska, enclosing his subscription to the Ag Student. The K. S. A. C. colony in the Alaska Agricultural College and School of Mines is not lonesome and is anticipating a pleasant college year. The work of the new institution opened regularly September 18.

The Story of "Old Purie"

James B. Angle, '19

"Old Purie" was a Duroc Jersey sow. Her real name was Cherry Sensation 769722, but she and her sister were the first two purebred sows on our farm. At once we nicknamed her "Old Purie," a diminutive for Old Purebred. At first it was a handy way of referring to this particular sow, but later it became a term of affection and now the name recalls the memory of a faithful and good mother.

When Old Purie arrived on the farm we turned her in a lot with other sows and they, as their custom was, set upon the newcomer with intent to do bodily harm. Feature their surprise when Old Purie not only stood them off but eventually put them to flight. From that time on Old Purie was queen of the lot. At the outset two things marked Old Purie as a hog with an individuality and a character of her own. The first of these was her ability to boss the herd and the second was her preference for the company of man. She would frequently come to the fence and beg to be scratched. She was jealous of these attentions too and never liked to see another hog scratched in her presence.

Old Purie was first mated to a King of Colonel boar and her litter of nine pigs was farrowed on a cold morning after a severe spring snow storm. Of this litter five sows and one boar were raised. When but a few weeks old they were showing a marked superiority over all the other hogs in the herd.

She was next mated to a Pathfinder boar and farrowed 13 pigs of which 10 survived. This was a very even litter, and despite the fact that they were the latest litter that fall, they came on apace. Seven sows out of this litter are retained in the herd at the present time.

During the next year Old Purie farrowed two litters to the service of an Illustrator boar. Her spring litter consisted of nine, all of which passed "the vicissitudes of pighood" without comment. They were farrowed in early September and the weather was so warm that it was impossible to confine the sows to farrowing pens so they were turned into a large lot in which shade, alfalfa, and an abundance of hiding places were to be had. But this failed to satisfy Old Purie. She was used to special care and attention when she farrowed. So she pulled up the fence with her stout snout and started off to find a building in which to farrow. After a casual inspection of the chicken house she passed it up as inadequate, and came on to the house. There, to the dismay of the Missus, she rooted out a nest under the pantry window and was later discovered with 10 fine large pigs. It was with much difficulty that she was persuaded that the place for her and her family was in the hog lot. Of this litter she raised eight, all sows.

The next litter of pigs from Old Purie was disappointing. Out of a litter of thirteen, she raised only four to weaning time. Too old to raise pigs she was still in good condition to sell well for pork. It was, however, with a feeling of regret that we hauled her to town. Such a faithful mother should be pensioned with a wee bit of a field of alfalfa to spend her days in peace, with grain in moderation, and running water in abundance, but such is not the way of commercial pork production.

In her best two years Old Purie farrowed 44 pigs of which she raised 33. Her litters always contained more sows than boars. Twelve of her daughters and two of her granddaughters have been retained in the herd. Six of her daughters and two of her granddaughters have been sold as bred sows. Four of her sons have been sold for boars. Out of the 15 pigs that we are showing at two county fairs this fall, 13 are her grandsons and granddaughters. Nearly 50 percent of our spring pig crop are her descendants. Her splendid prolificacy, her size, and a certain look about the eyes are striking characteristics which she has impressed upon her daughters. She has had more to do with the evolution of our herd of hogs, known as the White Rock Durocs, than any other sow.

James B. Angle, '19, who majored in animal husbandry, is junior member of the firm of N. H. Angle & Son, owners of the Whiterock Breeding Herds of Duroc Jersey hogs and Shorthorn cattle.

Development of Agricultural Economics at K. S. A. C.

J. D. Adams, '23

The economic problems of agriculture were early recognized in the work of Kansas State Agricultural College. It is probable that consideration of these problems began with the first work started. At that time all of the work in agriculture was consolidated in a single department. As the field of instructional and investigational work in agriculture developed, the various phases of the work were divided into departments. The Department of Agricultural Economics was the last of the existing departments in the Division of Agriculture to be created and to have its work separated from the work of other departments. A move in this direction began in 1914 when a man was engaged to devote all of his time to agricultural economic investigational and instructional work and another began work along the lines of farm management and cost accounting. In 1918 these two lines of work were consolidated in a new department known as the Department of Agricultural Economics with two men composing the staff. From this modest beginning, four years ago, the department has grown until at present its staff includes eight men devoting full time to investigational and instructional work.

The first students majoring in the work of the department received their degrees in 1919. There were four of these students and it was necessary that they elect most of the courses offered by the department so that they might take the twelve hours required. At the present time there are more than thirty students majoring in agricultural economics and the number of courses offered has been increased until students have an opportunity to select from twelve courses.

Beginning with 1920 Dean Farrell has taught one course in the department each year. Prof. W. E. Grimes, Head of the Department, is in immediate charge of the cost of production and farm organization studies and the instructional work in these subjects. He is a graduate of K. S. A. C. and has taken graduate work at Cornell University and the University of Wisconsin. Prof. Eric Englund, in charge of the instructional work in general agricultural economics and of the instructional and investigational work in land economics, is a graduate of the Oregon Agricultural College and the University of Oregon. He received his master's degree from the University of Wisconsin, has taken some graduate work at the University of Chicago, and has partially fulfilled the requirements for the doctor's degree at the University of Wisconsin. During 1921-22 he was Acting Head of the Department while Professor Grimes was absent on leave. Associate Professor R. M. Green, in charge of the marketing work of the department, is a graduate of the University of Missouri and has completed most of his work for the master's degree at that institution. Instructor Morris Evans is in charge of the studies of the poultry industry and assists in the farm organization work and cost of production studies. He has charge of the laboratory work in farm organization and farm cost accounting. He is a graduate of K. S. A. C. H. J. Henney, R. D. Nichols, and J. H. Moyer are Research Assistants, each of whom is in charge of a route in the farm organization and cost production work. All three are graduates of K. S. A. C. H. I. Richards, also a graduate of K. S. A. C., is Research Assistant in Marketing and is devoting his entire time to a study of the marketing of wheat.

The work of the department is nationally recognized as is evident by the cooperation of the Bureau of Agricultural Economics of the United States Department of Agriculture in all the major lines of the investigational work being conducted by the department. The Food Research Institute of Leland Stanford Jr. University is also cooperating in the wheat-marketing investigations which are under the direction of Professor Green.

The development of the Department of Agricultural Economics at K. S. A. C. has been rapid but is in keeping with the rapidly growing recognition of the importance of the economic problems of agriculture. The demands upon the department for services

by the people of the state are constantly increasing and the student enrollment in the courses of the department is becoming greater each year.

The increasing number of students majoring in Agricultural Economics resulted in the formation of the Agricultural Economics Club in 1921. The purpose of this organization is to further the mutual professional and social interests along agricultural economic lines of its members and others. Students majoring in Agricultural Economics are eligible to active membership. Members of the department of Agricultural Economics and other faculty members interested in Agricultural Economics are eligible to election as honorary members.

During the present college year the club plans to conduct a series of meetings at which some nationally known speaker will discuss topics of economic interest to students of agriculture. These meetings will be open to the student body and the general public. This is a continuation of the policy followed last year.

