KANSAS FARMER

For the improvement of the Farm and Home

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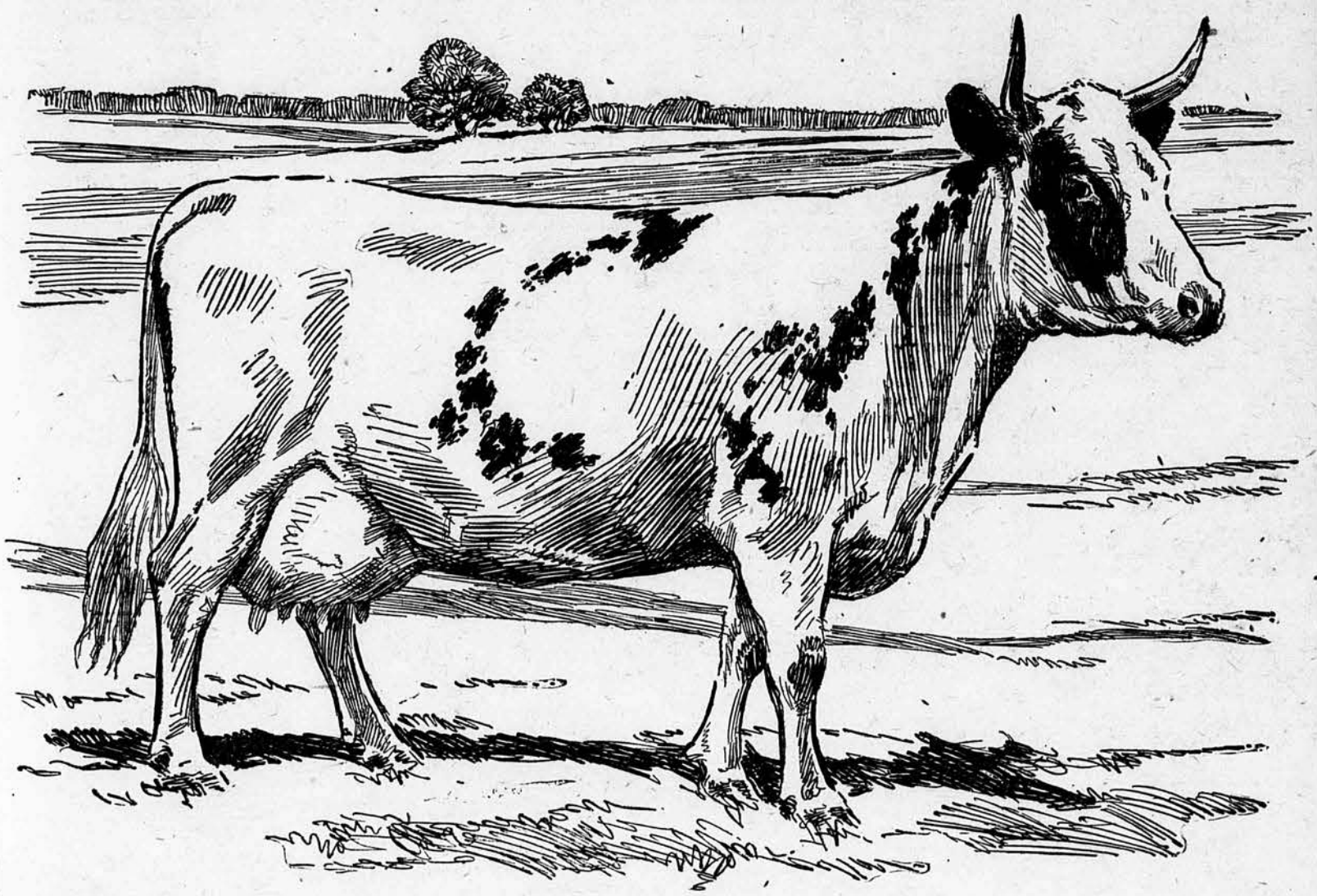
K S A C Library July

THE dairy farmers of Ayr and adjoining counties of Scotland worked together to develop a hardy, active breed of cattle adapted to sparse and rough pastures and capable of producing a maximum amount of milk during the long winters from low grade, coarse feeds. The many admirable qualities of the Ayrshire breed as we now know it, is evidence of their success.

Animals of this breed have stood well in public tests, and each year they are pressing more strongly their claims as dairy cattle. In their adaptation to thrive and give good returns in milk on poor pastures and inferior rough feed with limited grain, Ayrshire cattle are in a class by themselves.

They are especially suited for crossing on common cows where it is desired to develop grade herds of good production and uniform appearance. While distinctly a dairy breed, they are smooth in form and their killing qualities are most acceptable to the butcher. The increasing popularity of this breed is well merited. —*G. C. W.*



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FARM POWER

Items of Interest About Automobiles, Engines, Tractors, and Motorcycles

WHEREVER electric transmission lines run through the country there is the possibility of electric power for general farm use.

"In such locations," says William S. Aldrich of Colorado, "the portable electric induction motor, whether mounted on skids, truck, or any kind of go-cart, is proving one of the most efficient aids to modern farming. A small coil of wire connects it up, at once, to the farm wiring, overhead or in buildings. If this is single-phase, it will usually be at 110 volts, though heavier service may have been provided for, as 220 volts.

"Still more flexibility and economy may be had with the three-phase induction motor of either voltage, being wound to suit either system of distribution. For household machines, barn, shop, field machinery, and dairy, the electric jack is a veritable jack of all trades, when it comes to delivering the power.

"The sizes found convenient on the average size farm are the fractional horsepower, as one-half; the three, five and ten horsepower motors. The first motor will lighten the housework wonderfully; the last size will do all kinds of grinding, cutting, husking, shelling, milling, hoisting, crushing, baling, splitting, sawing, concrete mixing, etc. The intermediate sizes will be adapted to every variety of work, in the dairy, farm, shop, barn, garden and field."

The Springs on Your Car

The springs on your automobile are just as important and just as necessary as the motor. The motor is oiled regularly, adjustments made whenever occasion requires, and whenever it fails to work properly the cause is run down and remedied. But the springs do not fare so well.

If a pack of cards be bent, they slide, one against the other. If glued together they cannot be bent much more easily than a board. Similarly, when the springs are deflected to absorb the inequalities of the road, the leaves must slide one against the other. There should be some lubricant between them to facilitate this sliding.

The best method of lubricating the springs is to jack the weight of the car off them, pry the leaves apart by driving a screw driver or chisel between and to spread a mixture of cup grease and graphite on the rubbing surfaces. When mud dries on the springs it absorbs the grease, but the graphite will remain.

A little attention to the springs occasionally will result in a much easier riding car, less wear and tear on the machinery and tires, and those mysterious "birds" and "crickets" will be largely silenced.—Power Farming.

Horses Not to Be Abolished

Today, when the tractor is coming into favor as a source of farm power, there are those wild-eyed extremists who would have us believe that the horse is bound to be abolished from the farm. This same propaganda was preached at the time when steam power replaced horse power for driving the old fashioned threshers. As a result of this recent awakening in favor of tractor power, horse breeders have become alarmed again at what seems to be a direct blow at their business.

Horses have been the farmer's helpers and companions when the stress of farm work was greatest. On hot days the farmer has looked after their galled shoulders and has laid low the big black flies that stung them to a frenzy. They have been a part of his big farm household in which family ties really exist, and it may be said that he has perhaps resented, for this reason mainly, the idea that he should go back on his friends and replace them with a tractor.

But with automobiles already scurrying along the roads and tractors entering many fields, it naturally follows there must come a readjustment in the realm of horse raising. The automobile has made it possible for us to save time in transit. If we need repairs for our machines, or twine for our binders in the field, or groceries for the threshing crew when time is of greatest importance, the automobile has had a certain definite value which everyone admits.

We are compelled to look upon tractor power in the same way. As the automobile has been designed to do road work especially well, so the tractor has been built to handle the heavy field work in the same manner. Pulling more plows, more harrows or binders, it can go steadily down the field for hours at a time doing more work, better work, and in less time than ever before. Its lungs are not affected by the hottest weather, and its shoulders are not galled by the heat or strain of the load.

Yet, with all of our automobiles and tractors, no sane man should make the claim that there is no need for horses on the farm. There is a great amount of work which the horse can do well. For instance, in cultivating the growing crops, like corn, where the work is light and where the natural instinct of the horse can be trained to follow the row and allow the farmer to attend strictly to the job of getting rid of weeds, no tractor of the present stage of development can be said to be in competition with the horse.—Tractor Farming.

Careful Braking Saves Tires

Practically all motor cars have powerful brakes, and may be brought to a stop in a very short distance—less than twenty feet—even when speeding along at the rate of twenty-five miles an hour. If a car has good brakes, the rear wheels can be stopped instantly, and after that all the braking is the friction of the rear tires on the ground.

Even with less sensational stopping the tires receive more wear than most drivers realize. One is likely to forget the comparatively great weight of a car, especially when he has been accustomed to using horse-drawn vehicles.

The careful driver shuts off his power long before he reaches his stopping point, and lets the car coast most of the way on its own momentum. Then he very gradually puts on the brake and brings the car to a stop without a tremor.

