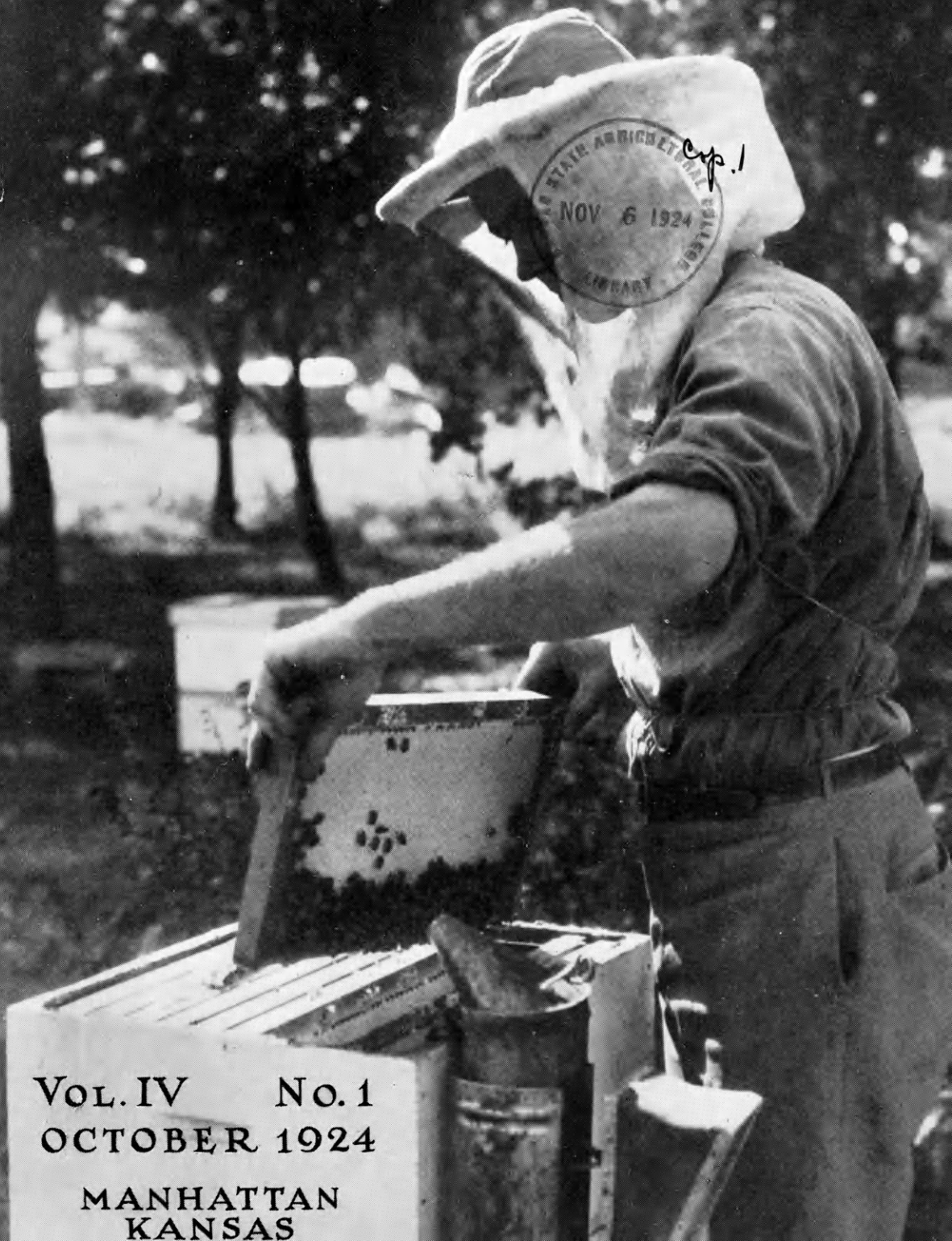


The KANSAS AGRICULTURAL STUDENT



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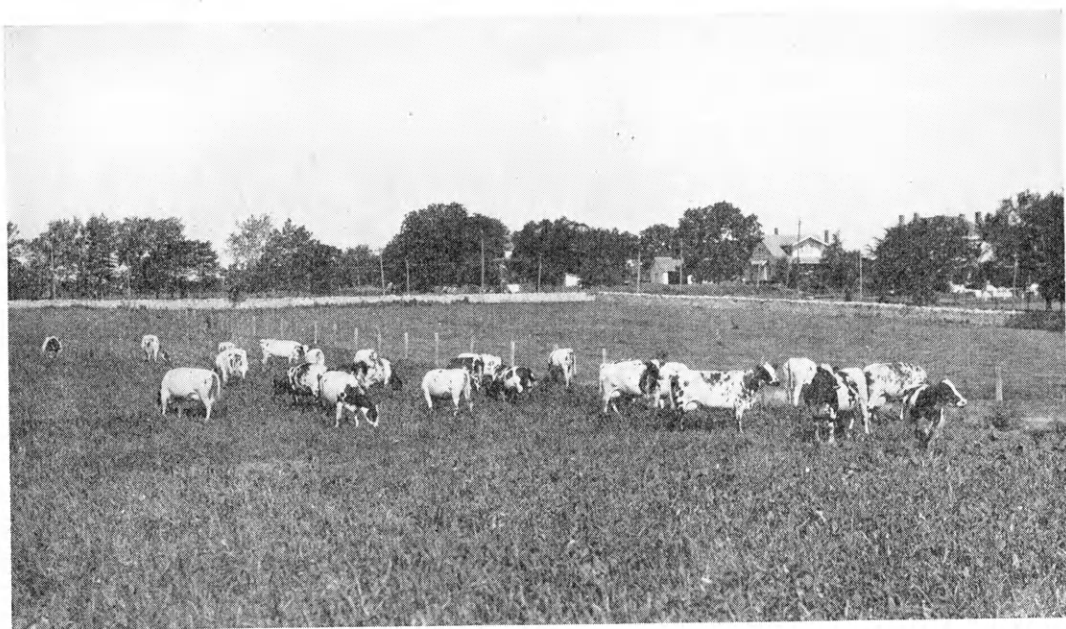
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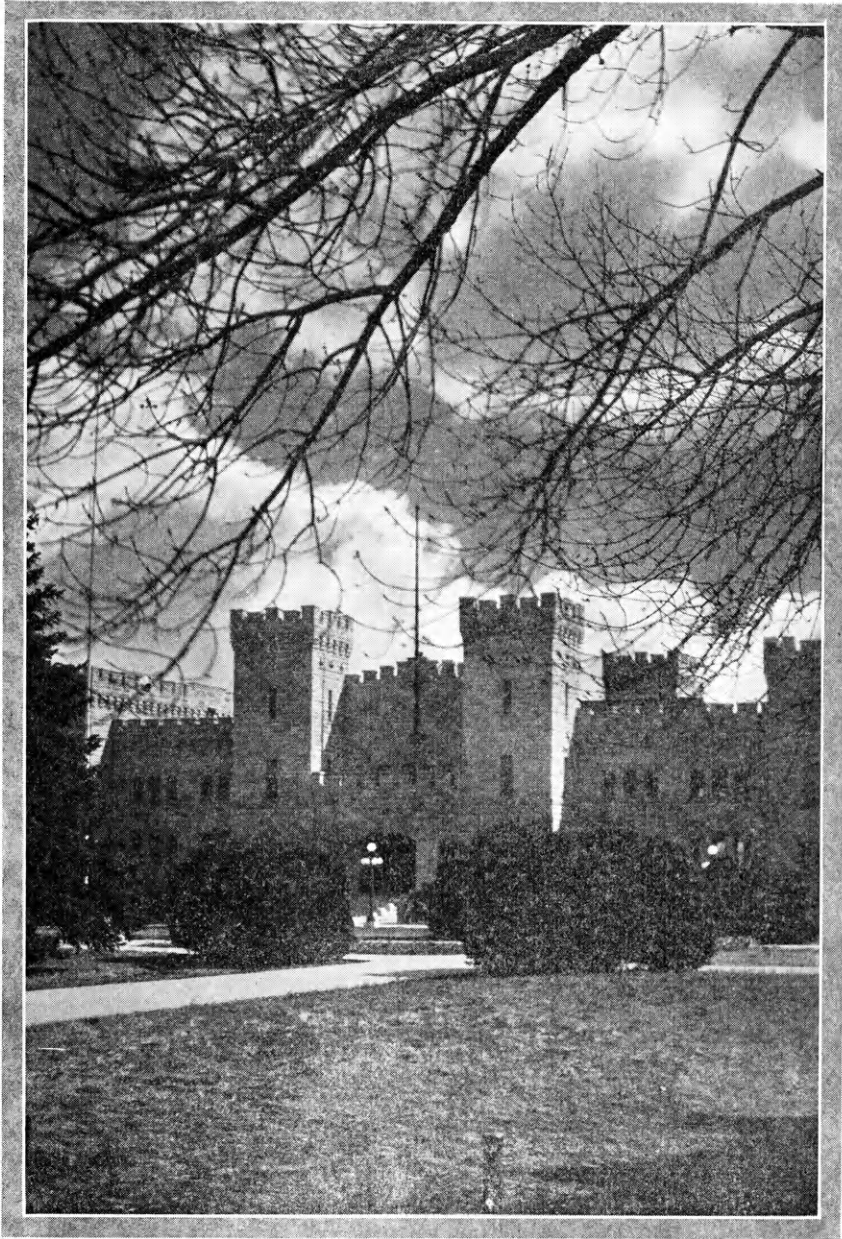
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Possibilities of Beekeeping in Kansas

Clayton L. Farrar, '26

The word "Kansas" suggests to the mind of the average listener wheat, corn, and livestock. But Kansas has other resources. Though little has ever been heard of Kansas beekeeping yet this industry shows a substantial contribution in any adequate tabulation of the resources of the state. Records show that there are approximately 150,000 colonies of bees in Kansas. The average production of honey per colony over a ten-year period is 26 pounds. This means that Kansas has an average yearly production of 3,900,000 pounds of honey.

The purpose of this article is to present briefly the possibilities of Kansas beekeeping and to arouse interest in the industry. No attempt is made to give instructions in methods of beekeeping or handling bees for profit, yet many of the problems of the beekeeper are discussed incidentally and it is hoped some light will be thrown on those problems.

Who should keep bees? This is a debatable question yet it must be understood that beekeeping is first, last, and at all times a specialized industry. One may depend wholly upon apiculture for a livelihood although there are but few beekeepers in Kansas who rely entirely on beekeeping as a source of income. A few people keep bees merely for pleasure and for the diversion which they afford. These are largely business or professional men and little mention need be made of this group of beekeepers.

Beekeeping makes a splendid sideline for almost any line of business. In fact that is how most Kansas beekeeping should be classified. Those beekeepers who own from 25 to 100 colonies of bees produce the bulk of honey in the state. Beekeeping as a sideline is particularly adapted to orcharding. A double benefit is reaped since bees not only

produce honey but cross pollinate the fruit bloom. It is a well known fact that cross pollination is beneficial to fruits even though they may be self-fertile. Beekeeping also adapts itself to the general plan of orchard work.

Kansas may be considered as being divided into four distinct beekeeping sections; namely, the northeastern, southeastern, central, and western sections. White clover is the main honey plant in the northeastern section while sweet clover ranks next in importance. This section is rapidly developing into one of the best beekeeping sections of the state.