Last Year's Stock Judging Team and What They Are Doing Now

C. E. Blagg, '24

K. S. A. C. WINNERS IN LIVESTOCK JUDGING, 1921-22
From left to right, front row, A. D. Weber, J. S. Stewart, C. M. Willhoite, J. J. Moxley; back row, C. B. Quigley, C. B. Roberts, Prof. F. W. Bell, coach, C. R. Hemphill.

A. D. Weber last year won first place in judging at the Topeka Free Fair, first honors in the students' dairy judging contest, and first in the Block and Bridle livestock judging contest. He also carried back the honor of winning first place at the International Livestock Show where he competed against collegiate men from over the entire United States. Today, Mr. Weber is managing a grain and livestock farm near Kansas City owned by Mr. Keith, a lumberman and banker of that city.

C. R. Hemphill, a veteran of the World War, is assisting Mr. Weber with the Herefords and Poland Chinas on the Keith ranch. Mr. Hemphill is a quiet sort of person but a deep thinker. His good judgment and convincing manner will some day class him among agricultural leaders.

J. J. Moxley, known as "Judge" on the hill, won the Block and Bridle contest in his freshman year. According to the rules of that organization he was barred from their future contests. However, when it comes to showing horses he has an outstanding record. His knee action is so perfect that students forget to look at the horse and watch "Judge" instead. Moxley is now showing horses for Ed Nicholson of Leonardville, Kan. The animals he exhibited at both the Topeka and the

Hutchinson Fairs won high honors. Mr. Nicholson is so well pleased with the excellent showing and fitting of his Percherons that he and Moxley are making plans to become partners.

C. B. Roberts, commonly known as "Red," was always prominent in activities in the Division of Agriculture. He placed at the International Livestock Show last year, was secretary of the Ag Fair in 1921, and is now successfully managing the High Banks Farm, Route 2, Oronogo, Mo.

C. M. Willhoite, perhaps better known on the hill as "Speedy," on different occasions showed flashes of extraordinary business judgment. He successfully managed the Ag Fair in 1922 and was always an active student in the Division of Agriculture. This year "Speedy" is teaching agriculture in the McPherson High School.

J. Scott Stewart all through his career displayed ability as an organizer and manager. He managed the Casement hog sale and superintended the Block and Bridle contest last spring. He is now back on the ranch at Coldwater, Kan., improving his father's herd of Herefords. "Scotty" was always determined to win, as shown when he went to the International last year as an alternate. Later when he entered the Denver contest he walked away with first honors.

C. B. Quigley, a favorite among his associates, ranked well with the other members of the team. Last spring he accepted a position as representative for the Kansas City Livestock Producers Association.

Prof. F. W. Bell won high esteem and honor for piloting this group of men through their stock judging career. He has had three successive winning teams at the Western Livestock Show at Denver. Professor Bell is widely known as a stock judge and often called upon to do judging work. The men who make the team in the future are fortunate to have the benefit of his sklil.

Swine Select Milo in Sorghum Palatability Test

G. C. Bartgis, '24

Some practical and interesting information has been secured in a series of experiments recently conducted by the Department of Animal Husbandry with reference to the palatability of different sorghum grains when fed to swine.

One pig was fed in each of six pens by the use of a six-compartment self feeder. The first month six different sorghum grains were available to each pig in his self-feeder; namely, three non-saccharine or grain sorghums (Yellow milo, Blackhull kafir, and feterita) and three saccharine or sweet sorghums (Kansas Orange, Red Amber, and Darso). All these grains were fed whole.

At the end of one month figures were obtained showing (1) the average daiy gain, (2) the average daily consumption of each of the six sorghum grains, and (3) the percent of the total feed represented by the average daily consumption of each grain. These figures showed that the average feed of the six pigs during the month consisted of 91 percent Yellow milo, 7.25 percent feterita, and only a small fraction of 1 percent of each of the other feeds, the percent of Blackhull kafir being about twice as great as that of any one of the sweet sorghums.

According to the plan of the experiment as the pigs showed a preference for any particular feed, this feed was to be eliminated. Therefore, based on first month's results, Yellow milo was eliminated from the available feed, and the test continued a second month on the same general plan. During this month the average feed of the six pigs consisted of 78.2 percent Blackhull kafir, 21.2 percent feterita, and again only a small fraction of 1 percent of each of the three saccharine sorghums available.

Both Yellow milo and feterita were eliminated for the third month's test and each of the pigs compelled to select his feed from the three saccharine sorghums. During this month the average feed of the six pigs consisted of Darso, 60 percent, Kansas Orange, 32 percent, and Red Amber, 8 per cent.

The following figures are of interest in connection with the experiment: The first month each pig consumed an average of 2.99 pounds of feed daily and made an average

(Concluded on page 29)

THE KANSAS AGRICULTURAL STUDENT

KANSAS STATE AGRICULTURAL COLLEGE
MANHATTAN, KANSAS

VOL. II OCTOBER, 1922 NO. 1

Published quarterly by the students of the Division of Agriculture, Subscription rate, one dollar a year; single copies, twenty-five cents; advertising rates on application. Address all communications to The Kansas Agricultural Student, Manhattan.

LET'S HAVE YOUR IDEA

At the Alpha Zeta spring banquet last June a speaker from an Eastern school made the statement that, in his opinion, there was no better agricultural student magazine in the United States than our own. A rather broad and flattering declaration but one to which we proudly refer.

The high standard already established makes it a difficult task to display great strides of improvement. It is only through the most earnest cooperation in the Division that real progress can be made. In order to facilitate this end and to furnish an outlet for the constructive suggestions of the readers it has been decided to devote a column, or if necessary a page, to student opinion.

The readers are at liberty to use this space as they see fit. We hope that it will give the AGRICULTURAL STUDENT a personal touch and make it more distinctly reveal its identity as the Division of Agriculture publication. It will also furnish an origin for comment and suggestions which may prove helpful to the staff of the publication and be a source of common interest.

THE NEW AGRICULTURAL HALL

"To the Stars Through Difficulties." How much those words mean to Kansans. These words are interwoven in past tradition; they are symbolic of the early pioneers, our farmers, business men, our teachers and pupils; yes, they are truly symbolic of our schools.

It is a long stride from the sod schoolhouse to the impressive agricultural building that is now being constructed at K. S. A. C. The achievement, however, is soon to be realized. Within 12 months the west wing of Waters Hall will be completed. Then the Division of Agriculture will be adequately housed for the immediate future. Here and in the east wing six of the major branches of scientific agriculture—Agronomy, Agricultural Economics, Animal Husbandry, Dairy Husbandry, Poultry Husbandry, and Milling Industry—will disseminate knowledge related to agricultural problems to all corners of the earth.

Can you not catch the vision? The building of this magnificent and lasting stone structure by the people of Kansas augurs well for agriculture. It is a broad barrier against peasantry. We are justly proud of the achievements of agriculture. Let us go forward—"To the Stars Through Difficulties."

"THROCK" MISSED BY AGGIES

Prof. R. I. Throckmorton, after 14 consecutive years in the Division of Agriculture, is now enjoying his well earned leave of absence. His cheery good fellowship is, indeed, missed by the entire Division. We hope that the year he is spending at Cornell will be both an instructive and happy one.