"I know I am an old granny about stopping," one driver who is very careful about this matter remarked, "but I notice that my casings don't come to grief the way I have seen some do, simply because I don't grind them by sudden braking. My brake bands also last longer, and what I am interested in is the greatest service from my car at the least expense."

When stopping upon a grade in town, turn the front or rear wheels into the curb. Then an accidental shove or push or a slight loosening of the brake will not allow the car to slide down hill. In the country, of course, a stone can be used for the same purpose. A great many accidents occur every year because many people do not take this simple precaution.—CARLTON FISHER, in Farm and Fireside.

GOOD DEEP PLOWING A FUNDAMENTAL FARM OPERATION

Perfect combustion of any fuel is indicated by the absence of smoke from the exhaust of the engine. When there is too much lubricating oil, or when the fuel is too rich or not of uniform density throughout the compression chamber, due to poor mixing with the air, the flame from the spark does not burn through the charge quickly enough. Such a charge will still be burning when the exhaust port opens and a smoke-ing discharge results, showing a waste of fuel that should be turned into power.

No matter how careful the construction of the motor, in spite of the finest materials, the entire mechanism, if not correctly lubricated, may be ruined by a few months'—even a few weeks'—operation in the hands of an inexperienced motorist—one who does not appreciate the importance of correct lubrication.

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KANSAS FARMER

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FEDERAL RURAL CREDIT LAW.

On July 17 President Wilson signed the Federal Farm Loan Act, which is popularly called the "Rural Credits Law." Strong efforts are being made to have one of the twelve federal land banks provided for in this law, located at Topeka. This is a most important piece of legislation. While no one can be sure exactly how it will work out, a great deal of study has been given to it. The act creates a federal farm loan bureau under control of what is known as the federal farm-loan board. This shall consist of five members, including the Secretary of the Treasury.

No member of the farm-loan board shall, during his term of office, be engaged in banking or in the business of making land-mortgage loans or selling land mortgages.

There are to be twelve federal bank districts in the United States, for the purpose of making long term loans on real estate on the amortization plan.

By the amortization plan is meant, the application for the purpose of the payment of a part of the principal, of a certain per cent of each payment, until at the end of the loan period the interest has not only been met but all the principal has been paid.

Twelve federal land banks, each with a capital of not less than $750,000 are provided for.

No loan made by a federal land bank shall be for less than $100 nor more than $10,000.

Loans, as made by a federal land bank, are limited to the following purposes: To provide for the purchase of land for agricultural purposes; to provide for the purchase of equipment and live stock for the proper and reasonable operation of the farm to provide buildings and for the improvement of farm lands; to pay off the indebtedness of the owner of the land mortgage existing at the time of the organization of the farm-loan association.

Loans may be to the extent of 50 per cent of the value of the land mortgaged and 20 per cent of the value of the improvements.

No loan can be made for a period of less than 5 years or more than 40 years, and under no circumstances shall the interest rate, exclusive of amortization payments, ever exceed 6 per cent per annum. It is thought that it will be much less.

No person not actually engaged in the cultivation of the farm mortgaged, or who is shortly to become so employed, shall be granted a loan through the federal land bank. The benefits of the law are not for speculators or non-resident owners, but for actual farmers.

After the subscription to stock in any federal land bank shall have reached $100,000 the officers and directors shall be chosen. Six directors known as local directors, shall be chosen by the national farm-loan association. Three directors, known as district directors, are appointed by the federal farm-loan board. Thus do the borrowers who own the stock in the bank control the same.

A national farm-loan association, as provided in the law, must be composed of not less than ten men in any community or county within a federal land-bank district, who desire to secure loans. These ten men elect not less than five directors from their membership and also select a secretary-treasurer. Three members are constituted a loan committee to make application to the federal land bank. The aggregate amount of these loans cannot be less than $20,000. Upon approval of the application, following proper investigation and appraisal by the federal land bank, the ten or more applicants for a farm loan association are granted a charter authorizing the association to receive from said federal land bank sums of money to be loaned to its members.

When a borrower wishes to obtain money he becomes a member of a national farm loan association and makes application to the secretary-treasurer, who submits this application to the local loan committee. The application must be accompanied by an agreement to take 5 per cent of the amount of the loan in stock in the federal land bank of the district. When the loan is approved as provided by law, the applicant becomes a member of the National Farm Loan Association and obtains his loan from the federal land bank.

While the applicant who may have property sufficient to entitle him to a $1,000 loan actually gets, in cash in hand, but $950—($50 being invested in stock of the federal land bank), he is entitled to all the profits made on the stock. Furthermore, when the loan is paid off he is credited with the $50 worth of stock, and it is then cancelled.

In addition to the purchase of $50 worth of stock, the applicant for $1,000 signs an agreement guaranteeing a liability to the extent of 10 per cent. or twice the amount of the stock. When the borrower's loan has been liquidated his stock is cancelled and the agreement is at an end.

The borrower regulates the period of time for the loan to run—from 5 to 40 years. Suppose the loan is for $1,000 to run 20 years at 6 per cent to be paid on the amortization plan, which is an annual payment consisting of part of the principal and interest. By making a total annual payment of $87.19 for 20 years, or $1,743.46 all told, the interest would be kept up and the principal wiped out. As the calculation of principal and interest on $1,000 for 20 years at 6 per cent totals $2,200, the saving on $1,000 loan through the amortization plan is $456.54.

If it is possible to make the interest as low as 5 per cent an annual payment of $80.24 for 20 years—(a total of $1,604.80)—will care for the interest and pay off the principal on a $1,000 loan.

The act provides that the federal land bank, the mortgages and bonds issued by it, are exempt from federal, state and municipal taxation. This exemption will save to the owners of the bank, who are the borrowers, considerable amounts. Not only is the loan plan as safe as is the government of the United States, but should wide-spread drouth or other disaster come, making it impossible for the borrowers temporarily to meet their obligations, the government is authorized to deposit in each land bank as much as $500,000 to enable the borrower to meet the interest on the bonds.

QUARANTINE LIFTED IN ILLINOIS.

As a source of tubercular cattle, Illinois has had a bad reputation. This has been due to the operation of certain dealers who defied all efforts to prevent the spread of the disease through the sale and shipment of infected cattle. Finally, the Bureau of Animal Industry placed five counties under a federal quarantine. This was at the request and in co-operation with the Live Stock Sanitary Commission of the state. This federal quarantine brought about desired results. The bureau has just announced that it has been removed and now the movement of cattle is controlled entirely by the state laws. These are now sufficiently rigid to control the situation.

It will take the state a long time, however, to outgrow the effects of the lawlessness of those who brought it into disrepute. Buyers cannot help being a little suspicious of Illinois cattle even though the state has been thoroughly cleaned up and all shipments are being carefully guarded.

There is a lesson in this for newer states. The live stock sanitary laws should be most carefully drawn and such regulations adopted as will control all infectious animal diseases. Kansas is greatly increasing its live stock and especially dairy cattle, and much yet remains to be done in strengthening our sanitary regulations.

POTATO MARKET REPORT.

The potato growers of Kansas have produced this year a record-breaking crop. Not only have they produced an unusually large crop, but they are being marketed to splendid advantage. The government potato market report is of great value in this respect. This is a service never before given, and it is greatly appreciated. It is furnished by the Office of Markets and Rural Organization. Each day a bulletin is mailed from an office in the Produce Exchange Building, Kansas City, Mo., to the potato growers of Kansas and Missouri. This report is a complete statement of the potato situation on the day it is compiled. The volume of receipts from the producing districts is given each day. The trend of prices and telegraph reports are included from a number of leading cities, so the producer can get a line on conditions generally.

This information is also furnished by 'phone after one o'clock each day to Missouri or Kansas growers who will call up the Federal Office of Markets at the Produce Exchange Building.

Edwin Taylor, one of the Kaw Valley potato growers, says: "The dealer has nothing on the farmer now in the way of market information. It is great to get the story by mail only twenty-four hours old, but it is greater to get it up to the minute by telephone."

SHEEP AND WEEDS.

This is the time of the year when the man with the small farm flock can begin to use the lambs to harvest the weeds and grass in the corn field. Early lambs should be weaned in July and the corn field makes a convenient place to turn them. Some care must be exercised in getting them used to the new feed, and it would be better to turn them in only an hour or so at a time at first, lengthening the time until there is no further danger.

A Shawnee County farmer having a small flock told us last summer that his corn fields that season were the wonder of passers-by. They could not understand how he had kept his corn so clean in so wet a year. His lambs did the work, and they not only kept the fields clean of grass and weeds, but made some splendid gains.

One should not get the idea that sheep are never to be fed anything but weeds. If they are considered only as scavengers they probably will not be as successfully kept as if they are given a fair chance with other farm animals. No other animals, however, will eat so many different kinds of weeds, and lambs are the only animals that can be turned into a corn field without doing damage to the crop. Lambs can also be used to harvest the waste in stubble fields and along roadsides.

There is no more convenient source of fresh meat on the farm in the summer season than the lamb. They furnish two crops—both wool and meat. Some think sheep are subject to numerous diseases, but packing house statistics show that the percentage of sheep condemned is less than that of any other animals.