In the southeastern section the main honey flow comes from Spanish needle and persimmons and this is probably the poorest section of Kansas for bees. This condition extends west until sufficient limestone is found to make it possible for sweet clover to grow.

The central section is probably the most varied section of the state. Alfalfa and sweet clover are its main sources of honey. The changeable climatic conditions and the variation of farm crops from year to year make its honey production more or less uncertain. However, within recent years sweet clover has been recognized as a pasture crop and soil builder and its use greatly enlarges the possibilities of the bee industry.

In the river valleys of the western section are probably the surest honey regions of the state. Alfalfa and sweet clover comprise the main honey flora there. A higher altitude is more favorable to nectar secretion by alfalfa. It has been stated that alfalfa yields nectar only under those climatic conditions which are usually found above 1,000 feet in altitude.

Climatic conditions that vary from year

to year are unfavorable to beekeeping and this is one of the drawbacks with which the Kansas beekeepers have to contend. The records of a few honey seasons will illustrate this fact. The season of 1914 was a total failure in northeastern Kansas, while in 1916 a bumper crop was harvested. There was a total failure in central Kansas in 1923 and in some cases it was worse even than that as the bees made only about one-half their winter supply of stores. The past season of 1924 has

quently is of great benefit to the beekeeping industry. It is desirable that every beekeeper have a knowledge of bee diseases and endeavor to keep them in check in his own and surrounding communities.

Retail honey prices in Kansas range at present from 20 to 30 cents per pound for extracted honey while comb section honey will range from 25 to 35 cents per section. There are a few keepers of bees who take no thought of the cost of their product nor of



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not been surpassed in honey production for some years.

Diseases of the brood among bees may exert a serious influence on profits. There are two brood diseases which are important in Kansas; namely, American foul brood and European foul brood. One or both of these appear in each of the four sections of the state. The diseases affect only the brood of the bees and in no way injure the honey for human consumption. Kansas employs a number of deputy inspectors who work under the state apiarist of the State Entomological Commission. Their duty is to locate and eradicate these diseases in accordance with the apiary law. This inspection is proving effective in eradicating diseases and conse-

its value as compared with other sweetenings. This class of producers generally sell for the first cash price which is made to them thus causing a disturbance in the honey market. However, their supply is usually limited and they can exert no lasting influence on market prices. It is safe to say that there are no flooded honey markets in Kansas. There are places where beekeepers say they can not sell honey, but the trouble usually lies in their system of marketing. The principle behind marketing honey is to establish a price high enough to yield a profit to the beekeeper and yet not high enough to cause honey to be considered a luxury for the consumer. There may be places where the beekeepers will have to educate the public

as to the food value of honey. The important thing, however, is to get consumers to know that honey is a stabilized food and not a luxury to be used only when the preacher comes or when the kiddies have a cold.

A few examples of what sane Kansas beekeepers are doing may prove of interest.

Mr. Frank Hill of Sabetha ranks as one of the largest beekeepers of Kansas. Twenty years ago he was engaged in studio work and was also a fancy poultry raiser. The capture of a stray swarm of bees aroused his interest and started him in the game of honey production. It is practically from that colony that he has built his apiary which now totals more than 400 colonies. Mr. Hill is located in the northeastern section of the state where white clover is the main honey plant. He produces a combination of comb and extracted honey. His average per colony for 10 years is about 30 pounds while the production has run from nothing in 1914 to 100 pounds per colony in 1916. A 60-pound average per colony was procured during the past season of 1924.

Mr. G. F. Wagner of Stockdale, known by his fellowmen as "Doc," has accomplished some remarkable results by growing his own honey plants; namely, white sweet clover. His cash crops are sweet clover seed and honey. His farm is located far enough back in the hills that the only source of nectar is from his own plantings. This makes it possible to find out what sweet clover is capable of producing. The first year Doc had five acres of sweet clover and took 2,000 pounds of honey from his bees which he sold for \$400. The returns from the sale of sweet clover seed were in addition to the \$400 from the honey. This past season he had a much larger acreage of sweet clover and his 55 colonies of bees produced about 8,000 pounds of honey or 150 pounds per colony. This shows that it is possible to see a future in bees in central Kansas if the project is attacked in the right way.

Western Kansas is usually sure of a honey crop but has been considerably below normal during the past two seasons, suffering from very severe hails and backward spring conditions. A safe average per colony for most of that section of the state would run

from 50 to 100 pounds under favorable beekeeping practices.

Leading beekeepers will advise the beginner to invest enough capital in bees to make aggressive attention necessary, yet not enough to make losses disastrous providing he and his bees disagree too seriously. Unless one goes at the beekeeping business with the purpose of producing more honey than is needed for his own use, he should stay completely away from bees. There may be a few men who have heard of marvelous production records by bees who advocate "A colony of bees on every farm." However, experienced and successful beekeepers will not recommend such a plan. Beekeeping is a specialized business and unless proper attention is given at the right time the production in the end will be failure. It is far cheaper for the farmer to buy his supply of honey than to make an investment in bees and then have to buy his honey because his time was taken by something else when the bees needed attention. Bees that are neglected will soon become a menace to the beekeeping industry.

Kansas is rapidly developing conditions for more profitable honey production, and for those persons who have the necessary interest and perseverance, beekeeping may be made a worth while project either as a business or a sideline.

Arthur H. Helder, M. S., '04, is assistant professor of landscape gardening in K. S. A. C. This position was formerly held by W. S. Wiedorn, now in commercial landscape work in Ohio.

Joseph G. Lill, '09, is now located in East Lansing, Mich., where he is employed by United States Department of Agriculture in sugar beet investigations.

James W. Linn, '15, a prominent Ayrshire breeder and president of the National Ayrshire Breeders' Association, is now dairy specialist in Extension Division of K. S. A. C.

R. V. Morrison, '17, is superintendent of schools and teacher of vocational agriculture in the high school in Fletcher, Okla.

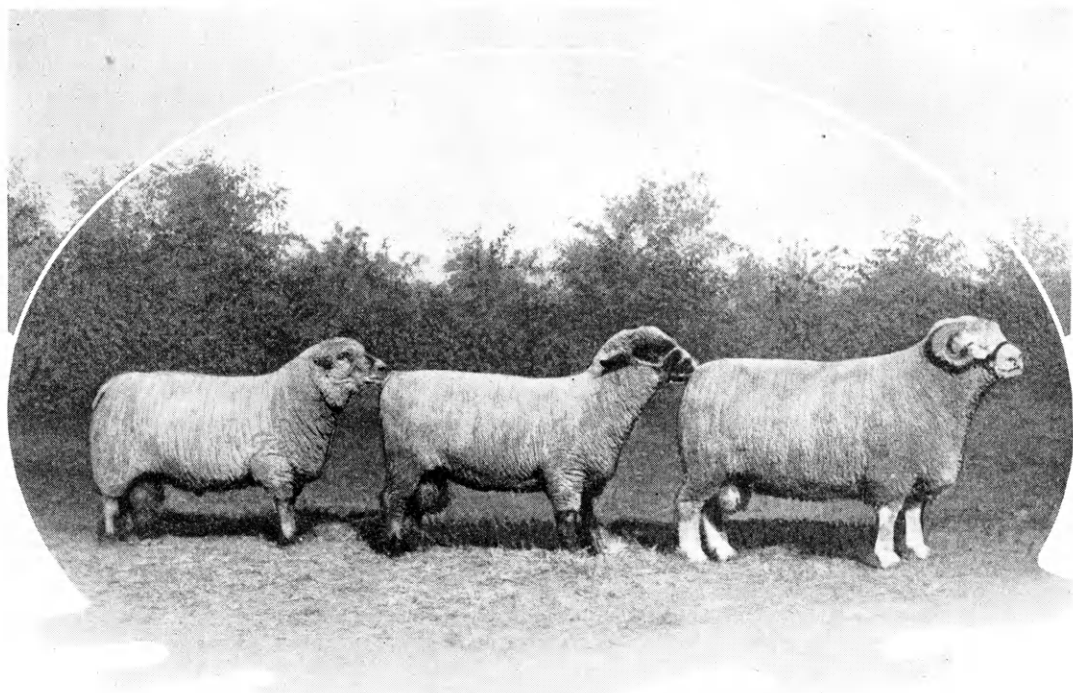
Possibilities of Western Ewes for Farm Breeding Flocks

H. H. Carnahan, '25

Many possibilities in the sheep industry have been tried out only in a limited way in Kansas. Raising early lambs and fitting them for an early summer market can readily be made a paying proposition by many Kansas farmers. To obtain definite information on a phase of this problem the Kansas Agri-

ewes to avoid those with broken mouths or spoiled udders.

The rams used were mutton type, good sized, naturally thick fleshed, and of dominant character so as to stamp their type on the offspring. Shropshire, Hampshire, and Dorset rams were used. No results so as to



THE THREE RAMS OF MUTTON TYPE USED IN
SHEEP-BREEDING EXPERIMENTS

These rams from left to right are Shropshire, Hampshire, Dorset, good breeds for Kansas sheep raisers.

cultural Experiment Station conducted a test with 50 head of western ewes.

These ewes were selected because they were free from stomach worms and internal parasites, because they could be bought cheaper than native ewes, and because they mated well with purebred mutton rams. Care should always be used in selecting breeding

state a preference of breeds were obtained, but these three breeds are considered the most desirable for crossing on western ewes in Kansas.

These ewes were obtained on the Kansas City market arriving in Manhattan September 28, 1923. They weighed 119 pounds and cost \$7 per hundred. They were turned on a

pasture which had been grazed by cattle, but which retained sufficient growth to "flush" the ewes, that is, keep them gaining during the breeding season. The rams were turned in with the ewes at night during the month of October. Each ram was turned in with the same ewes each night. Sheep are often used as scavengers and are efficient as such, but they should be well fed and cared for to secure the best results. These ewes were handled as cheaply as possible, but were fed so as to be in good condition by the lambing season. From December 1, they received one-fourth pound of grain (corn, 3 parts; barley, 2 parts; cottonseed meal, 1 part), two pounds silage, and one pound alfalfa daily. Besides this they were allowed to work over kafir butts when in the lots. Great care was taken to see that these ewes exercised regularly.

The ewes started lambing February 25 and finished March 20. Forty-eight ewes saved fifty-five lambs. One ewe failed to lamb and one had died during the winter. As soon as the lambs were old enough, that is, at about three weeks of age, they were given grain (corn, 4 parts; oats, 1 part; linseed oil-meal, 1 part) and alfalfa hay in a creep. Both the ewes and lambs received their feed reg-

ularly in the morning and in the evening. The grain of the ewes was gradually increased so as to have them ready for market as soon as the lambs.

The lambs were docked and the ram lambs castrated at about three weeks of age. The ewes were sheared late in April averaging an eight-pound clip of $3/8$ blood wool which sold at 38 cents per pound. This covered the main expense of feed for the ewes and lambs. All these sheep were sold on June 17, 1924. The ewes averaged 124 pounds and sold at \$5.60 per hundred, which nearly covered their purchase price. The lambs averaged 72 pounds bringing \$15.75 per hundred, their sale value being in the greater part profit. These lambs were pushed so as to be ready for market before western lambs reached the market and forced the price down because of their numbers.

This experiment shows the desirability of using good rams; the advantages of breeding for early lambing; the results of proper care, feed, and exercise; the advisability of crowding lambs from birth and selling before July 1. It shows possibilities of obtaining good returns for winter labor and available feeds on many Kansas farms.