CIRCULATION DOUBLED IN ONE YEAR

We believe our subscriber and all our readers will be interested to know that the circulation of The Kansas Agricultural Student for the year 1922-23 is to be approximately double what it was last year. Twelve hundred copies of this issue are necessary to supply our needs, and the number for the succeeding issues will undoubtedly be slightly increased. Our mailing list is approximately as follows: Special local subscriptions, mostly members of the faculty, 125; mail order subscriptions, largely agricultural alumni, 125; subscriptions to members of the Agricultural Association, 350; to Kansas high schools, 475; extra for office use, exchange, and advertising purposes, 75; provided for sale at local book stores, 50; total, 1,200.

A Message to Agricultural Students

By Dean F. D. Farrell

Most students go to college knowing several things which are not so. One of the commonest of these misconceptions is that the chief purpose of a college education is to enable its possessor to make more money. Another is that a college degree is a license to live without working. A third is that colleges are maintained primarily for the benefit of their students, rather than for the many-times greater number of people who are not so fortunate, but who, nevertheless, pay most of the cost of keeping the colleges going. Some students are so unfortunate as to carry one or more of these fallacious ideas through college, and a few graduates retain some of them throughout life.

Colleges are maintained chiefly for the purpose of supplying the world with a thing of which it never has enough. That thing is capable leadership. Because it is always scarce and always in demand, leadership is high priced. It is more difficult to find a good foreman than it is to find men to work under him, and that is the only reason why the foreman receives the higher pay. Going to college helps a man to develop intellectual power, technical ability, and spiritual strength. These are the prinicipal qualities of leadership. Students who develop these qualities to a high degree become leaders and subsequently are rewarded according to the character of the service they render.

You agricultural students are preparing yourselves for positions of responsibility and leadership, on the farm and elsewhere, in the service of the most important industry in the world. Agriculture is indispensable to civilization. It is the biggest business in America. Its progress is indispensable to the wellbeing of our country. Like all other great industries, it must have a large number of capable leaders—men having broad vision, strong honest character, clean enthusiasms, and scientific ability; men who can do big, difficult things and who are not afraid to use imagination and to work. More and more the people engaged in agriculture must make use of the facts of science—in production, in distribution, and most important of all, in country life. They cannot do this effectively without high class leadership.

And here is where you chaps come in. The existence of the agricultural college and your presence in it as agricultural students will be justified to the extent to which the college helps you, and you help yourselves, to become great Americans in the service of American agriculture.

You need not be anxious about your rewards. If you give excellent service, remembering always that this requires hard work and, not infrequently, hard fighting, you cannot escape the rewards, even if you try to do so.

Constitutional Vigor in the Breeding Pen

H. H. Steup

The possession of healthy, vigorous birds is the main-spring of the poultry farm. There is no other factor among the many important phases of profitable poultry raising more essential than exceptionally strong constitutional vigor in the stock. No farm can be run profitably without it, just as no watch can run accurately if the mainspring is weak. The most learned and experienced of poultrymen could never show a profit if called in to manage a farm whose birds had low constitutional vigor, for there is no possibility of correcting this evil, except by changing stock. It is "bred in the bone" and must therefore be built up in the breeding pen by careful selection of those birds that are to be the parents of the next generation. A constant yearly selection of birds of strong vitality and a constant rejection of the less strong indiviiduals will lead to stronger constitutional vigor and larger profits. But it is not wise to try to build up a strong flock out of a weak one without bringing in new blood.

In the fall, when the culler is separating the producer from the loafer, is the logical time to select the breeding pen for the following spring. On the average farm where no trap nests exist there is no better time to locate the high producers; and birds combining both constitutional vigor and high production are the only ones that should be allowed to produce chicks. By choosing these at culling time, one eliminates the necessity of rehandling.

Constitutional vigor is nothing more than the maximum efficiency of the four main physiological systems of the body; namely: digestive, circulatory, respiratory, and nervous.

A hen is a very complex and delicate machine. It turns raw feed into the finished product—the egg. Consequently the more feed a bird consumes, digests, and assimilates, the more eggs she can lay and the greater will be the profit in keeping her. The larger her digestive capacity, the greater her production. Hence the birds with large body capacity, well supported underneath by a long keel bone to prevent "breaking down," are the ones that are able to use the larger quantity of feed. It is these birds that have that excess vigor first necessary for reproduction or egg laying. So a long,deep, full body, well supported underneath, and a showing forth with unmistakable clearness signs of large capacity, is the first indication of strong constitutional vigor.

The next requisite is a vigorous heart and a healthy blood stream. These are the railroads of the hen's body. If this system is weak the same condition would exist as when a railroad strike is on. Large amounts of nourishment would exist but there would be insufficient means of transportation and this would cause a shut-down of the factories—the ovary, the oviduct, the gizzard, the digestive glands—and there would soon be a general tie-up. A healthy blood stream is full of red corpuscles and hence the blood has a deep red color. A strong heart forces this blood in a constant stream to every extremity and in a bird where both these conditions exist, there is the external sign of a fiery red comb. Birds that have a broad, deep head set with keen, alert, and prominent eyes, and have these surmounted by a soft healthy, full, dark red comb, have the second indications of strong constitutional vigor.

Oxygen is needed for growth, for egg production, and for all vital functions of all organs. This gas is taken from the air that is breathed into the lungs. Therefore a deep, rounded chest indicative of a strong respiratory system, is the third indicator of strong constitutional vigor. Care must be exercised and allowances made for breed characteristics, as some types are more meaty on the breast than others. The bird that falls away in front, giving the head and neck a very upstanding and high appearance, is the one that has no lung capacity. Only those with full, well rounded breasts should be chosen.

The working hen is the one that has the proper nervous temperament. She is the first

one off the roost in the morning and the last to perch at night. Her toe nails are short and worn from foraging after the food her body craves. The hen that sits on the perch in the daytime and has long toe nails is the one with weak vigor. Choose only the active, working hen with short toe nails.

Those that choose the females on these four lines have strong constitutional vigor in half the pen. The other half is in choosing males. The deep body capacity, strong head and bright red comb, and the full rounded chest apply to the males as well as the females. They should be selected on these lines along with their vigorous actions. The strongest males crow loudest and most often. They are the most gallant and glossiest and the best fighters.

It very seldom pays, however, for a person to choose breeding males from their own stock. This usually results in inbreeding and since most farms have no trap nests or pedigree system it also affords the chance for reproducing poor layers. Using males that can not transmit high egg production is tearing down the benefits derived from culling, for the roosters are half the breeding pen. Therefore if one chooses males from his own unpedigreed flock he is working in the dark. Vigor is not an indicator of the ability to pass on high production. It is necessary for vigor to be present before high production can be transmitted, but all vigorous birds can not reproduce high producing daughters. It is therefore wise to head the breeding pen with males purchased from outside sources that pedigree and can guarantee high producing daughters to a great extent.

In selecting the males, therefore, one should usually get them from an outside source and then put them through the afore mentioned test for vigor. The ideal mating male is the strong, healthy, vigorous bird that has the power to transmit high production to his daughters.

This selection must continue every year. Most failures on commercial poultry farms can be traced to run-down vitality, as it can be passed on to the offspring. The constant culler, the man who is continually removing those birds weakened by disease, accidents, or heavy production is the one who is obtaining best results from his poultry.