Thirty or forty ewes can easily be kept on the average farm without having to reduce the other stock. We know of such a flock where this year's wool brought $131. The owner of this flock insists that his sheep have never cost a cent. Everything they have produced has been clear profit.

SEPTIC TANKS ON FARMS.

We have habitually thought of sewer systems and running water in the house as conveniences difficult to secure in country houses. On farms, it is not possible to connect with a public sewer as is done in cities, and consequently too many make no effort to solve the problem of disposing of sewage. Each farm must make provision to take care of its own sewage, and sewage disposal is not so difficult and expensive as is commonly believed. Of course, a septic tank and an absorption system must be provided. With suitable plans and instructions most of the work can be done with ordinary farm help.

A circular recently published by the Wisconsin Experiment Station gives a description of such system of sewage disposal. With a little help of this kind it is possible to provide this wonderful convenience for the farm house without expending a very great amount of money or labor.

If you have live stock of any kind, especially milk cows, you had better do a little figuring on a silo for next winter's feed.

JULY CROP REPORT.

The State Board of Agriculture has just made public the information it has secured on the July condition of crops in Kansas. Seldom have the conditions been more favorable for harvesting the wheat than during this season. Threshing returns are surpassing the expectations of a month ago, except in Southeast Kansas, where the yields are falling short of what was then expected.

The prediction of a 90-million-bushel crop made by the State Board a month ago on the basis of conditions at that time, will, without doubt, be exceeded by several million bushels. A most gratifying feature is the fact that the quality of the grain is exceptionally good. The wheat grains are plump and uniform, and it is testing high, with the exception of that grown in the southeast section. There the quality in the majority of the counties is but medium in grade.

Over at least three-fourths of the state, however, the wheat is turning out both in yield and quality much better than expected. This means that in spite of serious Hessian fly damage the state has produced a crop only twice excelled in quantity and quality as good as any ever harvested.

The condition of the corn crop is now claiming considerable attention. This is a critical time for corn. Insufficient rain through the months of July and August always cuts the grain yield. The condition of the crop for the state is but 75, assuming a satisfactory stand and growth to be 100. This is a falling off in condition since the June report of the board, of six points.

The assessors' reports for 97 of the counties, with the abandoned wheat acreage planted to corn added, show that approximately 6,990,000 acres were planted to corn—an increase of almost two and a half million acres over 1915. Jewell County has over 200,000 acres. Its condition is high also, being 88. All the northern counties report corn in good condition, ranging from 80 to 90. The least promising prospects seem to be in the counties of Sedgwick and Sumner.

The reports of the board's observers indicate that the oats will average about 21.6 bushels to the acre, the acreage for the state being about one and a half million. In the south-central counties the crop was practically a total loss, due to green bug damage.

Alfalfa, another big asset in Kansas, has turned off a crop of one and a quarter tons to the acre on more than a million acres, since the last report. The weather has been so fine for curing hay that this second cutting is of exceptional quality. The same is true of the prairie hay now being cut.

The sorghums were planted late this season all over the state. They have made fair progress, but like corn, need more moisture just at present.

This report on the whole, is of an optimistic nature. Agricultural conditions generally are above the average. Much depends on rainfall during the next few weeks. If the rain is scant corn will be cut short in grain, but there will be the sorghums to fall back on, and even the corn will make a lot of valuable fed if it is properly handled.

DON'T BURN STUBBLE.

Already much wheat straw and stubble in Kansas has gone up in smoke. Burning the stubble does not destroy Hessian fly—if this has been the reason for burning the stubble. We call attention to this again because it is so easy to burn that some are led to do this instead of plowing under the stubble immediately after harvest. If the flaxseeds were all up in the stubble at the second or third joint, this method of destroying them would be effective, but by far the larger proportion of them are just under the surface of the ground, and these would not be injured by the burning. Burning destroys a lot of organic matter that is badly needed in the soil. The real fly remedy is to plow early and deep, turning the stubble under, then destroy all the volunteer wheat. Prepare the seed bed carefully so the plants will start off and become well established before winter, and sow at or near the fly-free date.

SOIL NEEDS ORGANIC MATTER

Continuous Cropping Destroys Vegetable Matter in Soil. Rotation, Live Stock, Plowing Under Manure, and Straw the Remedy

EIGHT-ACRE FIELD OF PURE-BRED WHEAT, P-762, JUST BEFORE HARVEST.—DEVELOPED FROM SINGLE HEAD.—SINCE 1911 HAS OUTYIELDED ALL OTHER VARIETIES ON COLLEGE FARM.—ON FARMS IN VARIOUS PARTS OF STATE HAS YIELDED OVER THREE BUSHELS AN ACRE MORE THAN ANY OTHER VARIETY FOR PAST TWO YEARS

A STAFFORD COUNTY reader writes as follows: "Our land is fast losing its fertility. It is being used almost entirely for wheat. Some fields that are well farmer are now producing little grain. Has this land gone too far for crop rotation to help? Corn and oats are not very sure. How would soy beans do, planted with corn and 'hogged' off? Would ground limestone be of any value?"

This letter raises a fundamental question in maintaining soil fertility. All over the state conditions such as those described above are developing. We referred these inquiries to Prof. L. E. Call of the Kansas Agricultural College, who is eminently qualified to write on this important subject. His reply is as follows:

CANNOT CROP CONTINUOUSLY

"It has been very definitely proven in foreign countries that land cannot be cropped to one crop continuously. When we first broke up the prairie soils of Kansas they were abundantly supplied with organic matter and for that reason were very productive. Wheat was grown many years in succession without any apparent decrease in yield. In fact, the decline in yield has been so gradual and the yields have fluctuated so much from season to season with changing weather conditions that the gradual reduction in yield has not been observed, until we reached a time as is the case under your conditions when the yields become so low even on well prepared land that the crop produces very little grain. This condition is no only true of particular farms, but is true of the state as a whole.

"If we compare the yield of the common farm crops of the state during the past twenty-five years with the yield of the first twenty-five years of the past fifty-year period, it will be found that the yield of wheat has declined over 17 per cent, corn over 40 per cent, and oats 33 per cent.

LOSS OF ORGANIC MATTER SERIOUS

"To determine just what change had taken place in the soil to produce this difference in productiveness, an examination was made of a number of soils in the state by the Department of Chemistry at the agricultural college. Soils that had been cultivated for many years were analyzed and compared with uncultivated or virgin soils in the same community. For example, in Russell County a soil that had been cropped continuously to wheat for thirty years was compared with a native buffalo grass pasture adjoining. These determinations showed that there was over 98,000 pounds of organic matter in the surface soil of an acre of the buffalo pasture, while the old wheat field had but 64,000 pounds in the same amount of soil. This is a loss of 34,000 pounds of organic matter, or a loss of about 1,000 pounds for each year that the field was cultivated.

"A soil depleted in organic matter does not absorb water readily, bakes and crusts, has a low water-holding capacity, is deficient in nitrogen, and does not contain the food required by the bacteria of the soil that aid in the liberation of plant food.

ROTATE, SPREAD STRAW AND MANURE

In my judgment, the greatest need of our old wheat soils is to add organic matter and to put into practice some system of crop rotation. The kind of a rotation must be determined by the character of the farm. A rotation means a diversity of crops and it is impossible to profitably utilize many crops adapted to your section of the state without live stock. With live stock, you will not only be able to put into practice a good cropping system, but will have manure that can be used on your land that is now no doubt very badly in need of organic matter. The wheat straw that cannot be utilized for feed or worked into manure should be scattered. It should be scattered the first fall or winter on growing wheat as a light top dressing. When straw is allowed to rot in the stack before spreading, much of the organic matter is lost.

"To emphasize the importance of practicing a rotation of crops and to show the value of light top dressings of barnyard manure for wheat, I wish to give you the yields of wheat secured this season at this station from some of our experimental work.

YIELDS OF WHEAT—1916

"On ground cropped continuously ten years, with no treatment, yield 6.33 bushels per acre.

"On ground cropped continuously ten years, treated with two and one-half tons of manure annually, yield 19 bushels per acre.

"Rotation of corn, corn, wheat, no treatment, yield 16 bushels per acre.

"Rotation of corn, cowpeas, wheat, no treatment, yield 17 bushels per acre.

"Rotation, corn, cowpeas, wheat, five tons manure on corn, yield 19 bushels per acre.

"Rotation, corn, cowpeas, wheat—two and one-half tons manure on corn and two and one-half tons manure on wheat—yield 25.5 bushels per acre.

"Rotation, four years alfalfa, corn two years, wheat, yield 18:5 bushels per acre.