Food for College Students

Martha Kramer

Since the American dietary has been shown to be often inadequate, particularly with respect to the minerals, it seems of interest to investigate the food supplied college students, since the general well-being for four years of life depends largely upon proper food. With this in mind, Miss Edith Grundmeier, a graduate student in the Department of Food Economics and Nutrition in K. S. A. C., recently made a survey of about sixty sororities, fraternities, and boarding houses in the college community. Very complete data were finally secured, including itemized bills for all food purchased and total number of meals served, from ten groups of women and ten groups of men for one month each, the groups averaging about 21 students.

The dietaries of these groups were analyzed and calculations were made for Calories, protein, calcium, phosphorus, iron, and cost per man per day. Special attention was given to the cost distribution of important classes of foods and also to the nutritive return for food expenditure. The protein was high in almost all cases and in none did it supply less than 10 per cent of the total Calories. By various methods of reckoning, the protein of the dietaries seemed adequate and therefore gave less cause for concern than any other of the nutritive factors. The minerals calculated—calcium, phosphorus, and iron—were each low or inadequate for more than half of the groups. In the analysis of the dietaries, special attention was

(Continued on page 26)

The Selection of Alfalfa Seed

Boyd R. Churchill, '24

Alfalfa is the principal legume grown in Kansas and is grown both commercially and for home consumption. Approximately one and one-fourth million acres were in alfalfa in this state in 1920. Since that time the acreage has rapidly decreased. In 1922 the total acreage, both for seed and hay purposes, was less than one million acres. This acreage should be increasing rather than decreasing.

The success attained in the production of alfalfa is influenced to a considerable extent by the seed used. The very best seed obtainable should always be planted. But what are the characteristics of good alfalfa seed and what are the most common ear marks by which the inexperienced purchaser may be guided? This question can best be answered by a discussion of seed quality, viability, and purity.

Alfalfa seeds are often shriveled, small, and possessing a dull color. Such seed cannot be expected to give very satisfactory results. The vigor of the plant produced, other things being equal, will be much greater from full, plump seeds of good size and "high" color. The color of the seed may be used to a large extent in determining the age of the seed. New seed usually has a bright attractive yellow color contrasted to the dull color of older seed. Seed of a dull color but showing plumpness may give a greater percent of germination than shriveled seed having a bright color.

The viability of alfalfa seed, that is the length of time it can be kept and still give a high percent of germination, is high. Alfalfa seeds have been kept for 25 years and then germinated when planted. This must be considered the exception rather than the rule, however, as it is not advisable to plant seed that is over three years old although seed four or five years old may give fair germination. Seed one year old gives a higher germination test than seed of the same season. There are a few seeds in alfalfa that are quite "hard" and do not germinate. The number of these hard seeds present in alfalfa varies considerably. A sample containing a

very high percent of such seeds is therefore not desirable.

Alfalfa seed is sometimes adulterated with other seeds and often contains impurities such as weed seeds. Both of the above decrease the value of the alfalfa seed and the fact that both may occur, without the farmer's knowledge, makes it a serious problem. Certain seed companies advertise alfalfa mixtures which farmers would certainly not buy if they knew the exact composition. Since Kansas has no seed law, alfalfa seed of inferior quality can be shipped into the state and sold to the farmers as good alfalfa seed even when to sell such seed in other states would be a criminal offense.

Sweet clover, bur clover, and yellow trefoil are most often used as adulterants in alfalfa and a few of the more serious weed seeds that are commonly found in alfalfa seed are dodder, curled dock, and buckhorn. In order to distinguish alfalfa seed from any of the above one must learn the characteristics of each. Therefore a short description of the alfalfa seed, its common adulterants, and impurities will be given.

Alfalfa seeds are yellowish green to dark brown; irregular bean-shaped; and have the hilum near the center of one side. Sweet clover seeds are similar to alfalfa in size but are more flattened and uneven. The hilum is nearer one end of the seed and the surface of the seed is dull-colored. By crushing sweet clover seeds, the vanilla-like odor is evident, which distinguishes them from all similar seeds. See accompanying diagram for general shape of seed. Bur clover seeds vary in size from about the size of alfalfa to about twice the size of alfalfa. They are distinctly kidney-shaped and flat. Yellow trefoil seeds more nearly resemble alfalfa than does either of the other two seeds above mentioned and it requires much more skill to distinguish them from alfalfa. They have the same general shape and size but tend to be slightly more spherical than alfalfa seeds. They do, however, possess a small projection near the hilum which alfalfa seeds do not have. This characteristic holds true, but it is often very

Common Alfalfa Adulterants



SWEET CLOVER



BUR CLOVER



YELLOW TREFOIL

*Alfalfa Seeds*

Common Alfalfa Impurities



DODDER



CURLED DOCK



BUCKHORN

TYPICAL ALFALFA SEEDS AND SOME COMMON ADULTERANTS
AND IMPURITIES OF ALFALFA SEED

difficult to distinguish the two seeds by this means. Alfalfa seeds often, though not always, have a blunt end while this character has never been observed by the writer in yellow trefoil. Color cannot be used to distinguish the seeds. It is too variable.

Dodder seeds vary in color, but are usually spherical or ovate in shape. The surface is scurfy and dull. The hilum, or scar, is at the end of the seed and not along the side as in alfalfa. Curled dock seeds are triangular, quite pointed at the ends, and dark and shiny. They can easily be distinguished from alfalfa seeds even without the aid of the magnifying glass. Buckhorn seeds can readily be distinguished from any of those previously described, by their peculiar shape. They are always canoe-shaped and reddish brown in color. With the exception of curled dock

and buckhorn, it may be necessary to use a magnifying glass to distinguish the differences above mentioned. In case no magnifying glass is available, the lens from an ordinary flashlight will serve the purpose quite well.

Until a good seed law is passed in Kansas, farmers should be particularly careful of the alfalfa seed they buy. A good seed law would be a protection both to good seed companies and to the farmer not only in the purchasing of alfalfa seed but all farm seed. Until such a law is passed it is advisable for farmers to plant home-grown alfalfa seed which they know something about, in every case possible. It is hoped that the description herein given may aid readers in obtaining a fair knowledge of the characteristics of good alfalfa seed; also in identifying the most common adulterants and impurities.

Agriculture in Alaska

Clinton H. Morgan, '22

People in Kansas may find it difficult to associate the two words "Alaska" and "Agriculture." It will be especially true of those who remember the days of "98" when the gold seekers swarmed to Alaska and the Yukon territory. The story of wild conditions, severe cold, and difficult travel has made a definite impression on the public mind, and one that is hard to efface.

Agricultural development in Alaska has not been phenomenal. From the first cautious experiments in which a few garden seeds were scattered on a spaded plot in front of the miner's cabin to the cultivated acres of the present homesteader the slow but steady progress which marks the growth of

that a homestead claim would offer a surer means of livelihood than did the average mining claim. In this way farms came into existence in Alaska, ten or twelve a year, until at the present time there are about 130 homesteads in the Tanana valley alone, with an acreage under cultivation of 1,973 acres.

The Tanana valley, lying within 75 miles of the Arctic Circle, covers an area of more than seven thousand square miles. The soil, residual, alluvial, and reworked glacial in origin, is well supplied with potential plant food. The Government's chemical analyses show that the average composition compares favorably with the good soils in the States. However, the humus content is usually deficient and seems to be the limiting factor in crop yields after three or four years of cultivation. The ground is frozen for eight or nine months each year, consequently bacterial action is retarded and decay is very slow. Most of the soil gives a negative reaction to the Truog test.

The frost line in the soil varies as to slope and vegetation growing thereon. Frost is encountered anywhere from within twenty inches of the surface to three or four feet. Burning over the land will lower this frost line, follow this with clearing and cultivation and the frost line gradually recedes until it is below the annual freezing line and gives a stratum of permanently thawed subsoil from three to four feet in depth. The thawing in the spring after the long period of winter, establishes a condition of soil structure which aids in the absorption of the slowly melting snow, making the moisture supply adequate for crop production. The rainfall comes during the months of June, July, and August, and is of a slow drizzling character, which favors its absorption and retention by the soil. The growing season of from 90 to 120 days is a time of almost continuous daylight and much sunshine. This enables the crops to make wonderful growth.

The following is a short report of the results of farming in the valley about Fairbanks in 1923:

(Continued on page 28)



A FIELD OF POTATOES AT THE FAIRBANKS AGRICULTURAL EXPERIMENT STATION (Latitude 60° 40')

This photograph was taken August 2, 1924. Prof. C. C. Georgeson, Agronomist in charge of Alaska Agricultural Experiment Stations, is standing in the field. The potatoes were grown from new varieties which were produced at the Sitka Agricultural Experiment Station and raised from seed balls grown at that station. Professor Georgeson was professor of agronomy in K. S. A. C. from 1890 to 1897.

Agriculture in Alaska can be traced. The fresh vegetables, grown with so little expense of time and labor, added much to the diet of the miner. He followed his garden with small clearings planted in grain—wheat, barley, or oats—for horse feed. It soon became apparent to certain prospectors and miners

The Corn Smut Problem in Kansas

L. R. Combs, '26

NOV 6 1924

The annual loss in Kansas from corn smut over a period of years has been estimated to be about four million dollars. This is on the basis of actual ears destroyed and the effect that smut has on the yielding capacity of the plant. It is estimated that a badly infected plant reduces the yield about one-third. Corn smut is perhaps worse in Kansas and sections of Nebraska than in any other state in the Union.

For over 50 years pathologists have studied the corn smut problem and have suggested various remedies and control measures. One of the earliest recommendations was the cutting out of infected smut boils. This, however, is impractical in large fields. Various seed treatments and fungicides were also suggested and tried, but they failed because of the fact that the corn smut fungus has a different life history than any other cereal smuts. The organism, *Ustilago zeae*, lives over in the soil almost any place where corn has been planted. It is blown by the wind and infects the host locally instead of systemically as in the case of sorghum kernel smut or wheat smut. For this reason seed treatment was found to be of no value.

In view of the importance of corn smut, the Department of Botany and Plant Pathology began a series of cooperative experiments with the United States Department of Agriculture of 1911. Studies made from 1911 to 1918 were chiefly on life history and possible control through fungicidal treatments. These studies showed conclusively that the smut organism is carried from the soil to the leaf axil where bud infection occurs. The possibility of systemic infection under field conditions was definitely disproved. After several years of soil sterilization, treatment of soils with fungicides, and spraying plants with various fungicides at various stages of growth, it was found that the smut infection was little reduced.

The only means of control left were to breed for smut resistance in the corn plant and to rotate crops. In 1918, Professor Melchers made his first selections in Commercial White and a few years later in Pride of Saline. Since that time Mr. C. O. Johnston,

assistant plant pathologist, United States Department of Agriculture, has been carrying out extensive studies on various selections or strains of corn within these varieties.

Since corn is an open pollinated plant it has been necessary to self-pollinate it until it showed a fixed condition for the character of resistance or susceptibility to smut. This resulted in a loss of vigor and productiveness as was expected. Extensive notes were taken on the strains of the varieties which were being worked with in regard to resistance and susceptibility, physical characters, and other data which might have any bearing on the problem.

It has been found that some strains of corn seem to be somewhat resistant to the smut organism. Some of these strains have been sent to Washington, D. C., Connecticut, Nebraska, Minnesota, and Indiana. Here they were planted to ascertain their behavior toward smut in these regions. For the most part they seem to be retaining the same characteristics towards smut behavior which they showed at this station.