Kansas Wins the Dairy Judging Contest—Ten States Compete for Honors

The K. S. A. C. Dairy Judging Team won the fifth annual Collegiate Judging Contest at the Dairy Cattle Congress, Waterloo, Iowa, Monday, September 25, 1922. The team was composed of F. W. Houston, R. L. Fleming, and C. R. George and made a score 52 points higher than Wisconsin, their leading competitor. The eight other agricultural colleges in the contest placed after Wisconsin in the following order: Minnesota, Nebraska, Illinois, Purdue, North Dakota, Iowa, Michigan, and Missouri. F. W. Houston tied H. J. Brush from North Dakota for first place, each making 524 points. R. L. Fleming placed sixth with a score of 498 points. The Kansas team was high on Jerseys, third on Holsteins, and fifth on Ayrshires. They won a cup for being high team and another for placing first on Jerseys. F. W. Houston also won a cup.

Tryouts for the team started at the Kansas Free Fair at Topeka where several classes of prize-winning dairy cattle were judged. Competition for places was keen, 14 students trying out. The team above named, with A. P. Wertman as alternate, was selected and left Manhattan September 23, visiting the Longview Farm at Kansas City en route. Most of the week following the contest was spent at the Dairy Cattle Congress at Waterloo. The week beginning September 30 was spent in visiting some of the leading dairy herds of Minnesota and Wisconsin in final preparation for the National Dairy Judging Contest which is to be held October 9 at St. Paul.

George J. Raleigh, '22, is pleasantly located at 3137 S street, Lincoln, Nebr., and will be glad to meet any of the boys who come up to the football game this fall. Mr. Raleigh is doing graduate work in the University of Nebraska having an assistant's position in the Department of Horticulture.

Finding the Crop to Fit the Farm

C. W. Bower, '23

During the past few years one of the agricultural problems in Kansas has been to study the behavior of various crops on the farms throughout the state. The studies of the local adaptation of crop varieties and other soil and crop problems are conducted by the division of Cooperative Experiments of the Agronomy Department of the Kansas Agricultural Experiment Station under the supervision of Professor H. H. Laude, assisted by Mr. N. E. Dale.

The cooperative experiments are of great service to the agriculture of the state and to the farmers who cooperate with the college. The demonstrations have proved that sections of Kansas differ widely in their ability to produce certain crops. The explanation of the wide variation in crop adaptation in the different sections of Kansas is to be found in the variations of soil and climatic conditions. Two of the important factors in the production of crops are soil and climate. In northwestern Kansas the soil is of a fairly light sandy type, and the elevation is 3,500 feet. The annual rainfall is only about eighteen inches, and an average growing season is from 150 to 160 days. The conditions of northwestern Kansas are sharply contrasted with those of southeastern Kansas where the soil is largely residual having its orgin in sand stone, lime stone, and shale. The elevation in many sections of southeastern Kansas is 1,000 feet or less and the annual rainfall is about 40 inches. The average growing season is from 180 to 190 days. These facts readily explain why the different sections of the state must grow different farm crops and locally adapted varieties.

One need not go from one extreme corner of the state to the other to find variations. Farms in the same county or even in the same township may differ widely in types of soils such as the upland farm and the bottom farm. Even individual farms may have different soil types in different fields. If such a condition exists the farmer should carefully study the adaptations of varieties to the various types of soil on his farm.

Before the present system of cooperative experiment demonstrations was begun, the farmer, in order to know whether crops from other localities were profitable on his farm, had to assume the risk and expense of trying the new crops. The farmer can now avoid this expense by depending on the cooperative experiments.

The cooperative experiments were started in 1911 when the Agronomy Department cooperated with some two hundred farmers of the state in testing different varieties of corn, sorghum, and other crops. The object was to learn what variety was best adapted to the conditions under which grown. Different methods of preparing the seedbed for wheat, corn, sorghums, cowpeas, and alfalfa were tried out in order to determine which methods produce the best results for the respective crops. Eleven farmers undertook work in improving corn by the ear-to-row method and four farmers conducted head-to-row tests of kafir for the same purpose.

In 1911 arrangements were made with 53 cooperators to conduct variety tests of corn. In these tests three groups of varieties were included: First, varieties grown for distribution by the Agronomy Department; second, varieties obtained from other states which included northern, southern, and eastern types; third, local varieties of corn grown in the locality in which these tests were conducted. These tests demonstrated that corn adapted to soil and climatic conditions radically different from those in this state does not produce well when grown under Kansas conditions.

With this beginning the cooperative experimental project has steadily grown. In 1922 there were a total of 458 soils and crops cooperative experiments conducted. Thirty kinds of tests were conducted which included variety, fertility, crop rotation, and seedbed preparation tests. In addition to these cooperative experiments with farmers, extensive work in improving corn by the ear-to-row method is in progress at the Colby Experiment Station in Thomas County, in Cherokee County on the farm of Mr. O. A. Rhoads near Columbus, and in Marshall County in cooperation with Mr. C. G. Randall, director

of vocational agriculture in the Marysville High School.

The following data will give an idea of the rapid increase of the cooperative experiments from 1911 to 1922:

	Number of Tests	
	1911	1922
Corn variety	53	78
Sorghum variety	28	59
Wheat variety	none	107
Oat varieties	none	43
Barley variety	none	13
Fertility tests	none	88
Crop rotation tests	none	15

This increase in the number of tests expresses the eagerness of farmers to cooperate with the Agricultural Experiment Station of K. S. A. C. in an effort to raise crops which give maximum returns.

Quisenberry Teaches Farm Crops in University of West Virginia

Karl S. Quisenberry, '21, instructor in agronomy, West Virginia University, Morgantown, writes that being transplanted from Kansas to West Virginia was a real struggle. It did not take him long to find out how much he didn't know about teaching elementary farm crops to sophomores in West Virginia. However, those who know Karl know how he met the challenge. He is doing some work in the genetics of farm crops under Doctor Garber. He says good crops can be produced in West Virginia if the soil can be built up, which is another way of saying he misses the rich black soil of Kansas.

Value and Use of Barnyard Manure

Mott L. Robinson, '23

Kansas needs to heed the experience of many communities in the East where soil mining has been practiced for several generations. Whole neighborhoods of abandoned farms in many sections of the New England and the Middle Atlantic States testify to the folly of soil exploitation. Kansas is still a comparatively young state and, on account of the natural fertility of her soil, the harmful effects of soil mining have not as yet become serious. The accumulation of plant food that was liberated by the growing of native grasses and legumes through long ages made for Kansas a rich virgin soil. During the last 50 years, however, the practice of taking from the soil and returning nothing has caused an average decline in yield amounting to 18 percent for wheat, 46 per cent for corn, and 35 per cent for oats. To be sure the present day farmer often succeeds in producing as good or even better yields than his forefathers. This maintenance of yield is due to improved methods of tillage and better adapted varieties of seed. In the future the question of soil fertility will be of increasing importance.

Never was the saying, "A stitch in time saves nine," more true than it is in maintaining soil fertility. Manure is our greatest and most abundant form of fertilizer. Manure serves three purposes: It provides plant food, supplies organic matter, and prevents erosion. As a fertilizer, manure contains plant food elements in which most Kansas soils are lacking. Manure contains organic matter which in turn keeps the ground in better tilth and aids in bacterial and fungous action, thus helping to liberate the plant food that is in a mineral form. Manure also helps materially in preventing erosion by making the ground more porous, thus serving as a sponge in absorbing water after heavy rains.