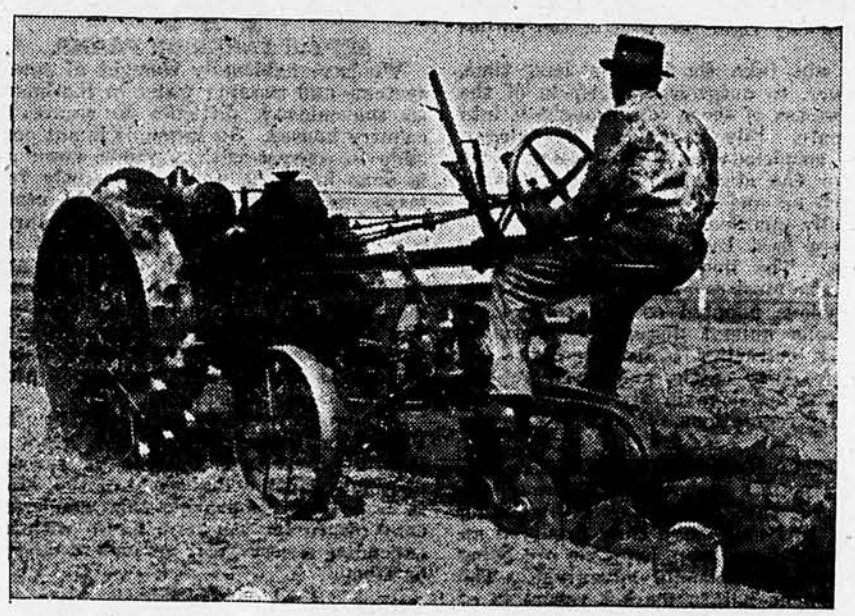
"Rotation, four years brome grass, corn two years, wheat, yield 37 bushels per acre.

It will be seen from the above yields that wheat on continuously cropped ground produced but six and two-thirds bushels per acre. This ground was plowed in July and the seed bed prepared in the best possible manner. On the same ground when two and one-half tons of manure have been applied annually, the yield was nineteen bushels. This is a very light application of manure—it represents only one big spreader load to the acre and is much lighter than manure can be spread with an ordinary spreader. If we estimate wheat worth 80 cents a bushel, the manure spread on this ground has been worth on an average $2.27 a ton.

HOW TO INCREASE YIELDS

"In a simple three-year rotation of crops consisting of corn two years and wheat one year and the wheat sown on disked corn ground, the yield of wheat was sixteen bushels. Where cowpeas replaced the second crop of corn and the cowpeas cut for hay and the wheat sown on the disked cowpea ground, the yield was seventeen bushels per acre. When five tons of manure was applied to the acre once in three years on the corn, the yield of wheat was nineteen bushels, and when the manure was divided equally between corn and wheat, the yield of wheat was 25.5 bushels. The yield of wheat in a rotation consisting of alfalfa four years, corn two years, and wheat, was 18.5 bushels. The wheat made too rank a growth on the alfalfa ground to yield well. When brome grass had been grown in place of alfalfa for four years the yield of wheat was 37 bushels per acre. Brome grass produces a heavy sod and thus adds a large quantity of organic matter to the soil without leaving the ground so rich in nitrogen that the wheat lodges.

"In my judgment, your land has not gone too far to be greatly improved by a rotation of crops. Feed as much live stock as possible in order to secure manure and utilize all the wheat straw produced on the place either as feed and bedding or as a top dressing on wheat fields. Soy beans would not do well sown with corn, as your summers are usually too dry for them when sown in this way. Limestone would not prove beneficial, as your soil is well supplied with lime. What your soil needs is organic matter."



THIS OUTFIT IS PLOWING KANSAS BUFFALO GRASS SOD AND DOING A GOOD JOB
(Courtesy Moline Plow Company)

Seed Bed in Hard Land

J. M., a Marion County reader, asks for the best method of preparing a wheat seed bed in hard land. This land is so hard that it can hardly be plowed with a common plow.

A good plowing is almost of necessity the first step in preparing such land for wheat. If it cannot be plowed with a common plow, we would advise that a search be made for a plow that will turn it over, and then hitch power enough to this plow to do the work. Of course, the plowing should be done at once. Such hard land is not likely to turn up very mellow and there must be time for the rain and action of the air to soften the clods so they can be worked down to seed bed condition.

Such hard soil is not very satisfactory to farm. It would be well to have someone familiar with the different soil types examine it. Without such examination it is difficult to know exactly what has caused this condition and what is the best method of improving it. At this long range we could not venture very positive advice. Frequently lack of organic matter is responsible for soil becoming hard and compact. Soils that are farmed continuously to one crop for a good many years, with no effort to turn under any straw or manure, nearly always gets into this condition. Organic matter is the very life of the soil. It took an enormous amount of native vegetation to produce that contained in our virgin soils. Most of these soils contained approximately fifty tons of vegetable matter in the surface seven inches of one acre. Over a third of this has been lost in less than fifty years of farming. The development of this hard gumbo condition is in most cases due to this rapid destruction of organic matter.

The remedy for this condition is to turn under all the vegetable material possible, such as straw, barnyard manure, weeds, etc. Even grow green manure crops and plow them under in order to add the necessary vegetation rapidly. Too often the straw stacks are burned, likewise the cornstalks and stubble, the excuse being given that this is necessary in order to clean up the land so it can be worked readily. In the long run, the opposite result follows. The land becomes so hard that it cannot be worked easily and does not produce as good crops as formerly.

Perhaps this lack of organic matter is not responsible for the hard condition of this land concerning which our correspondent writes, but we strongly suspect that such is the case. We would suggest that he look into the history of this land if he is not already familiar with the way it has been handled, and see if this destruction of organic matter has not taken place. An article by Prof. L. E. Call, in this issue, will throw some light on this problem.

GENERAL FARM INQUIRIES

Something For Every Farm—Overflow Items From Other Departments

WE have just received an inquiry relative to homestead land in Kansas and Colorado.

It is necessary to write to the government land offices to secure particulars regarding land open for settlement. There are two such offices in Kansas—one in Topeka, and the other in Dodge City. The Topeka office has jurisdiction over the land in the northwest counties. At the present time there is about 13,000 acres open in that section of the state, being in the counties of Cheyenne, Rawlins, Gove, Logan, and Wallace. There was over 50,000 acres in the southwest a year ago, and we do not have later figures.

Most of this land is grazing land, but nearly every quarter has a few acres that can be farmed to adapted crops. Those who take such government land as is now left in Kansas must plan to follow live stock farming.

In Colorado there still remains about 17 million acres of land open for settlement. Anyone interested can get full information by writing to the government land offices at Denver or Pueblo.

Dry Weather Cultivation

S. R. L., Franklin County, asks if it will pay to cultivate corn after it is too big to go over with the two-horse cultivator, and what kind of cultivation should be given.

Dry weather cultivation of corn has for its purpose the retaining of soil moisture. In doing such work, always guard against stirring the ground deep. The corn roots fill the surface of the ground early and do not grow much after the corn is too big to cultivate with the two-horse cultivator. These roots should never be injured.

If the soil in the corn field has become badly crusted or baked, it may pay to go over it with some tool that will break up the crust on the surface. Some sort of drag, having harrow teeth, will usually do the kind of work required. We have heard of dragging old mowing machine wheels through between the rows, to break up the crust.

This late cultivation is so uncertain in its results that no general rule can be followed. We have known of cases where it paid and of others where the work was thrown away. It has been found that as a rule any extra cultivation of corn, more than is required to keep it clean, is of doubtful value. For the reasons given, it is questionable whether it will pay or not to do this late cultivating.

After corn has been well cultivated up to the laying-by time, and is reasonably clean, the weather is the big factor in determining results. If there is enough rain during July and August to fill out the ears, a crop may be expected. If the rain is short during this period, the crop will be reduced accordingly. Even in Iowa or Illinois, a corn crop is dependent upon rain during these months which they do not get every year.

Cure for Calf Scours

J. U., Allen County, writes that he has a calf that scours badly. He has tried a number of remedies. He keeps the pail clean and feeds new milk. He asks what is the best thing to do.

We would refer him to the reply to R. S. T., Nemaha County, in this issue. If this calf is young and is being fed its mother's milk, it is possible that it is too rich in butter fat. We have known of instances where young Jersey calves could not be fed their mothers' milk because it was too rich in butter fat. If this is a possible cause, try using milk from different cows, or herd milk.

Sometimes feeding gruel made from wheat flour will check scours. The following remedy is a good one to use in connection with the gruel: Prepared chalk one ounce, powdered ginger two drams, powdered catechu one-half ounce, and oil of peppermint one-half pint. The dose is two teaspoonfuls every eight hours.

Tomatoes Fail to Set

Mrs. J. O. M., Graham County, writes that they have some fine tomato vines that have been blossoming for a month, but no fruit has set. The blossoms all fall off the stems as soon as they begin to dry. She asks if this is due to blight or dry weather. They can water them but have been warned not to do so until the tomatoes have started.

We are inclined to think the blossoms are blasted by the hot sun. This is a rather common complaint at this season of the year. O. F. Whitney, now secretary of the State Horticultural Society, has had a great deal of experience in growing tomatoes and he often had this same difficulty, during the hot part of the year. Some varieties which grow a limited amount of foliage seem specially subject to this trouble. The bushy tree tomatoes usually give better results in a hot, dry climate.

Sometimes the ground is over-rich, such condition as might result from plowing under a lot of stable manure. This makes the vines grow very rank and they seem to all go to vines instead of setting fruit. Sometimes pinching back the tips of the branches encourages the formation of fruit.

If the vines show that they are suffering for moisture they should be watered, although vine growth should not be over-stimulated by too much water.

Too great extremes of temperature are unfavorable to tomatoes, such as hot days and cool nights. The ideal is a day temperature of 80 to 90 degrees with a drop of 15 to 20 at night.

This blasting of the blossoms by heat does not occur earlier in the season and later the tomatoes will probably form and a late crop be produced.