The Agricultural Experiment Station will continue these studies and as promising strains appear they will be crossed to restore vigor and productiveness. It is to be hoped that by these methods a variety may be produced which will be resistant or immune to smut.

Studies are also being made by L. E. Melchers on the possibility of there being biologic strains of *Ustilago zeae*. Should it be shown that this is the case, as is known to exist in the stem rust of wheat, the problem of breeding for resistance will be greatly complicated.

The only recommendations which can be made for the the reduction of loss from smut are those with regard to rotation of crops. The department recommends that corn be planted not more than once every three or four years on the same field. It is also advised not to plant corn next to a field where corn has been the year before because the organism is easily carried by the wind for long distances.

Harvesting Machinery for the Grain Sorghums

A. R. Loyd, Agr. Engr., '25

Throughout the southern section of the Great Plains area, where the summers are hot and the precipitation is slight, the grain sorghums are gaining in importance as a farm crop, both for forage and grain. In feeding value the grain sorghums are about 90 percent as valuable as corn, bushel for bushel, and in yield in their area, they are much more efficient. For example, at the Fort Hays Agricultural Experiment Station (Hays, Kan., near the northern limit of the grain sorghum area) the average yields per acre of Dawn kafir, milo and corn for the eleven-year period, 1912 to 1922, were: milo, 26 bushels; Dawn kafir, 21.5 bushels; and corn, 14.9 bushels.

The characteristics of the sorghum plant are such that it thrives best in high temperatures—about 90° F; is dormant during hot droughty seasons; compared with corn has twice as many roots of the second order per unit length of roots of the first order; supports a leaf system or transpiration surface about one-half as great as corn; and, furthermore, has the advantage of slow, early growth, thus conserving its moisture for the later development of a grain crop. For these reasons farmers occupying considerable portions of Kansas, Oklahoma, Texas, Colorado, Arizona, and New Mexico are interested in the development of equipment which will reduce production costs of grain sorghums.

In much of the region indicated above the advantage of yield will overcome added costs of production. The very limited data available indicate that the grain sorghums require somewhat less man labor, and a little less horse labor before harvest than corn, but 110 percent more man labor and 25 percent more horse labor are required for harvesting. From this it is seen that the big disadvantage in raising grain sorghums is due to the cost of harvesting. Present day methods of handling this crop require considerable hand labor and the crop is grown where farm labor is relatively scarce and hand methods unpopular. In view of these facts any method of

reducing the costs of harvesting will tend to increase the profits and popularity of the crop.

The usual method of harvesting sorghums is to cut them with a corn binder, shocking the bundles for the curing of forage and grain, later topping them by hand methods and threshing the grain with the regular grain thresher. The chief advantages of this method are: (1) The stover is saved for feed. (2) The shocked grain offers a safe method of curing. The principal disadvantages are: (1) The work is slow and tedious. (2) The expense of harvesting is great, requiring excessive man labor, binder twine, and considerable equipment. (3) The production per man is too limited.

The increased acreage of this crop in the past six or eight years, with the attendant increase in threshing problems, has brought out a number of improved harvesting methods which point toward the development of particular types of machines for this work. Deere & Co. has placed a one-row header on the market which is attached to a standard wagon box and is driven from the rear wagon wheel much the same as an endgate seeder. This type of header is well adapted to small acreages such as are found in the eastern half of Kansas, and is coming into use. The machine is inexpensive, simple in construction, adjustable to a fairly wide range of operating conditions, and saves the work of two to three men. The Venturi Manufacturing Company of California has put a similar type of header on the market, but it is more expensive.

The wheat header, which is found on a large number of the farms in the grain sorghum producing area, is used by many farmers to head the standing grain sorghums. Owing to the fact that this crop does not grow very tall in the more arid regions of the sorghum belt it may be harvested with the header by raising the platform to its upper limit. Two rows of grain are headed at one time and the heads elevated into a barge in the same

manner as wheat heads. The wheat header, although well adapted in principle to the heading of sorghums, is not rigid enough in construction to give very long service when used for this purpose. Because of the increased rate of harvesting this method is preferred to the one-row method in the more arid sections where a greater acreage of grain sorghum is grown.

In using either of the two methods mentioned the heads must be stacked and cured before threshing. It is desirable to make

cutting and threshing in one operation, owing to the fact that it must often be left standing until after frost and losses due to shattering and bird ravages may be great.

The problem of harvesting machinery for grain sorghums may well be further studied with profit. Investigations by the Department of Agricultural Engineering show that approximately 85 percent of grain sorghum heads do not have a height variation of 15 inches. This was found to hold true for all fields, although the average cutting height



HARVESTING GRAIN SORGHUMS WITH A ONE-ROW HEADER

small stacks since sorghums give up their moisture slowly even after the grain is ripe.

The advent of the harvester thresher in the southwestern wheat area has encouraged many experiments in cutting and threshing the grain in the field. Results so far are not encouraging on account of moisture troubles, although some have reported satisfactory results with favorable weather conditions. It does not seem advisable to allow this crop to stand sufficiently long to permit

for different fields may vary as much as 3 feet, depending on the soil fertility and the season. These investigations indicate that it is possible to cut the heads as suggested without an undue amount of stover.

Improved methods of cutting the heads from the stalk necessitate improved methods of handling the heads. If the wagon, or barge, is unloaded by hand, the heads must be pitched out with a fork. This is very

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YESTERDAY AND TODAY

It is our belief that through the cooperation of every one in the Division of Agriculture and by the earnest thoughtful efforts of former members of the staff, The Kansas Agricultural Student has come to be one of the best magazines of its kind and to fit nicely into the niche that was meant for it to occupy. This is said not in a boastful way but with the full realization of the efforts that must be made to keep up the present high standard. We are mindful also of the dangers of overconfidence for we must not be content to rest on the efforts of those who have turned the work over to us, but must always be trying to make the magazine bigger, better, and more successful.

As in the past, The Student desires to promote every interest of the Division it represents. Through the work of the departmental editors who keep in touch with the activities in their fields and the faculty members who must approve every article before it is printed, The Kansas Agricultural Student has come to be a semi-official and up-to-date organ of the Agricultural Experiment Station. Along with this kind of articles we plan for quite extensive alumni notes and the write-up of every worth-while activity of the Division. It is the hope of the staff that all of our older friends will continue to think highly of the magazine and that new readers will in turn become zealous readers and real backers of the publication.

FUTURE DEMAND FOR AGRICULTURISTS

During the five-year period, 1915 to 1919 inclusive, the average annual number of graduates receiving the degree of bachelor of science in agriculture from K. S. A. C. was 63. During the past five years, 1920 to 1924 inclusive, students of the Division of Agriculture have been graduated as follows: 1920, 80; 1921, 74; 1922, 78; 1923, 74; and 1924, 87. The next three graduating classes from the division, however, are quite sure to be about 60 each. This is indicated by the present enrollment, there having been a gradual and steady decrease in the enrollment in the division since 1921, the total decrease for the three-year period being approximately 25 per cent.

This reduction in enrollment, which will necessarily limit the number of graduates for the next three years, is to be found in practically all the curricula in agriculture in the country. Hence the number of graduates, the country over, from colleges of agriculture for the next three years at least will be comparatively small.

Following the recent improvement in agricultural conditions the freshman enrollment in agriculture is already on the upgrade. The situation offers a rich opportunity to high school students planning to get a college education. The demand for high-grade agricultural graduates even now exceeds the supply. It will take only a fair degree of continued agricultural prosperity to greatly in-

crease this demand for agriculturally trained men. To meet this demand an unusually small number of graduates will be available in the immediate future. Agricultural conditions must continue to improve and as they do the demand for men with college training in agriculture will increase on double time.

Prospective college students, especially those from Kansas farms, can not afford to overlook these enlarging opportunities for agricultural leaders. The curriculum in agriculture in K. S. A. C. equips men for the best agricultural leadership in the country, on the farm and elsewhere, and the best rewarded positions in the world are positions of effective leadership.

OUR COVER PAGE

The picture presented on our cover page, by F. E. Colburn, college photographer, presents a scene not uncommon in many sections of Kansas in late summer. The Kansas honey crop this season has been unusually large and

beekeepers are smiling. The bee man in the picture is Mr. Clayton L. Farrar of Abilene, junior in college and the author of the article on page 1 of this issue.

Mr. Farrar knows his work as the article will attest. During the past season he harvested 7,000 pounds of honey from 45 colonies of his own. His bees are making possible his college education. The world needs men who can do something well.

ADEQUATE AND PROPER FOOD AT MINIMUM COST

The study of food selection and food costs made last year by Miss Grundmeier, graduate student in the Department of Food Economics and Nutrition, and reported on briefly in this issue by Doctor Kramer, associate professor in the department, is worthy of a careful reading by all. The following of the few suggestions given will usually mean both a decrease in food costs and an increase in its efficiency.

Improving Market Eggs

H. Arlo Stewart, '26

The selection of only the most desirable eggs for market and the grading of these into classes according to size and cleanliness is the way the farmer will increase the market value of his eggs.

The handling of market eggs from the farm to the consumer is often complex. The farmer sells to the jobber, local buyer, or creamery who in turn sell to packers or shippers. From here they may go to the cold storage warehouse or direct to the consumer. Eggs that go through cold storage usually go to the consumer through another jobber.

This intricate system has caused the formation of an association of egg packers to stabilize egg grades. This association, known as the National Poultry, Butter, and Egg Association, has published grading and trading rules that are standard throughout the United States.

The farmer often believes that all of his eggs are of first grade and so expects the top price on the market. The trading rules give

fresh gathered grades as:

"Extra firsts," (between June 1 and December 1, only) shall be packed in new or standard 30-dozen cases, unless otherwise specified at time of sale; shall consist of clean, fresh, reasonably full, strong, sweet eggs, 60 percent and net average weight of 44 pounds or over per case, no case of sample inspected to weigh less than 43 pounds.

"Firsts" shall be packed in standard 30-dozen cases and shall consist of clean, fresh, reasonably full, strong, sweet eggs as follows: February 20 to May 15, 65 percent and average weight 42 pounds or over per case, net. May 16 to February 19, 50 percent and average weight 42 pounds or over per case net.

Unless eggs come up to these rules the egg buyer can not pay for them as firsts.

By law in Kansas, egg buyers are required to candle and grade all eggs. In this way the farmer gets paid for just what he has. However, if a buyer has a customer who con-

(Continued on page 28)



HIGH SCHOOL JUDGING TEAMS AND THEIR COACHES AT K.
Each spring two days are devoted to this contest in the

College Notes

ALPHA ZETA AWARDS MEDAL TO FRESHMAN HIGHEST IN SCHOLARSHIP

The honorary student organization in the Division of Agriculture is the Fraternity of Alpha Zeta. Students of the division whose scholarship places them in the upper two-fifths of the class and who, in the estimation of the Kansas chapter of the fraternity, show characteristics of leadership, are eligible to election to membership. No student is eligible to membership before the second semester of his sophomore year.

The Kansas chapter of Alpha Zeta as a part of its endorsement and encouragement of scholarship has for each of the past three years awarded a medal to the freshman of the Division of Agriculture ranking highest in scholarship. For the college year 1921-22 this medal was won by M. L. Baker; for the college year 1922-23, by A. G. Jensen; and for the past year, 1923-24, by Hale H. Brown, of Edmond, Kan.