According to results secured by Prof. R. I. Throckmorton of the Agricultural Experiment Station, manure gives a striking increase in yield. These results cover a period of 12 years and the average annual yield of wheat is shown by the following table:

EFFECT OF MANURE ON WHEAT YIELDS

	Av. yield per acre
1. Wheat continuously, no manure	15.0 bus.
2. Wheat continuously (No. 1), with 2.5 tons of manure applied annually	21.5 bus.
3. Three-year ration, corn two years, wheat one year, no manure	19.6 bus.
4. Three-year rotation (No. 3), with 2.5 tons of manure annually	21.1 bus.
5. Sixteen-year rotation, wheat two years, corn one year, repeated for twelve years, alfalfa four years, no manure	17.7 bus.
6. Sixteen-year rotation (No. 5), with 5 tons of manure added every third year	21.9 bus.

It can be seen readily that manure increased the yield in each instance. As the experiment grows older, all indications point toward a more decided difference in the yields of the treated and untreated plots. While the experiment deals primarily with wheat produc-

tion, manure increases the yields of other crops proportionately. A decided increase is shown with heavy feeding legumes, especially alfalfa. Alfalfa is a heavy feeder upon phosphorus and potassium. Most Kansas soils are well supplied with potassium, but are lacking in phosphorus.

Many farmers in central and western Kansas do not apply manure at all. The drouth-resistance of crops seems to be lowered by its use. This, indeed, often occurs where manure is applied too heavily in regions of light rainfall. In such regions it should be applied in small quantities at a time, and usually as a top dressing, in order not to interfere with the moisture supply of the plants. Under such conditions it may be applied on ground that is to be listed to corn or kafir or it may be applied as a top dressing on winter wheat in the fall.

In eastern Kansas farmers know that manure does increase crop yields, but are somewhat careless in its care and use. At Manhattan manure exposed to summer weather for five months lost 62 percent of its plant food. Cow manure leached for the same length of time, May to September, inclusive, lost 30 percent of its plant food. This loss is due to fermentation, bacterial action,and leaching. It can be seen readily that manure saving equipment would soon pay for itself.

In humid climates there will be wet days when a team cannot go into the fields intended for tillage without causing more damage than would be compensated by saving of the manure. There will be periods of time when urgent work may make it impossible to take care of the manure. Such emergencies may be reduced to the minimum, however, by keeping a manure spreader expressly for this work, and so located that it will be more convenient to drop the manure accumulations of the stable into the spreader than elsewhere. There will be days when the ground will be so covered with snow as to interfere with the working of the manure spreader. Manure spread upon the snow, however,according to Charles E. Thorne, Director of the Ohio Agricultural Experiment Station, is several times more valuable than manure that has been allowed to be leached by rains.

The proper handling of manure while in the stable is another important problem to be considered. With the proper bedding **the** liquid excrement can be safely conserved. Straw is one of the most valuable forms of bedding. In the eastern states every pound of wheat or oat straw is saved and used solely for bedding purposes. In Kansas straw is plentiful and should be put into use to a better advantage as bedding material. Straw is one of the best absorbing materials and has the advantage of being easily handled.

It is hard to realize the value of the manure that is actually being wasted without first knowing the value of the manure produced. The value of the manure produced in Kansas in 1920 was as follows: Horse manure, $33,817,446; cow monure, $54,851,240; hog manure, $9,595,360; and sheep manure, $600,200. These figures are based upon the plant food value contained in the manure and the present price of plant food contained in commercial fertilizers.

Care Necessary in Vaccination Against Hog Cholera

H. C. Sturgeon, '22

Vaccination against hog cholera should be performed only by a graduate veterinarian. The use of serum and virus for vaccination by quack doctors and by the farmers themselves causes more-losses and trouble of various kinds than any other thing connected with hog cholera, according to Dr. E. J. Frick, veterinarian at K. S. A. C.

Anti-hog-cholera serum is not a dangerous preparation to handle, as it does not contain the live organisms which cause the cholera. It contains only the anti-bodies which, when injected into the blood stream, make an animal temporarily immune from five to ten weeks. Thus anyone may handle the serum without danger of spreading the disease. The virus, however, is the active live disease and should be handled only by those who understand the dangerous nature of the preparation. The virus is injected into the animal's blood stream at the same time that the serum is injected. The animal is

given hog cholera and is given at the same time a host of anti-bodies that put up a fight with the live virus, finally overcoming them, thus rendering the animal actively immune from the disease.

During this fight, or while the animals are having a mild form of the disease, they are throwing out the cholera virus from their bodies. Thus if one animal in the herd is vaccinated every unvaccinated one probably may take the disease and die.

The bottles containing the virus must be burned after they are emptied or they will be the means of spreading the disease. The organisms may live as long as two years if thrown into the corner of the hog shed or any favorable place. Thus the disease may be carried to a neighboring farm by animals or man, or it may break out again in the next crops of pigs on the farm. Many hog owners do not know this and carelessly throw the bottles about when doing their own vaccination. This is just one example of the saying that "A little knowledge is a dangerous thing" or in other words, "Knowledge, like wood, should not be used until well seasoned."

Canary Bell

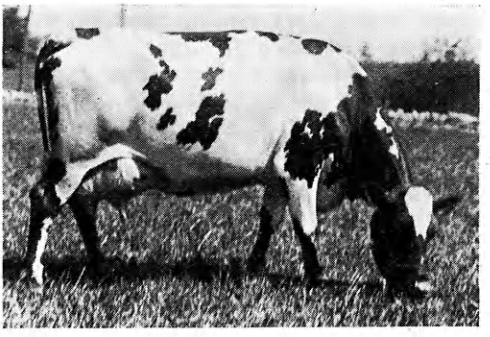
P. G. Roofe, '24

The Department of Dairy Husbandry is justly proud of owning a cow like Canary Bell. She is one of the oldest cows in the college Ayrshire herd and one of the best producers.

At the age of ten years Canary Bell completed a year's record of 19,863 pounds of milk and 744 pounds of butterfat. This record was a French Cup winner in the mature class. During this lactation period Canary Bell also made a seven-day record of 528.6 pounds of milk and 23.9 pounds of butterfat. She has been a good producer during her whole life. Her first five official yearly records are as follows:

Age at beginning of record			Pounds of Milk produced	Pounds of butterfat produced
Yrs.	Mos.	Days		
2	3	23	10,092	371.81
3	11	4	12,809	490.74
6	3	4	15,252	559.29
7	5	16	17,375	667.10
9	10	1	19,863	744.51

Canary Bell is not only a good producer and a good individual, but two of her daughters have already made outstanding records: namely, Melrose Canary Bell, with a record of 13,891 pounds of milk and 505 pounds of butterfat, for which she received the French cup for the highest-record junior two-year-old; and Melrose Canary Bell II, with a record of 11,633 pounds of milk and 392.9 pounds of butterfat, which entitled her to the Gold Medal Honor Roll as a junior two-year-old on a 300-day test. She has two other daughters, Cavaliers Canary Bell and Canary Bell II—a yearling heifer. One of the sons of Canary Bell was formerly head of the Ayrshire herd at the Missouri Agricultural Experiment Station, and is now head of the Ayrshire herd at Purdue University. Another son was sold for $500 to a breeder near Boston. Two other sons now head two grade Ayrshire herds in Kansas.