Silage Temperatures

There is a good deal of misinformation regarding the temperature in silos filled with silage.

Everyone who has used a silo has observed that at times the silage becomes hot. This is generally noticed on the surface during mild weather as when the silage is being fed in rather small quantities. Many have supposed that the entire mass of silage becomes very hot and that a certain amount of heat is necessary to preserve it. The Kansas Experiment Station reported some few months ago that silage did not get anywhere near as hot as is commonly supposed.

Prof. C. H. Eckles of the Missouri Experiment Station now reports results conforming very closely to the Kansas figures. Electric thermometers were placed in silos to take the temperatures. A bulb was placed in the silo during filling at any point where it was desirable to take the temperature. This bulb had wires leading to the outside of the silo so the temperature could be taken with an electrical device at any time. Temperature readings were taken near the center of the silage mass and at the wall at frequent intervals during two seasons in from eight to ten silos including stave, iron, tile, Gurler and concrete.

It was found that the temperature in the silage is never high as is so often thought. After filling, the temperature rises from five to ten degrees the first few days and then slowly declines during the fall and winter until it reaches the lowest point, about 40 degrees, in March. In good silage the temperature seldom goes more than a few degrees if any above 100 F. and may not go above 90. The only high temperatures found are at the surface when the air comes in contact with silage. Furthermore a temperature much above 100 means loss of silage, as some of the material is being actually burned to make the heat. Mould will raise the temperature some. Corn put in the silo in a mature condition develops more heat than that put in green. No relation was found between the material used in the construction of the silo and the temperature of the silage. Practically no difference in the freezing of the silage on the wall was observed with the different kinds of silos.

Poisoning Grasshoppers

A Rooks County reader writes that he finds the grasshopper poison formula given in a recent issue is much more effective if molasses—either the New Orleans or beet sugar molasses—is used in place of the syrup.

Belittling Fly Damage

There seems to be a disposition to minimize the Hessian fly damage done in many parts of Kansas this year. Conditions have been very favorable during harvest time and there has been little loss in this process. Forgetting that the fly was present and that the yield was much reduced by its ravages, is not a very good way to prepare to control future injury. The danger must be recognized before any effective work is likely to be done to prevent its repetition.

Newspapers are stating that there was little loss from Hessian fly after all, and by persisting in this policy many will be led to relax their efforts. We noticed a story recently to the effect that a splendid yield had been harvested from a volunteer crop. The reason given was that this field had been pastured and the fly was thus destroyed or prevented from getting a start. We are unable to explain why this field of volunteer produced a good yiled, but it has been fully demonstrated that pasturing is not a remedy for Hessian fly.

The wise thing to do in Hessian fly territory is to admit the damage and begin at once to put into operation a cooperative campaign to control it so that the next crop will not be subjected to such serious injury. Trying to minimize the damage and forget there has been any loss is on a par with the habit of the ostrich of hiding its head in the sand when pursued and overtaken by its enemies. It is but inviting greater injury next year. The fly can now be successfully attacked. It is in the flaxseed stage, resting in the stubble. Deep plowing will destroy large numbers of them while they are in this form.

Late Feed Crops

Farm Agent Macy of Montgomery County has had a good many inquiries from those whose crops were injured by the destructive hail storms, relative to what crops can be successfully planted now as substitutes for the crops destroyed. For grain they are being advised to grow dwarf black-hull kafir. It is two weeks earlier than the other varieties. Feterita can also be grown for grain. For both forage and grain crop Freed Sorgo, one of the earliest of the cane crops, is recommended. If grain is not wanted, Sudan grass and cane can be successfully grown for forage. Sudan grass is considered the better of the two. H. M. Hill, one of the farm bureau members of Neosho County, last summer raised from six to eight tons of Sudan grass from a planting made as late as August 6. Mr. Macy thinks it worth while to plant cowpeas, but he finds that farmers do not take to this crop on account of the small tonnage yield per acre. Cowpeas more than make up in the enrichment of the soil for what they lack in yield.

Treatment for Hip Sweeny

J. H., Harper County, asks for a cure for hip sweeny. He has a 3-year-old that received an injury last fall resulting in sweeny. He has given it several blisters but the hip does not fill out. The horse is very lame.

Dr. R. R. Dykstra of the agricultural college answers as follows:

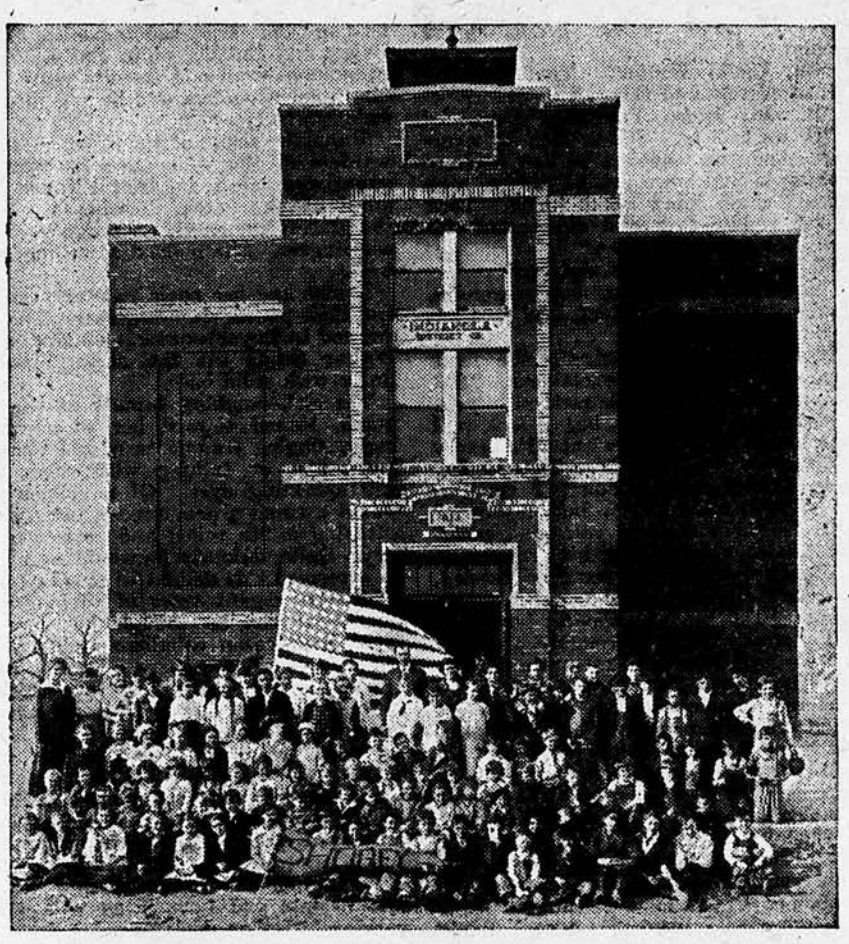
"The treatment of hip sweeny consists in washing the shrunken parts thoroughly with soap and water, and immediately after this with a reliable antiseptic wash consisting of a 2 per cent solution of carbolic acid. A mixture consisting of one dram of turpentine and one dram of chloroform is then to be injected into the shrunken muscle in about a dozen equally distant places. The injections are to be made by means of a hypodermic syringe and needle that has previously been sterilized by placing it in boiling water. The operation must be carried out with the most careful regard for antiseptic precautions as otherwise an abscess may result. In view of the fact that this operation is more or less technical, I would suggest the employment of a competent graduate veterinarian."

Whitewash Mixture

For general use about the farm buildings to assist in destroying insects, the following recipe for whitewash is a good one: Slake five quarts of lime with hot water to about the consistency of cream. To this add one pint of zenoleum or some other coal tar product, and one quart of kerosene. Dilute with about its volume of water; apply with a brush or a pump. This solution when properly applied accomplishes three things: (1) Zenoleum acts as a disinfectant by killing disease germs; (2) the kerosene aids in destroying mites; and (3) the lime whitens the house.

In case of bloat, try the following: Mix one-half ounce of 40 per cent formaldehyde with one quart of water. Drench the animal with this solution and tie a small block of wood in its mouth. If the animal is able to walk, exercise it gently for a few minutes. The animal should recover in from twenty to thirty minutes. The effect of the formaldehyde is to stop the fermentation which causes the formation of the gas.

Strong Link in State's Educational Chain



SHOREY School, Shawnee County. Eight grades, three teachers. One grade teacher, music teacher, and one year high school will be added this fall. High school work will be added each year until the course is complete. Building modern. Gas lighting system throughout, dry toilet system in basement. Average attendance 1915, 125.

OVERLAND RED

A Romance of the Moonstone Canon Trail

CHAPTER VI.

ADVOCATE EXTRAORDINARY.

LOUISE LACHARME, more beautiful than roses, strolled across the vine-shadowed porch of the big ranch-house and sat on the porch rail opposite her uncle. His clear blue eyes twinkled approval as he gazed at her.

Walter Stone was fifty, but the fifty of the hard-riding optimist of the great outdoors. The smooth tan of his cheeks contrasted oddly with the silver of his close-cropped hair. He appeared as a young man prematurely gray.

"How is Boyar?" he asked, smiling a little as Louise, sitting sideways on the porch-rail, swung her foot back and forth quickly.