As the institution figures scholarship each

credit hour with a grade of E counts 3; each hour of G, 2; M's, P's, C's, and F's count 1, 0, —1, and —2, respectively. The grade of "P," the starting point, is set at 68 percent. The distance between each grade given and the next higher is 10 percent. Hence college scholarship averages may be placed on the 100 percent basis by multiplying by 10 and adding the algebraic product to 68. For example, a scholarship average of 2.25 equals 90.5 percent; an average of 1.78 is 85.8 percent; and an average of —0.543 would be 62.57 per cent.

The ten freshmen highest in scholarship in the Division of Agriculture for both semesters of the college year, 1923-24, and their scholarship records are as follows:

Name	Credit Hours Passed	Average Scholarship
Hale H. Brown	40	2.25
Verle E. Nelson	30	2.15
I. K. Tompkins	37	2.12
Mary E. Haise	34	2.02
H. N. Cary	39	1.96
Orville Caldwell	35	1.90



K. S. A. C. FOR STATE HIGH SCHOOL JUDGING CONTEST, MAY, 1924
 the judging of farm products—livestock, crops, and poultry.

Ralph M. Karns	36	1.88
W. F. Hardwick	37	1.87
H. L. Collett	37	1.82
Collins W. Thole	37	1.78

COLLEGE LIVESTOCK WINNINGS AT THE TWO KANSAS FAIRS

The Department of Animal Husbandry showed horses and sheep at the Kansas Free Fair, Topeka, and the Kansas State Fair, Hutchinson. All of the K. S. A. C. prize-winning animals, both horses and sheep, were raised by the college. The two-year-old Belgian stallion, Hazelton Lad, won first in his class and reserve grand championship at Hutchinson. He was beaten for the grand championship only by a stallion that had previously won the grand championship at the International Livestock Show. An interesting fact about Hazelton Lad is that his mother died at foaling time and he was raised on a bottle, showing the possibilities of developing an orphan foal if properly cared for. The total winnings at the two fairs on the twelve horses shown by the college were three championships and fourteen first, twelve second, and seventeen third prizes.

The College sheep met the keenest kind of competition from Wisconsin, Iowa, and other Kansas flocks. The college showed in only

two classes of sheep in which it did not win first, second, or third. The total winnings on sheep were four championships and forty-six first, twenty-seven second, and thirteen third prizes.

Hogs and cattle, as well as horses and sheep, will be shown by the college at the American Royal Livestock Show, November 15 to 22, and the International Livestock Show, November 29 to December 6, 1924. Exhibiting at the major state and national livestock shows, however, is only an incidental activity of the Department of Animal Husbandry of the college. Primarily the college herds of livestock are kept for instructional purposes. The college barns, paddocks, and pastures are open to visitors at practically all times and interested persons are invited to observe the livestock the college is raising.

THE STUDENTS' STOCK JUDGING CONTEST

The twenty-second annual students' stock judging contest was held under the auspices of the Block and Bridle Club at the stock judging pavilion on Monday, May 12, 1924. There were two divisions in the contest, the senior division for students who had received training in advanced judging, and the junior

division for all other contestants. In the senior division 34 students contested and in the junior division, 128.

E. C. Smith of Pratt won highest honors in the senior division with a score of 506 out of a possible 600 points. A. C. Hoffman of Abilene, with a score of 550, won first place in the junior division. His score is believed to be the highest ever made in the junior division of the contest.

The five high men in the senior division and the ten high men in the junior division, together with their scores and winnings, are as follows:

SENIOR DIVISION

Place	Name	Score	Prize
1st	E. C. Smith	560	Gold watch
2d	C. C. Huntington	464	Silver medal
3d	F. C. McQuiddy	449	Bronze medal
4th	R. E. Sears	424	\$5
5th	Max Roberts	417	\$3

JUNIOR DIVISION

1st	A. C. Hoffman	550	Gold Watch
2d	P. A. Axtell	505	Silver medal
3d	T. M. Kleinenberg	495	Bronze medal
4th	Robert W. Fort	494	\$5
5th	I. K. Tompkins	491	\$3
6th	R. F. Karns	485	\$2
7th	E. F. Carr	473	\$2
8th	R. R. Cameron	470	\$1
9th	G. B. Railsback	456	\$1
10th	J. M. Soper and		
10th	John Carter	455	\$1

Eight classes of livestock were judged, one each of draft horses, Percheron mares, Hereford cows, fat steers, Poland-China sows, fat barrows, Shropshire ewes, and fat wethers. Written reasons from the junior division and oral reasons from the senior division were required on four of the classes.

The contestants placing high in each class of livestock in the senior division, and in each class of livestock in the junior division, were awarded a year's subscription to a breed journal offered by the various breed associations. The winners of these subscriptions were as follows:

Class of Livestock	Senior Division	Junior Division
Cattle....	R. E. Sears	W. M. Mann A. M. Watson T. M. Kleinenberg
Horses....	E. C. Smith	P. A. Axtell
Sheep....	E. C. Smith	A. C. Hoffman
Hogs....	C. F. Gladfelder	A. C. Hoffman T. M. Kleinenberg

In addition to the prizes offered in the en-

tire contest and for the individual classes of livestock, medals were offered for the contestants placing highest on fat stock and on breeding stock. Edward Watson of Osage City won the fat stock prize medal, and the breeding stock prize medal was awarded to E. F. Carr of Byers.

THE FOURTH ANNUAL STATE HIGH SCHOOL JUDGING CONTEST

The fourth annual State High School Judging Contest was held at the college on Thursday and Friday, May 1 and 2, 1924. Fifty-three high schools of the state were represented by teams composed of three men each.

In the contest the participants, both teams and individuals, were graded on the basis of their ability to judge the following four groups of farm products: (1) Beef cattle, sheep, hogs, and horses; (2) dairy cattle; (3) poultry; and (4) grain, including wheat, oats, and alfalfa. The four groups of the contest were in charge of the Departments of Animal Husbandry, Dairy Husbandry, Poultry Husbandry, and Agronomy, respectively.

In the animal husbandry section of the contest, four animals of each of the following classes were ranked in the order of their excellence: Fat steers, Shorthorn cows, fat barrows, Poland-China sows, fat wethers, and Shropshire ewes. Representative classes of four animals of each of the four leading dairy breeds were placed in the dairy judging section. In the poultry judging section, a class of four hens of the same age was judged in each of the following breeds: Single Comb White Leghorn, Barred Plymouth Rock, White Plymouth Rock, and Single Comb Rhode Island Red. The grain judging classification included the following: Market classes and grades of winter wheat, market classes and grades of oats, judging wheat, judging alfalfa seed, and judging ear corn.

Prizes were awarded as follows: The W. M. Jardine parchment certificate for the team making the highest general average on all classes was won by the Burlington High School team. The F. D. Farrell parchment certificate for the individual making the highest general average on all classes was awarded to Howard Elkins of the Wakefield

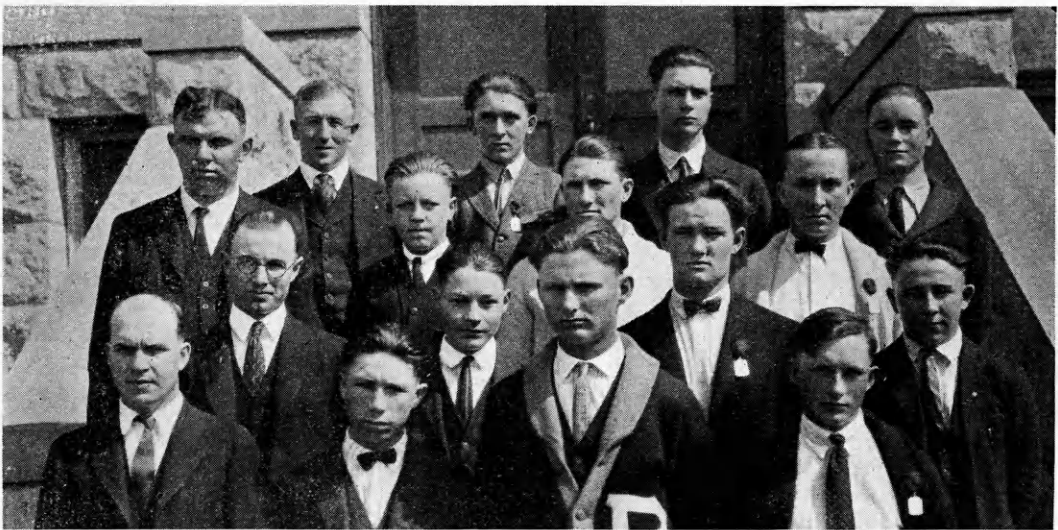
Rural High School. The heads of each of the four departments of the college represented in the contest offered parchment certificates to the teams making the highest general average in the respective sections of the contest. The C. W. McCampbell parchment certificate, awarded in the animal husbandry section, was won by the Wakefield Rural High School team. In the dairy and agronomy sections of the contest, the J. B. Fitch and the L. E. Call parchment certificates, respectively, were awarded to the Wichita High School. The Garden City High School was awarded the L. F. Payne parchment certificate in the poultry section.

Medals were presented to the individuals who scored the highest general average in each of the four sections of the contest. These medals were furnished by student departmental organizations of the Division of Agriculture. In the animal husbandry section,

the Block and Bridle Club medal was won by Howard Elkins of Wakefield. In the dairy section, the Dairy Club medal was awarded to Raymond Appleman of Wichita. In the poultry section, the Poultry Club medal was won by Glenn Harries of Garden City. The Klod and Kernel Klub medal, awarded in the agronomy section of the contest, was won by Edgar Webster of Burlington.

Wakefield Rural High School placed second in the entire contest and Wichita High School third. Edgar Webster of Burlington and Elburn Talbot of Marysville placed second and third, respectively, in the entire contest.

The coaches of the various winning teams, and of individuals who won prizes in the contest were: L. F. Hall, Burlington; M. T. Hargiss, Wichita; Louis Vinke, Wakefield; and E. F. Burk, Garden City.



WINNERS AND THEIR COACHES IN THE FOURTH ANNUAL STATE HIGH SCHOOL JUDGING CONTEST, K. S. A. C., MANHATTAN, KANSAS, MAY 1 AND 2, 1924

From left to right: Front Row—L. F. Hall (coach), Karl Garrett, Ralph Grose, and Edgar Webster of the Burlington High School, winning team of the entire contest. Second Row—M. T. Hargiss (coach), Daniel Root, Raymond Appleman, and Chauncey Clark of the Wichita High School, winners in the judging of dairy cattle and grain. Third Row—Louis Vinke (coach), Clifford Harding, Russell Schaulis, and Howard Elkins of the Wakefield Rural High School, winners in the judging of beef cattle, swine, horses, and sheep. Fourth Row—E. F. Burk (coach), Glenn Harries, William Whitney, and George Taton of the Garden City High School, winners in poultry judging. The individual winners were as follows: Howard Elkins of Wakefield, high individual of the entire contest, also high individual in the judging of beef cattle, swine, horses, and sheep. Glenn Harries of Garden City, high individual in poultry judging. Edgar Webster of Burlington, high individual in grain judging. Howard Appleman of Wichita, high individual in dairy judging.

FOURTH ANNUAL AG FAIR

The Ag Fair, the annual climax of student enterprises in the Division of Agriculture, was held on the north campus on the afternoon and evening of May 3, 1924. As a result of ideal weather conditions, an unusually large crowd attended the Fair both afternoon and evening.

Preceding the opening of the main pike at 3 o'clock, a parade composed of departmental floats toured the city. Many beautiful and ingenious displays were thus presented.