CANARY BELL
A purebred Ayrshire having the best record in the College Ayrshire herd.

Canary Bell has been owned by the college since 1909. She was sired by Albert Cook, 11193, and out of the cow, Lady Fearnot 3d, 217.

P. B. Potter, '16, is assistant professor of agricultural engineering in Ohio State university. During the present quarter he is teaching courses in Farm Drainage and Household Mechanics. The latter course is required of sophomore girls in Home Economics. It includes cover soldering, pipe fitting, meter reading, painting, electric wiring, and gas engine and farm light plant operation. In short, the work consists largely of the study and operation of various kitchen and household machines, equipment and appliances.

E. H. Coles, '22, has charge of dry land farming for the United States Department of Agriculture at the Branch Experiment Station, Garden City.

Growing Corn in South Africa

J. F. T. Mostert, '23

It is well known that corn is the leading product of the United States. In fact this is one of the main reasons why Americans should be interested in other corn-growing regions of the world. At the present time the American farmer does not fear outside competition on the corn market. However, the United States is gradually increasing her demand for corn, and already Argentine is exporting corn to the United States in spite of the fact that Argentine corn is very high in moisture content and not suited for shipment. The country which in the near future will be looked upon for surplus corn is undoubtedly South Africa.

The history and development of corn-growing in South Africa is given here because the writer has lived on one of the largest corn-growing farms in South Africa and came to K. S. A. C. for the main purpose of studying the latest methods used in the production of corn.

Corn, or "mealies" as it is called in South Africa, was introduced by the early Portuguese traders before the Boers settled there in 1650. Corn was soon widely distributed among the natives and when the Boers expanded their colony they frequently came into contact with native tribes growing it. This fact led to the belief that corn was indigenous to the African continent and that opinion still is upheld by many people in South Africa today.

South Africa has her "mealie" belt just as America has her corn belt. The hot coastal line and the dry desert-like regions of the Karoo and Kalahari are unsuited to corn growing. The corn zone of South Africa may be roughly defined as the country lying east af the 26th meridian. From this area the coast belt below 1,000 feet in altitude and the mountain region above 6,000 feet should be excluded.

There are four large provinces which comprise the Union of South Africa: Orange Free State, Transvaal, Natal, and Cape Province. Of these, Orange Free State is by far the largest producer of corn. But of the total area of the province less than 2¼ percent is planted to corn. A large amount is grown by natives and the average yield is therefore low, being only 11 bushels per acre. The rainfall is about 11 inches during the three growing months of December, January, and February.

The Transvaal, which ranks second in production, contains some of the most valuable corn-growing districts in South Africa. Practically every farm in the Transvaal produces some corn. The major portion, however, is grown in the plateau region between 4,000 and 5,000 feet in elevation.

Natal ranks third in corn production. Much more corn would be produced there if it were not that more profitable crops such as sugar cane, bananas, and coffee are adapted to that region. Cape Province produces less corn in proportion to total area than any other province. This is mainly due to the lack of summer rainfall.

There are in South Africa two extreme types of farming—the ultra modern and the ultra primitive. In the latter type native women prepare the soil for seeding with a simple garden hoe, planting the corn broadcast by hand and then leaving it to fight against drouth and weeds. The little they harvest is hung in trees and taken down when it is needed, to be crushed and ground by hand or made into kafir beer. On the other hand there are large demonstration ranches of English farmers, such as the ranch of John Fowler & Co., Ltd., who cultivate 5,000 acres of corn each year using steam and oil engines for plowing, disking, and harrowing and combined harvesters for reaping the crop.

Although these extreme methods are interesting, most of the corn is produced by the average farmer who plants 100 or 200 acres. It is this type of farmer and farming that the writer has in mind while writing this article.

On the whole the methods used in South Africa are similar to those used by the American farmer with the exception of a few necessary adaptory changes for South African

conditions. For instance, most of the plowing is done by oxen. The tractor is gradually being adopted although it is the most expensive power used. The question is often raised why horses or mules are not employed for farm work. The answer is that most parts of South Africa are ravaged by a disease known as horse sickness which will often take off every horse and mule on the farm. Therefore until cheaper power can be developed or a cure for this plague discovered, oxen must be used for the most profitable production.

The growing season in South Africa comes in the months of November, December, January, and February. The best farmers do their plowing throughout the winter immediately after the harvest. Planting is generally done in November but a successful crop has been grown that was planted as early as August or as late as December 26. The common two-row planter of the Champion type is generally used. Two natives are used for each planter, one to lead the oxen and the other to manipulate the planter itself.

The common type of corn grown in South Africa is dent, although the natives prefer flint to anything else. The most popular varieties are Hickory King, which has adaptations similar to Boone County White, Hickory Horsetooth, Reid Yellow Dent and a few other varieties developed at the Agricultural Experiment Stations in South Africa.

The methods of harvesting corn would seem crude and expensive to the American farmer but labor is fairly cheap so corn is harvested by hand. Each native is given a sack, which holds about two bushels of ear corn, and he is made to pass down the row picking the ears as he goes. The natives are required to pick 25 bags per day. These bags are placed at the ends of the rows and collected by natives on wagons. The ears are then taken to specially prepared stone floors and piled in the sun. It is very seldom that it rains after the end of April when harvesting is completed, so the corn dries out well in these piles. Corn is shelled by the usual shelling machines used in this country but the grain is immediately sacked in bags which hold 200 pounds of grain and sold on the market by the bag.

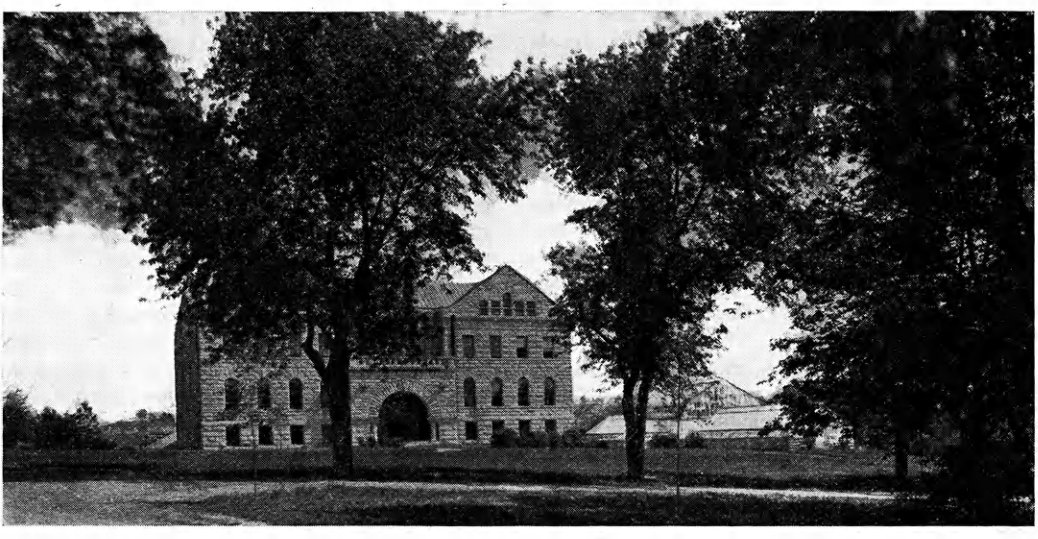
South Africa is now constructing a national elevator system which will be run by the South African railways. It is believed that this system will be more uniform and generally more satisfactory than the privately owned systems in other parts of the world and will be a direct benefit to the farmer and certainly simplify grading and exportation.