"Oh, Boy is all right. The tramp turned him loose in the valley. Boy came home."

"It was a clever bit of riding, to get the best of Tenlow on his own range. Was Dick very badly hurt?" queried Walter Stone.

"Yes, his collar-bone was broken and he was crushed and terribly bruised. His horse was killed. When I was down, day before yesterday, the doctor said Dick would be all right in time."

"How about this boy, the tramp boy they arrested?"

"Oh," said Louise, "that was a shame! He stayed and helped the doctor put Dick in the buggy and rode with him to town. Mr. Tenlow was unconscious, and the boy had to go to hold him. Then the boy explained it all at the store, and they arrested him anyway, as a suspicious character. I should have let him go. When Mr. Tenlow became conscious and they told him they had the boy, he said to keep him in the calaboose; that that was where he belonged."

"And you want me to see what I can do for this boy?"

"I didn't say so." And Louise tilted her chin.

"Now, sweetheart, don't quibble. It isn't like you."

The gray-clad ankle flashed back and forth. "Really, Uncle Walter, you could have done something for the boy without making me say that I wanted you to. You're always doing something nice—helping people that are in trouble. You don't usually have to be asked."

"Perhaps I like to be asked—by—Louise."

"You're just flattering me, I know! But, uncle, if you had seen the boy jump in front of Mr. Tenlow's horse when Dick shot at the tramp—and afterwards when the boy helped me with Dick and stuck right to him clear to his house—why, you couldn't help but admire him. Then they arrested him—for what? It's a shame! I told him to run when I saw the doctor's buggy coming."

"Yes, Louise; the boy may be brave and likable enough, but how are we to know what he really is? I don't like to take the risk. I don't like to meddle in such affairs."

"Uncle Walter! Risk! And the risks you used to take when you were a young man. Oh, Aunty Eleanor has told me all about your riding bronchos and the Panamint—and lots of things. I won't tell you all, for you'd be flattered to pieces, and I want you in one whole lump today."

"Only for today, Louise?"

"Oh, maybe for tomorrow, and tomorrow, and tomorrow. But, uncle, only last week you said at breakfast that the present system of arrest and imprisonment was all wrong. That was because they arrested that editor who was a friend of yours. But now, when you have a chance to prove that you were in earnest, you didn't seem a bit interested."

"Did I really say all that, sweetness?"

"Now you are quibbling. And does 'sweetness' mean me, or what you said at breakfast? Because you said 'the whole damn system'; and there were two ladies at the table. Of course, that was before breakfast. After breakfast you picked a rose for aunty, and kissed me."

Walter Stone laughed heartily. "But I do take a great deal of interest in anything that interests you."

Louise slipped lithely from the porch-rail and swung up on the broad arm of his chair, snuggling against him impetuously. "I know you do, uncle. I just love you! I'll stop teasing."

Overland Red—Copyright, Houghton Mifflin Company.

"I surrender. I'm a pretty fair soldier at long range, but this"—and his arm went round her affectionately—"this is utter defeat. I strike my colors. Then, you always give in so gracefully."

"To you, perhaps, Uncle Walter. But I haven't given in this time. I'm just as interested as ever."

"And you think they are the men we saw out on the Mojave by the water-tank?"

"Oh, I know it! They remembered the rose. They spoke of it right away, before I did."

"Yes, Louise. And you remember, too, that they were arrested at Barstow—for murder, the conductor said?"

"That's just it! The boy Collie says the tramp Overland Red didn't kill the man. He was trying to save him and gave him water. If you could only hear what the boy says about it—"

"I don't suppose it would do any harm," said the rancher. "I dislike to use my influence. You know, I practically control Dick Tenlow's place at the elections."

"That's just why he should be willing to let the boy go," said Louise quickly.

"No, sweetheart. That's just why I shouldn't ask Dick to do anything of the kind. But I see I'm in for it. You have already interested your Aunt Eleanor. She spoke to me about the boy last night."

"Aunty Eleanor is a dear. I didn't really ask her to speak to you."

"No," he said, laughing. "Of course not. You're too clever for that. You simply sow your poppy-seed and leave it alone. The poppies come up fast enough."

Louise laughed softly. "You're pretending to criticize and you're really flattering — deliberately — aren't you, Uncle Walter?"

"Flattering? And you?"

"Because Aunt Eleanor said you could be simply irresistible when you wanted to be. I think so, too. Especially when you are on a horse."

"Naturally. I always did feel more confident in the saddle. I could, if need arose, ride away like the chap in Bobby Burns's verse, you remember—

"He gave his bridle-rein a shake,
And turned him on the shore,
With, 'Farewell, forever more, my dear,
Farewell, forever more.'"

"But you didn't, uncle. Aunty said she used to be almost afraid that you'd ride away with her, like Lichinvar."

"Yes." And Walter Stone sighed deeply.

"Oh, Uncle Walter! That sounded full of regrets and things."

"It was. It is. I'm fifty."

"It isn't fifty. It's a lack of exercise. And you wouldn't be half so fine-looking if you were fat. I always sigh when I don't know what to do. Then I just saddle Boy and ride. And I'll never let myself get fat."

"A vow is a vow—at sixteen."

"Now I know you need exercise. You're getting reminiscent, and that's a sign of torpid liver."

Walter Stone laughed till the tears came. "Exercise!" he exclaimed. "Ah! I begin to divine a subtle method in your doctrine of health. Ah, ha! I look well on a horse! I need exercise! It's a very satisfactory ride from here to town and back. Incidentally, Louise, I smell a rat. I used to be able to hold my own."

"It isn't my fault if you don't now," said Louise, snuggling in his arm.

"That's unworthy of you!" he growled, his arm tightening round her slim young figure. "Tell me, sweetheart; how is it that you can be so thoroughly practical and so unfathomably romantic in the same breath? You have deliberately shattered me to bits that you might mould me nearer to your heart's desire. And your heart's desire, just now, is to help an unknown, a tramp, out of jail."

Louise pouted. "You say 'just now' as though my heart's desires weren't very serious matters as a rule. You know you wouldn't be half so happy if I didn't tease you for something at least once a week. I remember once I didn't ask you for anything for a whole week, and you went and asked Aunty Eleanor if I were ill. Besides, the boy needs help, whether he did anything wrong or not. Can't you understand?"

"That's utopian, Louise, but it isn't generally practicable."

"Then make it individually practicable, uncle—just this time. Pshaw! I don't believe you're half trying to argue. Why, when Boyar bucked you off that time and ran into the barb-wire, then he didn't need doctoring for that awful cut on his shoulder, because he had done wrong."

"That is no parallel, Louise. Boyar didn't know any better. And this boy is not sick or injured."

"How do you know that? He's down in that terribly hot, smelly jail. If he did get sick, who would know it?"

"And Boyar isn't a human being. He can't reason."

"Oh, Uncle Walter! I thought you knew horses better than that. Boyar can reason much better than most people."

"The proof being that he prefers you to any one else?"

"No," replied Louise, smiling mischievously. "That isn't Boyar's reason; it's his affection. That's different."

"Yes, quite different," said Walter Stone. "Is this boy good-looking?" And the rancher fumbled in his pocket for a cigar.

Louise slipped from the arm of his chair and stood opposite him, her lips pouted teasingly, the young face glowing with mischief and fun. "Am I?" she asked, curtseying and twinkling. "'Cause if you're going to ride down to the valley to see the boy just because Beautiful asked you, Beautiful will go alone. But if you come because I want you,"—and Louise smiled bewitchingly—"why, Beautiful will come too, and sing for you—perhaps."

"My heart, my service, and my future are at your feet, Senorita Louise, my mouse. Are your eyes gray or green this morning?"

"Both," replied Louise quickly. "Green for spunk and gray for love. Tat's what Aunty Eleanor says."

"Come a little nearer. Let me see. No, they are quite gray now."

"'Cause why?" she cooed, and stooping, kissed him with warm, careless affection. "You always ask me about my eyes when you want me to kiss you. Of course, when you want to kiss me, why, you just come and take 'em."

"My esteemed privilege, sweetheart. I am your caballero."

"Did Aunty Eleanor?" said Louise.

But Walter Stone rose and straightened his shoulders. "That will do, mouse. I can't have any jealousy between my sweethearts."

"Never! And Uncle, Walter, do you want to ride Major or Rally? Rally and Boyar get along better together. I'll saddle Boy in a jiffy."

To ride some ten miles in the blazing sun of midsummer requires a kind of anticipatory fortitude, especially when one's own vine and fig tree is cool and fragrant, embowered in blue flowers and graced by, let us say, Louise. And a cigar is always at its best when half-smoked. But when Louise came blithely leading the two saddle-ponies, Black Boyar and the big pinto Rally, Walter Stone shoow an odd twenty years from his broad shoulders and swung into the saddle briskly.

From the shade of the great sycamore warders of the wide gate, he waved a gauntleted salute to Aunt Eleanor, who stood on the porch, drawing a leaf of the graceful moon-vine through her slender fingers. She nodded a smiling farewell.

Louise and her uncle rode as two lovers, their ponies close together. The girl swayed to Boyar's quick, swinging walk. Walter Stone sat the strong, tireless Rally with solid ease.