The picture on the back cover page shows the main pike, ferris wheel, rodeo, minstrel tent show, and the large alignment of side shows.

Perhaps one of the most creditable features of the Fair was the high grade educational exhibits prepared and displayed by various departments of the college. These exhibits were located in the south section of the judging pavilion.

STUDENTS' DAIRY JUDGING CONTEST

The Seventeenth Annual Students' Dairy Judging Contest was held on Saturday, May 10, 1924, under the auspices of the Dairy Club. Four animals of each of the following classes were included in the judging classification: Holstein, Ayrshire, Guernsey, and Jersey cows; Holstein, Guernsey, and Jersey heifers; Ayrshire bull calves. Written reasons were required on the four classes of cows. One hundred thirty-six students participated in the contest, a slight increase over the number entering last year's contest.

C. W. Thole of Stafford, freshman in the Division of Agriculture, was high man in the freshman division and in the entire contest with a score of 1,086 out of a possible 1,200 points. He was awarded the \$5 prize for high freshman in the contest; but since a single contestant was eligible to receive but one of the more substantial awards, he was precluded from receiving the gold medal for high man in the entire contest. A. C. Hoffman of Abilene won the silver medal awarded for second place by making a score of 1,035. The bronze medal for the man placing third was won by Ivan K. Tompkins of Byers with a score of 1,032.

The ten high contestants in the entire contest each received subscriptions to Hoard's

Dairyman and the Dairy Farmer. Subscriptions to the breed publication were given by the breed associations to the high men in judging each breed of dairy cattle as follows: C. W. Thole, Holsteins, 286 points; Harold Ahrens, Ayrshires, 266 points; John Whetzel, Guernseys, 275 points; and Robert W. Fort, Jerseys, 291 points.

K. S. A. C. DAIRY JUDGING TEAM IN INTERCOLLEGIATE CONTESTS

The Kansas intercollegiate dairy judging team placed ninth among 24 teams competing in the sixteenth annual students' contest in dairy judging held in connection with the National Dairy Exposition at Milwaukee, September 27, 1924. The first, second and third places were won by the Michigan, Wisconsin, and Nebraska teams, respectively.

Preceding their trip to Milwaukee, the Kansas team placed eighth in the annual intercollegiate contest held under the auspices of the Dairy Congress in Waterloo, Iowa, September 24. In this contest Walter J. Daly, of Tucson, Arizona, placed fourth in individual honors.

The members of the Kansas team were: Walter J. Daly, Tucson, Ariz.; O. L. Norton, LaCygne; Frank Hagans, Manhattan; and A. R. Sargent, Manhattan. Prof. H. W. Cave has coached the dairy judging team during the last seven years and through his efforts the Kansas team placed first at the National Dairy Exposition in 1919, 1920, and 1921. Last year it placed first at Waterloo and second at the National Exposition.

ALPHA ZETA ELECTIONS

One of the few outstanding recognitions of ability won by students in the Division of Agriculture is election to membership in the Fraternity of Alpha Zeta. Elections are held each semester. Last May the following students were elected to membership:

Name	Address
C. E. Dominy	Atwood
F. A. Hagans	Manhattan
Guy H. Faulconer	El Dorado
L. J. Schmutz	Junction City
R. L. von Trebra	Oswego
H. Wayne Rogler	Matfield Green
Lionel Holm	Denmark
C. D. Tolle	Manhattan

Growing Grapes in Kansas

Fred P. Eshbaugh, '26

It is recognized by competent authority that Kansas is a good place in which to grow grapes, and it is also regretted by the same authority that more grapes are not under cultivation in the state. "Anywhere that corn will grow," is one way of stating where American grape culture might succeed. There is practically no section in Kansas where grapes can not be grown. But at present there are only three commercial grape sections in the state; namely, the Northeastern, the Southeastern, and the Arkansas valley regions.

Only a few of the many varieties now under cultivation should be cultivated in Kansas. No attempt should be made to grow European grapes within the Missouri valley, and surely not in Kansas. It is then advisable to limit the varieties to some of the old stand-bys that have been tried and proved successful. Outstanding, and above all others, is the Concord. A major portion of the vineyard should be devoted to this variety. If a white commercial variety is in demand, the Niagara is a splendid grape to grow. The Lucile, a new red variety, is well recommended, also Moore Early, which is a large black grape. Some others well worth considering are Worden, Diamond, Brighton, Delaware, and Agawam.

The importance of a good site for the vineyard can not be overemphasized. First of all, there must be good air drainage. Cold air must not settle on the vineyard permanently, but should drain to a lower point and flow away in order to prevent frost injury. Second, plenty of rain from February to October is required, but because of the deep roots of the grape drouth is not often a major factor—hence the site should not be too wet. The soil should be deep, fertile, well drained, and of good water-holding capacity.

It is essential to have the soil in good planting condition before setting the plants. In order to accomplish this, it is necessary to start during the year previous, growing a crop that is not exhaustive but tends to improve the physical condition of the soil. It is also well to add manure at the rate of about ten tons per acre during this year of

preparation.

Grape plants should be set in the spring as soon as the soil warms up enough to start growth. The ordinary planting distance is from eight to ten feet between plants, but allowances may be made in either direction if the plants of the variety are vigorous or naturally weak. The best method of planting is perhaps that of listing or throwing out a deep furrow and setting the plants well down in the soil. The top of the cutting from which the plant was grown should be at least three inches under the surface of the soil because it is from this point that one whorl of roots springs. After the soil is packed firmly around the plants the furrows may be filled in later by means of cultivation. When the young plants have been set they should be pruned to one strong, vigorous cane, cut back to only two buds.

The preferable method of soil management is that of clean cultivation. A crop grown among the vines is a serious handicap to the cultivation program, and also robs the growing grapes of their food supply. However, the growing of a cover crop such as vetch, if disked under as green manure, is a good practice to follow.

An accurate knowledge of how to prune grapes is not to be found among many small growers. This is a fact to be regretted because the principle involved is very simple and can be applied by anyone. The bud is the basis of all grape pruning. After the vines have grown in the vineyard for a year they are cut back to one cane with two buds—the same as when set out the previous year. The vines may be tied up to small posts during the first two seasons' growth, if desired, but there is no serious disadvantage in allowing them to lie on the ground. By the third spring, however, a trellis is necessary. One cane with 15 buds is left on the vine, all others having been pruned off, and the cane is tied vertically on the trellis. It depends very largely on the type of trellis used as to the pruning after the third year. But as a general rule the vines are cut back each year to the number of canes and buds that are re-

quired to best supply the trellis system in use. The number required may vary from two to six canes with a total of 25 to 45 buds.

There are several good trellis systems in use by commercial growers at the present time, each having its points of advantage, hence it may be well to briefly discuss each type of trellis. There is the fan system, which requires two wires on the trellis. The vines are cut back to four canes each year. The two lower canes are spread on the lower wire, and two others are spread to the upper wire. This system has the advantage of renewing the wood each year and also of requiring very little tying. Another popular

the ground. The lower wire is run through the post six inches below the cross arm. The other two wires are run through the ends of the cross arms which are usually about two feet long. A small main trunk for each vine is tied to the lower wire. Two canes running to the right and two to the left are securely tied to the lower wire. The two upper wires are used to support the growing shoots which attach themselves to them. This system has the advantages of making it convenient to harvest the fruit or to apply the spray and of shading the fruit from the August sun.

On an average, it costs between \$250 and \$300 to plant and trellis an acre vineyard.



VINEYARD ON HORTICULTURAL FARM, K. S. A. C.

system is the four-cane Kniffin, which is also a two-wire trellis. There is one trunk per vine, it being 56 inches long with two canes left of last year's wood 30 inches from the ground or at the lower wire, and two more canes left at the top. The upper canes may droop from the top wire and be tied to the lower wire at the tips.

The two-cane Kniffin system is often used among growers. It has a two-wire trellis but the trunk of the vine is extended up to the top wire and the canes are brought down to the lower wire and tied. This system gives good ventilation and is easy to prune.

Lastly there is the Munson system, which consists of posts, cross arms, and three runs

of wire. A 2 x 4 or a 4 x 4 cross arm is nailed or bolted to each post about four feet above

Grapes, like other fruits, are more successful if sprayed. Two common sprays used are Bordeaux mixture and arsenate of lead. These sprays may be applied together or separately, as desired. Application of spray made at random throughout the season may be somewhat effective in disease and insect control, but a regular spray schedule followed by the grower is much more efficient and economical in the long run. There are five recognized applications for these sprays. They are: (1) At the time the leaf buds open. (2) Shortly before the flower buds

(Continued on page 32)

The Proposed Tax Amendment to the Kansas Constitution¹

Carl G. Iles, '25

This article discusses three of the important features of the proposed tax amendment that is to be voted on by the people of Kansas this fall as follows: (1) Where this amendment is different from the amendment defeated two years ago. (2) The need of classifying intangible property in Kansas. (3) What the amendment would mean to Kansas from the experience of other states.

1. The chief provisions of the amendment defeated in 1922 were as follows: "The legislature shall have power to establish and maintain a just and equitable system for raising state and local revenue, and may classify the subjects of taxation in order to secure a just value therefrom, and may exempt property when the public welfare will be benefited thereby." The chief provisions of the amendment to be voted on this fall are: "The legislature shall provide for a uniform and equal rate of assessment and taxation, except that mineral products, money, mortgages, notes, and other evidence of debt may be classified and taxed uniformly as to class as the legislature shall provide."

There is a great deal of difference between this amendment and the one that was defeated two years ago. The amendment that was defeated would have given the legislature power to classify all property, while the present amendment makes possible the classification of mineral products and intangible property only.² No new power over real estate and other tangible property, except in the case of mineral products, is given the legislature by this amendment.

2. There are several reasons why Kansas needs classification of intangible property. (1) It will aid in making capital to be used in building up Kansas agriculture and industries more available at a lower rate of interest. (2) It will bring more intangible property on the tax rolls where it will help to bear a greater proportion of the cost of running the government than it now bears. The result of the amendment would be to relieve tangible property of part of the tax burden. (3) Kansas capital would have better oppor-

tunity to be invested in the state at a lower rate of interest to the borrower. (4) The people of the state would be encouraged to save, where now the present law discourages it.

3. Just what would classification of property mean to Kansas? For example, let us assume that this tax amendment has passed and the legislature has levied a three-mill rate on intangible property as other states have done, for example, Minnesota. What kind of results can be expected from this classification?

In 1910 Minnesota had a tax rate of 28 mills on intangible property. In 1911 the three-mill rate on intangible property took effect. The effect of a reduction in rate of taxation on intangible property on the number of persons assessed, total assessment, and amount of revenue collected, may be seen in the following table:

EFFECT OF REDUCTION IN RATE OF TAXATION ON INTANGIBLE PROPERTY IN MINNESOTA

Year	Tax levy	Number of persons assessed	Total assessment	Total revenue collected
	Mills			
1910	28	6,200	13,919,806	\$ 379,754
1911	3	41,439	115,481,807	346,445
1912	3	50,564	135,369,314	406,107
1917	3	87,688	284,968,875	854,907
1919	3	109,215	359,798,976	1,079,399
1921	3	118,846	421,816,226	1,274,449
1924	3	115,496	417,030,342	1,251,091

The tremendous increase in the number of persons that were taxed in the various years as compared with 1910 should be noticed. This demonstrates the fact that with a lower tax rate and the classification of intangible

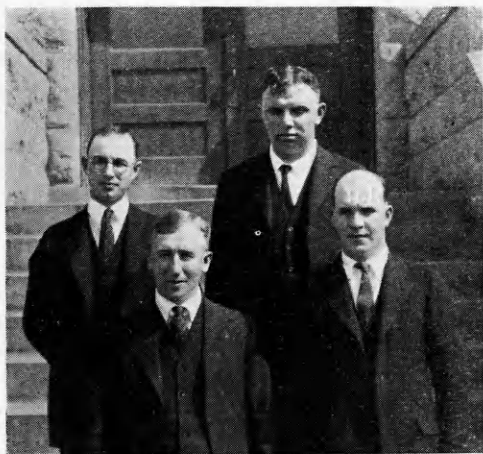
(Continued on page 30)

1. The outline of this article and much of the discussion is largely adapted from manuscripts of Prof. Eric Englund of the Department of Agricultural Economics.