The future for South Africa as a corn-producing region is certainly bright. There are drawbacks as in any other corn-producing region. Probably no country could be cursed with more weeds than South Africa. Locusts and other insect pests are plentiful, but for the farmer with energy and will, there awaits a rich return from his corn-growing enterprise. A young, vigorous and steadily increasing population provides an expanding local consumption and the world's markets—owing to the excellent lines of communication linking South Africa with the other countries—lie within easy distance. The climate of South Africa is peculiarly well suited to the easy production of enormous quantities of corn of exceptionally good quality, especially for manufacturing purposes. The rainfall is ample if the soil is properly cultivated, and there is a long possible planting season. At the close of the growing season there is no rainfall and the corn is able to dry out to the limit, thus producing the best corn for shipment.

Today South Africa is exporting to Europe large quantities of corn of the very best quality but in the near future this amount will be greatly increased and South Africa will be recognized as one of the leading corn-producing countries of the world.

J. A. Vohringer, '13, is superintendent of an 850-acre farm belonging to The Hampton Normal and Agricultural Institute, Hampton, Va. During the last few years he has built up one of the best Duroc Jersey herds in Virginia. The dairy herd of the farm consists of about one hundred cows, mostly Holsteins. Wheat, corn, soy beans, and hay crops are raised on about six hundred acres under cultivation.

W. L. Martin, '22, claims to have the best young commercial orchard in the Arkansas River Valley. During a visit of the "orchard tourists" in August, Martin's orchard was inspected and many of the growers and college men, who made up the party, were inclined to agree with him.



A Trip Through the Apple Section of Kansas

R. J. Barnett, '95

That apple production in the Arkansas Valley can be greatly extended at a good profit and without fear of market gluts or transportation tie-ups was the opinion expressed by all the horticulturists who made the tour of the Valley during the third week of August, 1922.

Prof. L. C. Williams of the Agricultural College and Mr. W. A. Boys, county agent of Sumner County, planned the tour and should receive credit for the great success which it proved to be. The visitors, some from as far as Holton and Council Grove, met Monday morning in Oxford with about 50 local growers and visited several orchards before enjoying the splendid hospitality of the Arkansas City Chamber of Commerce at luncheon. The afternoon was spent in some of the best orchards of the Valley near Oxford and closed with a big get-together evening picnic in Albright Garden. The Pat Taylor and J. H. Koons orchards were of special interest to the "tourists," but were temporarily forgotten upon the appearance of the three heaping bushels of fried chicken, and all that goes with it, served by the Oxford Community Club.

Tuesday was spent in the orchards around Belle Plaine and was enlivened by a splendid dinner served in the hall at noon. Mr. C. H. Glover was master of the tour at this point and also exhibited one of the best orchards seen on the trip. The E. N. Bishop, Alter, and Mason orchards were all worth a long trip to see. Thousands of trees bending with their loads of sound fruit, much of it beginning to take on the red of maturity, made a sight that will not soon be forgotten.

The third day of the tour was spent in the neighborhood of Wichita. Here a severe hail storm had damaged part of the crop and led to some lack of care of the remainder. However, a large quantity of fruit will be produced in that part of the Valley. The Hoover and McComas orchards were inspected as well as the really wonderful vineyard of Mr. T. B. Young.

The return trip from Wichita was made by way of Council Grove and Ottawa. At the former place the excellent 150-acre apple orchard of Mr. James Sharp was the principal attraction, while Mr. Frank Pyle's large orchard and cider plant were the main points of interest at the latter.

Tours of this type enable the college men and growers to get in personal touch with each other. This is of benefit to both. Of equal importance is the exchange of methods and ideas among the growers themselves. A careful grower who is making money out of good fruit becomes the most efficient missionary possible in promoting the cause of "A Kansas apple for every Kansas boy and girl every day of the year."

How One Kansas Farmer Secured $1.33 per Bushel for His Corn

Marvel L Baker, 24

There is a growing tendency on the part of cattle feeders to feed a lighter class of stock than formerly. Last fall, Mr. George Wreath, a farmer living near Manhattan, in common with a lot of other Kansas farmers was looking for a better market for his corn than that afforded by the local elevators. Doctor McCampbell, head of the Department of Animal Husbandry of the Kansas State Agricultural College, suggested to Mr. Wreath that he buy 26 head of calves which had been produced at the Fort Hays Branch Experiment Station, Hays, Ellis County, Kan. The calves were high-grade Herefords, and the purchase was made. They were put on feed December 6, 1922. As soon as possible they were on a full feed of alfalfa and shelled corn.

The total cost of the 26 head of calves was $640 and their average initial weight was 377 pounds. One of the calves died during the feeding period. After feeding the remaining 25 for 182 days, Mr. Wreath marketed them in Kansas City. The selling weight averaged 777.6 pounds. This was a net gain of 400.6 pounds per head—good evidence of the breeding of the calves and the skill of their feeder. The net selling price of the bunch was $1,702.62. The calves had eaten 870 bushels of corn which was figured at 40 cents per bushel and 12 tons of alfalfa at $10 per ton, a total of $468 worth of feed. The hogs following the calves produced $120 worth of pork and Mr. Wreath figured that the manure produced paid for the labor involved.

These figures show a net profit of $713.82 or $28.55 per head. To put it another way, Mr. Wreath received $10 per ton for his alfalfa, $1.33 per bushel for his corn, and put a lot of valuable fertilizer back on his fields. The right kind of calves, bought right, fed right, and sold right, pay.

Feeding Silage to Work Animals

W. L. Willhoite, '16

Many experiments have been conducted by agricultural experiment stations in which silage has been fed to horses, but on the farm this feed is used only in a very few instances. Sixteen silos are within a five-mile radius of the writer's farm, but without exception the silage is fed to cattle. This is due to the fact that farmers actually believe silage is unfit for horses, because in a few instances work animals have been lost by feeding moldy silage.

Silage has been tried out on this farm in order to reduce the cost of wintering work animals. Cane silage was fed the first winter and kafir silage this last winter. The work animals have consisted of eight head of mares and geldings and two young mules. The silage was fed in a feed bunk each morning and the animals allowed all they would eat. About one scoop full per head was fed.

The animals ate the silage readily. Care was taken at all times to feed only clean sweet silage. Such silage serves as a laxative and is very beneficial during the winter. Mares in foal seemed to do as well as the other horses. The coats of the animals were smooth and sleek, indicating good health. As the time for spring work approached the amount of grain ration was increased. Silage is too bulky and too high in water content to be fed when animals are at hard work, but it can be fed advantageously during the winter months as a roughage.

Silage as a feed for work animals has proved very satisfactory during the last two winters. When fed with care and in a proper ration no casualties will result. By the use of a proper portion of silage work animals may be brought through the winter in good condition at a minimum of expense.

Alumni Notes

C. A. Perry, '22, is planning to enter commercial greenhouse work.

J. J. Bayles, '15, is in charge of a Texas Branch Experiment Station at Balmorhea.

J. T. Quinn, '22, in Instructor in Horticulture in the Department of Home Study Service, Division of Extension.

Harlan Sumner, '16, is associate professor of agronomy in the Montana State College of Agriculture and Mechanics Arts, Bozeman.