The girl, laughing happily at her triumph, leaned toward her escort teasingly, singing fragments of old Spanish love-songs, or talking with eager lips and sparkling eyes. Of a sudden she would assume a demureness, utterly bewitching in its veiled and perfect mimicry. Quite seriously he would set about to overcome this delightful mood of hers with extravagant vows of lifelong love and servitude, as though he were in truth her chosen caballero and she his Senorita of the Rose.

And as they played at love-making, hidden graces of the girl's sweet nature unfolded to him, and deep in his heart he wondered, and found life good, and Youth still unspoiled by the years, and Louise a veritable enchantress of infinite moode, each one adorable. Golden-haired, gray-eyed, quick with sympathy, sweetly subtle and subtly sweet was Louise. . . . And one must worship Youth and Beauty and Love, even with their passing bitter on one's lips.

But to Walter Stone no such bitterness had come, this soldierly, wise caballero escorting his adorable senorita on an errand of mercy. His was the heart of Youth, eternal and undaunted Youth. And Beauty was hers, of the spirit as well as of the flesh. And Love . . .

"Why, Louise! There are tears on your lashes, my colleen!"

"But I am singing, uncle." And she smiled through her tears.

"Sweetheart?"

"Yes, Uncle Walter."

"What is it? Tell me."

"I wish I could. I don't know. I think I'm getting to be grown up—just like a woman. It—it makes me—think of lots of things. Let's ride." And her silver spurs flashed.

Boyar, taken quite by surprise, grunted as he leaped down the Moonstone Trail. He resented this undeserved punishment by plunging sideways across the road. Again came the flash of the silver spurs, and Walter Stone heard Louise disciplining the pony.

"Just a woman. Just like a woman," mumured the rancher. "Now, Boyar, and some others of us, will never quite understand what that means." And with rein and voice he lifted the pinto Rally to a lope.

[To Be Continued.]

Figures on Tractor Work

The farmer contemplating buying a tractor naturally thinks of what the machine will do for him. How much it will save. He knows how much time and labor it requires for the different operations on the farm using horses, but the amount the tractor will really do seems hard to estimate in view of the claims made by various manufacturers.

Take the operation of plowing for instance. The farmer knows how much time and stick it requires to do the work. To estimate on the work with a tractor one may use the following figures, being certain always to note the exact nature of the soil and the per cent of grade of the hills on the land.

The most accurate tests on level ground where the tractor gets a good footing show the following draft per square inch of cross section of plow. (Cross section equals width of plow times depth plowed.)

In sandy soil draft is three pounds per square inch of cross section of plow.

In clay soil draft is eight pounds per square inch of cross section of plow.

In clover sod draft is seven pounds per square inch of cross section of plow.

In prairie sod draft is fifteen pounds per square inch of cross section of plow.

In gumbo draft is twenty pounds per square inch of cross section of plow.

Taking for example a plow rig of five 14-inch bottoms and wishing to plow a depth of six inches, figure the draft for the various soils as follows: (Cross section equals $5 \times 14 \times 6 = 420$ square inches.)

$3 \times 420 = 1{,}260$ lbs. draft in sandy soil.
$8 \times 420 = 3{,}360$ lbs. draft in clay soil.
$7 \times 420 = 2{,}940$ lbs. draft in clover sod.
$15 \times 420 = 6{,}300$ lbs. draft in prairie sod.
$20 \times 420 = 8{,}400$ lbs. draft in gumbo.

The manufacturers should be required to give the drawbar pull of their engines in pounds. To figure the number of bottoms which can be pulled, divide the drawbar pull by the cross section of one plow, multiplied by the draft per square inch of cross section of plow. Thus, plow, 14-inch; depth, 6 inches; soil, clover.

$14 \times 6 \times 7 = 588$ lbs., draft one plow.

Let us say the drawbar pull is 4,000 pounds and the land is level and has good solid footing:

4,000 divided by 588 equals 6.8.

So we can safely estimate on at least six bottoms.

Each 1 per cent rise in grade—rise of 1 foot in 100 feet—adds 1 per cent of the weight of the tractor and plows to the draft.

Thus using the example shown above of five 14-inch plows plowing to a depth of six inches and assuming the outfit to weigh 19,300 pounds, the drafts on a 5 per cent grade will be as follows:

Sandy soil	$1{,}260 + 965$	$= 2{,}225$
Clay soil	$3{,}360 + 965$	$= 4{,}325$
Clover sod	$2{,}940 + 965$	$= 3{,}865$
Prairie sod	$6{,}300 + 965$	$= 7{,}265$
Gumbo	$8{,}400 + 965$	$= 9{,}365$

A. G. BARNETT.

Weigh and test the milk from each cow and keep a record. It does not pay to milk cows for fun. Credit each cow for the milk she produces, also for the calf and the manure. Charge her for the cost of maintenance. It will take a few minutes each day, but you will be well repaid for the time spent.

Corn ear-worm injury can be materially reduced by thoroughly dusting the silk with arsenate of lead. The cost of the treatment is prohibitive for field corn, but in the case of sweet corn the application of arsenate of lead pays because corn that is free from worms brings from 5 to 10 cents a dozen ears more than that which is wormy, and for home consumption it is a great satisfaction to have corn that has not been half eaten by ear-worms.

FEED THE COLTS

YOUNG colts suffer much from flies and heat during July and August. Colts that are slick and plump during the early part of the season frequently become thin, have staring coats, and become listless and generally out of condition. There is no money in raising colts unless this condition can be avoided. Colts that have run down during the late summer from lack of feed and exposure to flies and heat are likely to be seriously stunted when weaned and put on dry feed in the fall.

The first summer is most important in the life of a colt and especially a draft colt. If it does not make its proper growth during these first months it is not likely to become a heavy horse. The well-bred draft colt should weigh 1,000 pounds at one year of age. It takes feed to make a growth like this and the colt should be fed just as regularly as the work horses.

The most successful horsemen never let colts follow mares in the field. They are kept in yards with darkened box stalls and have alfalfa hay before them practically all the time, and about all the grain they will eat. A mixture of ground corn and oats and bran is a good grain feed for the colt during this first summer. Yards are necessary in order that the colt may have a chance to exercise, and these should have shade in them. The stalls or shed can have pieces of burlap hung over the openings so the colts can brush off the flies as they enter.

Where the mares are worked there is always the possibility of harm to the colts by allowing them to suckle when the mares come in hot from the field. The milk at times seems to be actually poison and instances are on record where colts have died as a result of suckling mares in this condition. The safe plan is to allow the mares to cool before letting the colts to them, and some even make a practice of stripping out a portion of the milk when the mares are very hot.

The most important point in growing colts successfully is to give them plenty of feed. The mother's milk is not enough. Of course, giving the colt these extra attentions requires some time, but proper care may easily make a difference of from $10 to $40 in the colt's value at weaning time.

Scours from Indigestion

R. S. T., Nemaha County, writes that some skim milk calves he is feeding are scouring, and he asks for a remedy.

The most common cause of scours is indigestion, frequently brought about by over-feeding the calves on skim milk or by not being careful to keep pails and all utensils clean.

Half the success of the treatment is in noticing the trouble quickly. When feeding young calves skim milk, watch them closely for the first symptom of digestive trouble. At the first indication, cut down the feed at least one-half and thus give the calf a chance to get rid of the fermenting feed that is causing the trouble. In ordinary cases two or three days of such treatment will get the calf straightened out so the feed can be gradually increased to the usual amount.

If the calf does not yield readily to this treatment, try giving it two or three ounces of castor oil in a little milk. This acts as a physic.

The most important preventive measure consists in keeping the pails and other utensils used for the calf's milk, clean and sterilized by frequent scalding.

The Top of the Pedigree

An animal in its general form and characteristics is a composite of all its ancestors, but those close up have the greatest influence. This fact should be recognized by those who would bring about live stock improvement. Some famous ancestor ten or fifteen generations back has a comparatively small influence as compared with the immediate ancestry.

The following from The Shorthorn in America shows that foolish ideas regarding pedigrees sometimes prevail even among breeders of pure-bred stock:

"We have long been inclined to emphasize the importance of the maternal lineage in the Shorthorn pedigree and the tendency has been to permit this inclination to minimize the value of the top crosses. However valuable this family lineage may be, it can in no wise compare with the importance of the several sires represented immediately back of the individual. This is not a new discovery, but its recognition is imperative if the further improvement of the Shorthorn is to be assured.

"The improvement of the Shorthorn depends very largely upon the potency of the bulls in service and this potency must rely almost wholly upon the immediate top crosses in the pedigree. A most careful selection of sires whose pedigrees give reliable assurance of reproduction of the best individuality is the only certain method by which permanent and continuous improvement may be obtained."

The writer of these paragraphs is holding up for criticism one of the foibles of breeders of Shorthorn cattle. Shorthorn breeders should give serious thought to the points brought out. It is far more important to have high-class animals in the immediate ancestry than to be able to trace an individual to some famous imported cow ten or twelve generations back.