2. A definition of intangible property: "The term intangible property includes money, notes, mortgages, stocks, bonds, and other evidences of debt, annuities, royalties, copyrights, and all rights to income vested in an ownership separate and distinct from the ownership of the concrete things which produce the income so received." [Sec. 1 of Senate Bill No. 149 by Carr W. Taylor. Kansas Legislative Session of 1923.]

Alumni Notes

Earl T. Means, '22, editor in chief of Volume I of The Kansas Agricultural Student, is operating a 320-acre farm near Everest, Atchison county. Last August, when the Atchison County Farm Bureau conducted a farm tour, Means' place was one of seven farms visited for the purpose of showing successful farming practices. The principal features shown on Means' place were soybeans, the use of fertilizers on alfalfa, and a fine herd of Duroc Jersey hogs. Means is secretary-treasurer of the Atchison County Farm Bureau.



COACHES OF WINNING TEAMS IN THE FOURTH ANNUAL STATE HIGH SCHOOL JUDGING CONTEST

The winning teams in the State High School Judging Contest were all coached by K. S. A. C. alumni as follows: Bottom Row—L. F. Hall, '23, teacher of vocational agriculture, Burlington High School, 1923 to 1925. E. F. Burk, '22, teacher of vocational agriculture, Garden City High School, 1922 to 1924; Hill City, 1924-25. Top Row—Louis Vinke, '21, teacher of vocational agriculture, Wakefield Rural High School, 1921 to 1924; graduate assistant in animal husbandry, University of Minnesota, St. Paul, 1924-25. M. T. Hargiss, '22, teacher of vocational agriculture, Wichita High School, 1922 to 1925.

Oklahoma A. & M. College has drawn heavily on K. S. A. C. agricultural alumni. Its present agricultural staff includes G. C.

Gibbons, '18, extension agronomist; W. L. Blizzard, '10, head of the Department of Animal Husbandry; Carl Thompson, '04, professor of animal husbandry; L. E. Hazen, '06, professor of agricultural engineering; Ward W. Fetrow, '20, professor of agricultural economics; and P. C. McGilliard, '16, assistant professor of dairy husbandry.

H. M. Bainer, '00, whose home is in Manhattan, is secretary of the Southwestern Wheat Improvement Association with headquarters in Kansas City.

Homer J. Henney, '21, is in charge of the Prather Estate in Chase county. This estate includes 9,000 acres located near Elmdale, Kan.

Charles R. Enlow, '20, is assistant in cooperative experiments in K. S. A. C., a position formerly held by Ross J. Silkett, '22, who is now extension agronomist in the University of Missouri.

Roy L. Fleming, '23, is employed by the Cedar Lake Farms, Mikana, Wis. He has been fitting and showing their purebred Guernseys this fall.

R. R. McFadden, '21, who has taught agriculture in Spearville High School since graduation, has been appointed county agricultural agent of Clark county.

J. C. Wingfield, '23, is engaged primarily in the breeding of grain crops, fruit crops, and vegetables in the Matanuska Agricultural Experiment Station, Matanuska, Alaska. He is enjoying his work in that territory.

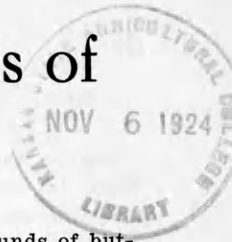
Ralph W. Taylor, '15, is manager of the Casement Farm at Plainville, Ohio, the boyhood and ancestral home of Capt. Dan D. Casement, owner of Juniata Farm near Manhattan. The latter farm is managed by John Collister, a former student of agriculture in K. S. A. C.

W. F. Droge, '10, is county agricultural agent, Rocky Ford, Col.

George M. Drumm, '21, is in the Department of Dairy Husbandry, University of California, University Farm, Davis, Calif. He writes that a baby girl arrived in their home August 23, 1924.

Improvement in the Dairy Herds of State Institutions

Floyd M. Wright, M. S., '25



The dairy herds of 12 state institutions have been under the supervision of the Department of Dairy Husbandry of K. S. A. C. since 1917. During this period the increase in the number of milk cows has been 50 per cent, but the increase in the total milk production has been nearly 100 per cent.

During the past year 83 cows, poor producers, were culled from the herds of these 12 state institutions. Three herds had outstanding records for increased milk production. The herd at the State Orphans Home at Atchison made an average increase of 3,000 pounds of milk per cow. An average increase in production of nearly 2,000 pounds of milk per cow was reported from the herds of the Topeka State Hospital and the Boys Industrial School. On the average each of the cows in the 12 herds increased her production over that of the previous year by 393 pounds of milk and 8.6 pounds of butterfat. The total increase in production amounted to 141,565 pounds of milk and 11,994 pounds of butterfat.

The average production of the 505 cows in the 12 herds during the past year was

8,271 pounds of milk and 286 pounds of butterfat. The average production of all cows in Kansas was about 3,500 pounds of milk and 150 pounds of butterfat.

Another important advance during the seven-year period was the almost complete eradication of tuberculosis. The percent of reactors has decreased from 12.1 percent to 0.09 of 1 percent since 1917. Only one animal in the 1,132 tested last year reacted.

In 1917 only six of the twelve institutions were keeping daily milk records. All have been keeping records since 1919. During the seven years the number of grade dairy animals has increased more than one-third, and the number of registered purebred cattle has increased four-fold.

General supervision and information from the college is supplemented by an annual short course held at K. S. A. C. for the herdsmen of the various state institutions. In this short course the Departments of Dairy Husbandry, Agronomy, Animal Husbandry, Poultry Husbandry, and the Division of Veterinary Medicine cooperate in attempting to solve the problems of the herdsmen.

To Hog Down Corn May Be False Economy

W. W. Taylor, '25

The consensus of opinion among many present-day hog men is that hogging down is one of the most economical and profitable methods of harvesting the corn crop. Swine feeding investigations carried on by the Department of Animal Husbandry at the Kansas Agricultural Experiment Station give experimental evidence as to the relative merits of corn and kafir for hogging down as compared to dry-lot feeding.

The feeder pigs used in the experiment were "grown out" on alfalfa pasture and a small concentrate ration during the summer months. They weighed about 100 pounds each when the experiment was started.

One lot of pigs was put on an acre of corn and another lot on an acre of kafir. Each lot received one-fourth pound of tankage per pig daily. From September 13 to October 23, 1923, the pigs on corn made average daily gains of 1.63 pounds, a total of 65 pounds gain per pig. The lot on kafir made average daily gains of 1.4 pounds, a total of 56 pounds per pig. The calculated daily consumption and waste for the lot on corn was: Corn, 7.59 pounds; tankage, 0.28 of a pound. The daily consumption and waste for the lot on kafir was: Kafir, 8.46 pounds; tankage, 0.28 of a pound. Feed consumed or wasted per 100

(Continued on page 30)

FOOD FOR COLLEGE STUDENTS

(Continued from page 7)

given to the reason for these deficiencies. From the comparisons made, the following points seem outstanding:

1. The proportion of the money spent for dairy products (excepting butter) was astonishingly low. The average milk consumption was only about one-fifth of a quart per man per day and the maximum for any group was but one-third of a quart. Since milk is one of our best sources of calcium in the diet, it is not surprising that the dietaries of many groups were deficient in calcium. Milk is valuable for calcium and vitamins in addition to other nutritive properties; a generous use of it is certainly to be recommended for college students. Almost no cheese was purchased for these groups of students. Cheese can be used to advantage where high energy intake is required. On the cost basis, cheese of the inexpensive kinds gives

very good nutritive return. This valuable food deserves a place of more prominence in the diet.

2. In most of the groups, the expenditures for meats (including poultry and small amounts of fish) were in accord with food budgets recommended by several authorities. However, meats containing only muscle tissue should not be used exclusively, as seemed to be the rule. It would be better to spend part of this money for glandular organs, which are excellent sources of vitamins. Liver particularly is worthy of attention; it has the advantage of low cost along with high nutritive return.

3. More whole grain products and whole wheat bread should be used, at the same time decreasing the sum spent for expensive breakfast foods, and bakery products as pastries, cakes, and cookies. On the cost basis, the nutritive return from these last types of food is low. Furthermore, the use of whole grains raises the iron content of the diet. This essential material was very low in many of the student groups.

4. A very food proportion (an average of about 24 percent) of the food expenditure was for fruit and vegetables. However, selection might have been better in many cases. Green vegetables (especially the leafy ones), tomatoes, and some of the less expensive sorts of fresh and dried fruits should be used freely. Thus, more cabbage, apples, and prunes should be purchased rather than the fancy brands of canned pineapple and the like. The leafy vegetables are excellent sources of vitamins and also of iron. The dried fruits are also considered good sources of iron.

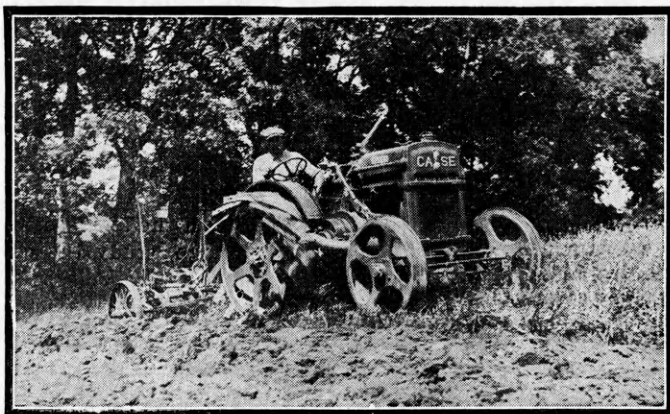
5. The actual cost of food per man per day, by groups, ranged from 24.1 cents to 52.6 cents, with an average of 35.6 cents. It was observed, however, that nutritive return did not necessarily parallel the food expenditure. It happened that the dietaries of the five groups with the lowest costs per 100 Calories were on the whole much more nearly adequate than the dietaries of the five groups whose costs per 100 Calories were highest. This shows the great advantage to be secured by careful buying, along with some attention to proper food selection.



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AGRICULTURE IN ALASKA

(Continued from page 10)

	Acres planted	Bushels threshed	Tons of hay
Wheat.....	109	1,465	70
Oats.....	763	1,790	498
Barley.....	112	1,381	63
Root crops (turnips carrots, beets).....	19	136	
Potatoes.....	128	318	(Sold at 5c per pound)
Vegetables.....	34	72	(This does not include the gardens in Fairbanks)

The Tanana Agricultural Association owns and operates a flour mill. Last season the farmers received 4 1-2 cents per pound for their wheat. The flour, consisting of sixteen tons, was all sold in Fairbanks in less than one week after being placed on the market. Twenty times as much could have been disposed of in the territory this year but was not available. Alaska imports annually approximately \$800,000 worth of agricultural products that could be grown within her borders.