W. W. Fetrow, '20, is spending his second year in graduate work in the University of Wisconsin. He is assistant in Agricultural Economics.

A. E. Jones, '17, is in charge of a general livestock farm of 500 acres in the Blue Valley thirty miles north of Manhattan. His post office address is Bigelow.

E. L. McIntosh, '20, County Agricultural Agent of Nemaha County has installed a radio receiving outfit and gets the market reports from Kansas City and Omaha each day.

Bert B. Bayles, '22, is assistant in cereal investigations in the United States Department of Agriculture and is located at the Fort Hays Branch Experiment Station, Hays, Kan.

H. J. Henney, '21, is carrying on cost of production studies in the Department of Agricultural Economics. He is located in Chase County studying the cost of producing beef on grass.

W. L. Willhoite, '16, since his service in the U. S. Army, has been farming at Drexel, Mo. He is a breeder of purebred Poland China hogs and is grading up a herd of Shorthorns.

F. J. Peters, '20, County Agricultural Agent of Greenwood County, has scheduled a baby beef show for the boys' and girls' clubs to be held in connection with the Greenwood County Fair.

Oscar Steanson, '20, is working at Monmouth, Ill., on studies in the cost of hog production. He is working for the Bureau of Agricultural Economics of the United States Department of Agriculture.

Ray Kellogg, '22, who majored in the Department of Milling Industry, has charge of milling and baking in the Department of Agronomy of the Montana State College of Agriculture and Mechanic Arts, Bozeman.

Carl Dethloff, '22, has been assisting in cooperative experimental work in Michigan this summer. This work gave him an excellent opportunuity to become acquainted with Michigan agriculture.

H. T. McKeever, '22, has been in charge of the up-keep of the State House grounds since last spring. His work has been the cause of much favorable comment by those familiar with former conditions.

Kyle D. Thompson, '20, County Agricultural Agent of Jewell County has organized the Jewell County Livestock Improvement Association. The Jewell County exhibit won first place at the Kansas Free Fair at Topeka.

D. R. Hooton, '21, is located on the United States Experiment Farm, San Antonio, Tex. It is rather unusual for him to be tardy but he made up for it properly by sending $1 for the Ag Student for the college year along with best wishes for the Ag Association.

M. Kamal, '22, who will be remembered among the Egyptian students in attendance at K. S. A. C. 1921-22, is located at Berkeley, Calif., doing graduate work in the University of California. Mr. Kamal expresses the deepest appreciation of his work in K. S. A. C. and the assistance given him by the many friends he made here. He will look forward with unusual pleasure to the coming of the first number of the Ag Student.

L. H. Rochford, '20, County Agricultural Agent of Osage County, writes that the farmers are taking an active interest in the eradication of tuberculosis from their dairy herds. Seventeen herds were examined recently.

Earl F. Burk, '22, writes to his college friends that he is greatly interested in his work as Director of Vocational Agriculture in the Garden City High School. Mr. Burk is taking a part in many of the community activities in addition to his regular school work.

H. L. Baker, '22, is teaching agriculture, physics, and chemistry in the Wellington High School. This makes a lot of subject matter for one man to handle and his classes are large but he writes that he is enjoying the work very much. Of course he also requests several of the recent publications of the Agricultural Experiment Station for class reference use.

W. E. Crabtree, '20, is director of vocational agriculture in Milton High School, Milton, Ore. The high school at that place is just moving into a two hundred fifty thousand dollar building, and they aim that their work in vocational agriculture shall be as good as any in the country. Students preparing for the teaching of vocational agriculture in Oregon Agricultural College at Corvallis do practice work in the Milton High School. The community is one of the greatest fruit and vegetable sections of the northwest. The livestock industry, however, is important on many farms and the Oregon wheat-growing district is not many miles disthat. Mr. Crabtree has made good at Twin Falls, Idaho, during the last two years and his promotion to one of the best schools in the state of Oregon is well merited.

Swine Select Milo in Sorghum Palatability Test

(Concluded from page 15)

daily gain of 0.55 of a pound. The second month each pig consumed an average of 2.22 pounds of feed daily and made an average daily gain of 0.23 of a pound. The third month each pig consumed an average of 1.66 pounds of feed daily and made an average daily gain of only 0.04 of a pound.

From the results obtained it appears that swine prefer the grain sorghums to the sweet sorghums. They also desire, especially in case of sweet sorghums, the more plump and soft-coated grains, as shown by the fact that they showed a decided preference for Darso over both Red Amber and Kansas Orange.

The Block and Bridle Club wishes to announce the date of its annual dance which will be given in Nichols Gym and Harrison's Hall Friday, November 10. The dances that night will be in honor of the Stock Judging Team that will represent K. S. A. C. in the International Judging Contest to be held in Chicago, December, 1922. Get your date early and come out for the best dance of the season.

Social Committee.

HIGH SCHOOL LABORATORY WORK IN VOCATIONAL AGICULTURE

A, Testing milk; B, testing grain. This picture was taken last winter and gives a glimpse of the work done by Warren E. Crabtree's class in Twin Falls, Idaho. In may states of the Union the agricultural graduates of K. S. A. C. are to be found among the leading teachers of vocational agriculture.

YOUTH

AGE

The old man stops by the road—
And leans on his scythe awhile,
"First harvest I ever missed," he says
—And he tries to smile.

He tries to smile, but his eyes
Are lost in the years to be
And mirrored plain in their hopeless stare
Are the htings they see:—

An old man sits by the fire
At the end of another day,
And women scold as they move about
—He is in the way.

The fire dies down to dust,
And light is no longer there,
Alone at the hearth the old man sits
In his lonely chair.

—The Cornell Countryman.

Lewis E. Long is enrolled as a graduate student in agricultural economics. Mr. Long received his bachelor's degree from the Louisiana State University and Agricultural and Mechanical College in 1919. As a college student he managed a 300-acre dairy farm as a side line and a method of self-support. During the last two years he has been an instructor in his alma mater.

Your Future Work

TIME is an essential element of all progress. It took nearly a hundred years for farm machines to supplant hand tools. Power farming is less than ten years old, which largely accounts for the fact that so many farmers have but a hazy idea of its great possibilities.

Power farming means something more than the purchase of a tractor. It means new ideas in farm management; revisions of farming methods; many and various important changes. These are not conditions that can be achieved in a hurry.

You who are entering agriculture today will be leaders in the future. Your example will be followed by neighbors who have not had your advantages. Through your present study of more efficient farming methods you can influence for the better the future of American farming.

We have prepared new literature on the use of mechanical power in farming, which contains much information you will be interested in. Write for it today.

J. I. Case Threshing Machine Company

(Established 1842)

Dept. Y317 **Racine** **Wisconsin**

Manufacturers of

Case Farm Tractors, Steel Threshers, Silo Fillers, Baling Presses, Steam Engines, Road Machinery and Grand Detour Plows and Disk Harrows.

NOTE: Our plows and harrows are NOT the Case plows and harrows made by the J. I. Case Plow Works Company.

REMEMBER!

SECOND ANNUAL AG FAIR

The *most* entertaining of all the entertainments of the year

Features

Ferris wheels for the porch swing artists

Slick floors for the tea hounds

"Wilhoit's Follies" or "The Dancing Beauties"

Pre-war prices as usual