The Alaskan farmer has the opportunity to diversify his farming to the nth degree. His wheat and potato fields need not interfere with his dairy and poultry enterprises. Fur farming is profitable as a sideline; Interior Alaska is the home of the silver fox and the marten. Pelts are at their best produced in this climate. Sheep raising is feasible, the wool produced being of exceptional quality. The reindeer industry is destined to be a great and profitable business. Reindeer meat finds a ready market in the Western States. The expense of caring for the herd is little; range is free and abundant; no cultivated feed is used. The herds, on the average, double in numbers every third year.

Alaska is a natural small fruit country. Blueberries, cranberries, salmon berries, raspberries, and currants are found in abundance growing wild throughout the territory. Rhubarb grows easily and in abundance under cultivation.

It has been well demonstrated that Interior Alaska has great agricultural possibilities. Now the problem is to interest a farming population in the taking up of homesteads and building up more farms. As an encouragement to settlers, markets must be secured for

the farm products. With the increased activity in the mineral, timber, and fishery industries, this market is assured. Transportation facilities are rapidly developing, railroad connection is established with the coast, good trails are being constructed to the mining camps, and water transportation is open during the summer.

The Alaskan farmer will have to acquaint himself with the local peculiarities of climate and drainage, study the question of fertilization and the proper seeds to plant. In this connection the Government Agricultural Experiment Stations located at Sitka, Kodiak, Rampart, Matanuska, and Fairbanks, and the Agricultural College, also at Fairbanks, are ready to give assistance and instruction.

IMPROVING MARKET EGGS

(Continued from page 15)

tinues to bring in eggs that are uniform and always the same he may give some premium.

The exterior of the egg is all the farmer can grade his eggs on. The interior is by far the most important. For this reason egg buyers candle to detect the undesirable eggs. A large part of these are due to heating. Fertilized eggs start embryonic development as soon as they are laid unless kept at a cool temperature. This development is readily detected under the candle. Unfertilized eggs can stand heat for some time and will still be fit for consumption. This shows the loss from keeping a cock bird with the hens after the breeding season is greater than the average farmer realizes.

In all, marketing eggs for the top price requires but a little extra care and attention. The premium on the eggs will pay well for that care. Requirements may be summarized as follows: (1) Keep clean nests. (2) Gather eggs often. (3) Keep eggs in a cool place. (4) Market often. (5) Grade eggs on the farm and consume the very large, the small, and the dirty eggs at home.

J. F. T. Mostert, '23, is now a member of the faculty of the School of Agriculture, Potchefstroom, Union of South Africa. He and his wife, Lucy Stallings Mostert, f. s., report a fine baby girl now a member of the Mostert family.



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One of the most useful services performed by General Electric Company is the manufacture of little motors to operate the appliances that take the drudgery out of housework and farm work.

The new G-E Farm Book, giving interesting facts on the subject of farm electrification, will be sent on request. Write Section C, General Electric Company, Schenectady, N. Y., Chicago, Ill., or San Francisco, Cal.

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Electric light and power on the farm is an investment in better and happier living.

GENERAL ELECTRIC

HARVESTING GRAIN SORGHUMS

(Continued from page 13)

slow. It was observed that in ordinary heavy kafir it required twice as much time to unload a wagon by hand methods as was required to load it with a one-row wagon box header. No unloading devices were tried out, but the use of slings and derricks, or perhaps a portable grain elevator, has been suggested as convenient appliances for rapid unloading at the stack. In the semi-arid regions, particularly in the vicinity of Garden City, barges with V-shaped bottoms have been tried out with satisfaction. These have removable endgates and a rope placed in the trough of the "V" is so arranged that it encircles the load about its longest axis. These rope ends are tied to stakes when it is desired to unload and the wagon rack drawn from under the load. The shape of the load (V-shape) automatically provides a high center when the heads are placed upon the ground forming a rude, but satisfactory, stack or shock where the grain remains for curing previous to threshing. This plan seems suitable for the semi-arid area where the autumn rainfall is very slight.

This article merely outlines present developments and tendencies in the harvesting of grain sorghums. No exhaustive studies of the subject have yet been made.

PROPOSED TAX AMENDMENT

(Continued from page 23)

property people are more likely to let their intangible property reach the tax rolls and help bear the burden.

Results in the city of Baltimore tell a story like the one told by the Minnesota figures. The effect of a reduction in tax rates on intangible property in the city of Baltimore may be seen from the following table:

EFFECT OF REDUCTION IN RATE OF TAXATION ON INTANGIBLE PROPERTY IN THE CITY OF BALTIMORE

Year	Tax levy	Total assessment	Total revenue collected
	Mills		
1896	21.75	\$ 6,000,000	\$130,550
1897	4.75	58,703,795	278,843
1918	4.50	216,000,000	972,000

The present Kansas taxing system results in double taxation. For instance, the man

who owns a mortgaged farm pays the general property tax on his farm, and again on the mortgaged portions of it. The man who holds the mortgage is going to charge a higher rate of interest so he will be able to pay the tax and also receive a fair return on his investment. This double taxation could be largely eliminated if the Kansas legislature were permitted to classify property, but the present state constitution will not permit the classification of intangible property.

Isn't it time to revise the tax section of the state constitution so that it will reduce the tax burden on the tangible property? The only way this problem can be solved is by an amendment to the constitution. It is the duty of every citizen of voting age to understand this amendment before casting his vote on it. This proposed amendment should be adopted and thus the Kansas Constitution so changed as to permit the legislature to classify intangible property and help to relieve real estate and other tangible property of part of the tax burden it now has to bear, and to secure other beneficial results of classification. Some of these "other results" are: (1) Opening of the Kansas investment market to Kansas investors; (2) lower rate of interest on loans; (3) stimulus to thrift and frugality; and (4) discontinuation of the present scheme of driving capital out of the state.

HOGGING DOWN CORN

(Continued from page 25)

pounds gain was: Corn-fed lot—corn, 467 pounds; tankage, 17.09 pounds. Kafir-fed lot—kafir, 604 pounds; tankage, 19.94 pounds.

Two more lots were started October 13 and up to November 23 those on corn made daily gains of 1.53 pounds, a total of 62 pounds per pig; and those on kafir made daily gains of 1.17 pounds, a total of 47 pounds per pig. It was clearly demonstrated that corn is superior to kafir for hogging down.

Comparisons were then made with dry-lot feeding. Pigs that were in the dry-lot and self-fed made average daily gains of 2.226 pounds for a 30-day feeding period or a total gain of 67.88 pounds per pig, compared with the hogging-down lot which made daily gains of 1.53 pounds per pig for a 40-day feeding period or a total of 62.78 pounds per pig.



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Take the partly cleared farm, for instance. Here, is a large, fertile field dotted with old stumps and boulders, interfering with mechanical and economical cultivation, besides being breeding places for weeds and crop pests. There, swamps or marshy spots are in need of drainage. Other improvements to be made are removal of hardpan conditions; checking of erosion; rejuvenation of old orchards and straightening the crooked streams which interfere with thoro cultivation and are often the cause of damage to crops.

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Dry-lot feeding produced larger gains on less feed in less time. It required 3.78 bushels less corn and 5.42 pounds less tankage to produce 100 pounds gain where self-fed in dry lots for 30 days than where hogged down for 40 days; and 2.09 bushels less corn and 4.7 pounds less tankage where self-fed in dry lots for 60 days than where hogged down for 40 days.

Weather conditions are an important factor in hogging down. During the period when the pigs were in the corn and kafir there was a total of 4.17 inches of rainfall and practically no freezing. These results indicate that when the fall season is wet and open, as is often the case in this section of the country, hogging down corn or kafir is a wasteful practice and really an expensive method of feeding hogs.

It is hardly a profitable or economical method to hog down under the conditions prevalent at Manhattan at the time of the investigations. A farmer could have paid 24 cents per bushel to have had corn gathered and then hand feed it and still be even with feeding costs on "hogging down" corn. This disposes of any contention that hogging down is a true labor-saving method of feeding, and shows fairly conclusively that hogging down is a slow and costly process as compared with dry-lot feeding.

GROWING GRAPES IN KANSAS

(Continued from page 22)

open. (3) Immediately after the blossoms have fallen. (4) Ten days after the blossoms have fallen. (5) Ten days after the fourth spray, if needed. It is well to depart from the schedule and apply a spray immediately if insects or disease appear between spraying periods.

FEEDERS' DAY CONVENTION

The twelfth annual Feeders' Day Convention, which was of large interest to livestock feeders in Kansas, was held in the judging pavilion, May 24, 1924. Approximately 750 farmers attended.

Reports of feeding tests conducted by the college during the last year occupied the leading place on the program. Dr. C. W. McCampbell, head of the Department of Animal

Husbandry, Prof. H. E. Reed, and Prof. B. M. Anderson presented the results of feeding tests conducted with cattle, sheep, and hogs, respectively. President W. M. Jardine stressed the importance of the general adoption by farmers of a diversified system of agriculture. Speakers representing the livestock industry of the state as a whole also appeared on the program.

ENGLISH SCIENTISTS VISIT COLLEGE

On September 19 and 20, the college had as visitors Dr. D. Ward Cutler and Dr. H. J. Page, scientists from the Rothamsted Experiment Station, England. This station was established in 1843 and is the oldest of its kind in the world.

Each of the men lectured both days they were here, telling of the work being done at Rothamsted. Doctor Page presented figures from experiments with commercial fertilizer and barnyard manure on wheat. The average yields covering a period of more than 50 years were approximately the same, but the fluctuations in yield from season to season were much greater from the field treated with commercial fertilizer than from the one treated with manure.

Doctor Cutler told of the work in soil biology with reference to the microscopic animal life of the soil. According to Doctor Cutler, the soil, instead of being inert and lifeless as is commonly supposed, is literally teeming with life. Samples of soil sent into the station from all over the world were found upon analysis to contain practically the same types of organisms.

W. R. Horlacher, '20, associate professor of genetics, Texas A. & M. College paid the college a short visit returning to his work after visiting his parents in Colby, Kan.

W. E. Brown, '23, is teacher of vocational agriculture, Nash, Okla.

Clyde McKee, '10, is agronomist in the Agricultural Experiment Station, University of Montana, Bozeman.

Fred D. Strickler, '25, expects to return to college for the second semester and be graduated with his class in the spring.

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OPENING OF THE FOURTH ANNUAL AG FAIR—LOOKING SOUTH ON THE PIKE

“When you play, play hard,” said Roosevelt, “but when you work, don’t play at all.”

The picture reproduced above shows a part of the Fourth Annual Ag Fair just as it was opening on May 3, 1924, at Kansas State Agricultural College. The Ag Fair is one of the most important student events of the college year. It is planned, financed, and operated by agricultural students. On Ag Fair day, several thousand people who attend the Fair “play hard.”

Student life at K. S. A. C. includes exceptional opportunities for well-balanced training. It includes theory and application in the liberal and the technical; science and practice; work and play.

The college offers agricultural courses ranging in length from one week to four years. The four-year courses are for high school graduates. The others are open to anybody more than seventeen years of age.

The college trains men for 150 agricultural occupations, on the farm and elsewhere, and for good citizenship and right living.

KANSAS STATE AGRICULTURAL COLLEGE

MANHATTAN, KANSAS

“The College that Serves a State”