Keeping Records Saved Money

A Missouri farmer co-operating with the agricultural college in keeping farm accounts reports a rather interesting circumstance in connection with his work. He was trying to keep a very accurate record. Before sending his book to the college to be summarized he attempted to see if the cash which he had on hand at the beginning of the year plus his cash receipts during the year, minus cash expenses during the year, equalled his cash balance at the end of the year. He found he was about eight dollars short. He had his bank look the matter up again, but they reported that the balance first given was correct. A few days later in turning through his record book the farmer came upon an amount just equal to his shortage. He took his record book to the bank the next time he went to town and succeeded in finding that an eight-dollar cream check of his had been credited to another man having the same initials and a somewhat similar surname.

Try getting the boys interested in keeping the records. They will watch the returns from their favorite stock or crop and incidentally will learn some practical arithmetic. Find some way to keep a record of your business. It will pay in more ways than one.

Build a silo if you do not have one, and if you have one and can use two in your live stock feeding, build another. The silo is necessary for economical live stock feeding on every farm. No farm building will pay a greater interest on the investment.

An Announcement of Hudson Policy

35,000 More Hudson Super-Sixes

Detroit, Mich., July 1, 1916

We have today to announce—

That more than ten thousand Hudson Super-Sixes have now been delivered to owners.

That we have in four months, by tremendous exertion, quadrupled our daily output.

That we have parts and materials, on hand and in process, for 20,000 more of the present Super-Six. Constantly increasing demand has just forced us to place contracts on materials for an additional 15,000.

Thus it is settled that at least 35,000 more of the Hudson Super-Six will be built like the present model. Our production is now 3,500 monthly.

No Change in Sight

Our opinion is that a like announcement will be made in a year from now. The Super-Six invention in one bound, increased motor efficiency by 80 per cent. From a small light Six, which delivered 42 horsepower, it created a 76-horsepower motor. And simply by ending vibration.

Stock Super-Sixes, in a hundred tests, have out-rivaled all other stock-car performance. In speed, in hill-climbing, in quick acceleration and endurance, they have done what was never done before.

No man can doubt that the Super-Six holds the pinnacle place among motors. And there is no higher place in sight.

After eight months of experience, with 10,000 cars, not one important improvement in design suggests itself to our engineering corps.

So the Super-Six will remain as it is. And, because of our patents, it will maintain its supremacy.

Watch the 10,000

Watch the 10,000 Super-Sixes now running, and judge if you want a car like them.

Each owner feels himself master of the road. He knows that in every sort of performance his car has out-matched all rivals.

He knows that he has the smoothest-running motor ever built. The most powerful of its size.

He knows that in ordinary driving he never taxes half its capacity. That means long life and economy.

He knows that his motor has shown boundless endurance—such as never before was shown. And that he can look forward to many years of its perfect present service.

Watch some of those cars. Talk to the men who own them. Then ask yourself if there is any fine car equal to it.

Now 135 Per Day

Thousands of men in the past few months have been forced to take second choice. Most of them, we think, now regret it, and will always regret that they did not wait.

Those times are over. We are now sending out 135 Super-Sixes per day.

Go ask our local dealer.

HUDSON SUPER SIX

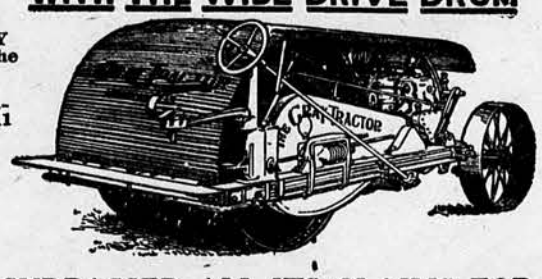
Hudson Motor Car Company

Detroit, Michigan

The GRAY TRACTOR

WITH THE WIDE DRIVE DRUM

The GRAY will be at the Fremont, Nebraska, demonstration Aug. 7-11



SURPASSED ALL ITS CLAIMS FOR EFFICIENCY AT HUTCHINSON

THE GRAY has always sold on a quality basis, not a price basis. At Hutchinson, this week, we proved that any farmer whose work is big enough to use a four or six plow tractor will make a far better investment with a GRAY than with any other machine. Its wider range of work makes it useful the greatest number of days in the year and it is strictly dependable

Model "A"—8,000 lbs.—20-35 H. P.
Model "B"—5,500 lbs.—15-25 H. P.

Sold On Approval—Catalog On Request

GRAY TRACTOR MFG. CO., Power Farming Engineers
1034 Marshall St., Minneapolis, Minn.

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Has been continuously making

WAGONS-BUGGIES-HARNESS

For every farm use since 1852

SEE THE STUDEBAKER DEALER

You Will Find Many Uses for the Speedy Stitcher Awl

—and KANSAS FARMER Will Give You One FREE With One Years' Subscription

The SPEEDY STITCHER AWL is the latest and most effective Automatic Sewing Awl ever offered. How often have you thrown away a tug, a pair of shoes, a grain sack, just because the trouble and expense of taking them to town for repairs was too great. The SPEEDY STITCHER WILL SAVE ITS COST IN REPAIRS MANY TIMES OVER EVERY YEAR.

With this Awl one can mend harness, shoes, tents, awnings and pulley belts, carpets, saddles, suit cases, or any heavy material.

THE SPEEDY STITCHER is provided with a set of diamond-pointed grooved needles, including special needle for tapping shoes. It also contains a large bobbin from which thread feeds, all of which are inclosed inside the handle out of the way. Finished in the best possible manner—highly polished rock maple handle and nickeled metal parts, with nickel-plated needles that will not rust.

HOW TO GET THE AWL FREE

Send us only $1.00 for one year's subscription to Kansas Farmer and 10 cents extra to cover packing and postage—$1.10 in all—and we will send you this useful, dependable Awl, FREE.

KANSAS FARMER, Topeka, Kansas

READ KANSAS FARMER'S CLASSIFIED ADVERTISING PAGE FOR READY BARGAINS

Financing Wheat Farming

THE folly of speculataing in wheat growing is becoming more apparent each year. No one knows the financial condition in a community better than the banker. It is his business to know how money is being used and what income it is bringing. Wheat speculators will often build up a substantial basis for credit when held down to reasonable limits and encouraged to pay attention to other lines of profitable enterprise offered by the Kansas farm. The man with milk cows and a silo, some hogs and brood mares, is a safe risk and when borrowing to put out wheat need not be feared, but the man who wants money for seed wheat and enough to live on while the crop grows cannot be entertained by the careful bankers. We must not lose sight of the distinction between loaning money for productive purposes and loaning it for living expenses.

These statements were made by A. W. Wilson of Ness County at the Kansas State Bankers' Association meeting. The banker and the farmer are mutually dependent upon each other, each having his part in making for the general prosperity.

"It has been asked and I think, fairly," said Mr. Wilson, "should the banker not be willing to risk something to encourage our greatest industry—the growing of wheat? I would answer that he should, but he should use his judgment and know that he is encouraging wheat growing and not speculation in wheat, and further, since he is loaning other people's money, he should confine his risks to the profits account. I advise loaning money to buy seed wheat with a mortgage back on the crop, where the moral risk is good and the applicant has prepared the ground in season and given evidence of being able to make a living while the wheat grows. Also that advances be made for necessary harvest expenses. Such advances can be safeguarded. This, I believe, is as far as we should go when there are no other assets in sight, and it is far enough to let the wheat grower through.

"It is sometimes thought that in wheat counties a great surplus of money will be developed with the moving of the crop, but this does not seem to follow. In our county the moving of a million bushel crop made less than one hundred and fifty thousand dollars increase in bank deposits while 'Bills Receivable' increased fully as much. It is a common experience for the banks to be put to their wits' end to meet demands for loans following a good wheat crop. This is caused to some extent by the holding of wheat for better prices, but quite as much by the tendency of the farmer to spend his money before he can market his crop and before he knows what he has. The result being a bunch of notes that the crop will not quite cover and that have to be carried until another turn can be made."

Mr. Wilson pointed out that the western third of Kansas which stands practically an unbroken prairie, is a challenge and invitation to men and capital to convert it into homes and untold wealth. If the banker is to do his duty by Kansas he must help solve the business end of wheat farming. It is our great cash crop. We need not talk less wheat, because Kansas is going to plant more wheat each year. Safe farming demands that the wheat grower develop other profitable lines, such as can be depended on to keep up the expenses.

Money for Road Building

J. N. Dolley has been doing some figuring on the amount of money in sight for road work in Kansas. He believes the ways and means to build permanent roads in Kansas are at our command, inviting us to apply them to our use. The work can be accomplished without imposing any tax upon the farmer or the property holder, directly.

The proceeds from the automobile tax now amount to practically one-half million dollars a year. This money is not being used for permanency or roads, but is going about the same course that tens of millions of dollars have been used for the past fifty years for road building in Kansas with less than 25 per cent of permanency.

Here is how Mr. Dolley's figures work out:

First year, government appropriations	$ 150,000
Automobile tax	500,000
Seven hundred men from penal institutions and city and county jails at $1.75 per day	375,000
The first year	$1,025,000
Second year, government appropriations	$ 300,000
Automobile tax	500,000
Penal labor	375,000
The second year	$1,175,000
Third year, government appropriations	$ 420,000
Automobile tax	500,000
Penal labor	375,000
The third year	$1,295,000
Fourth year, government appropriations	$ 595,000
Automobile tax	500,000
Penal labor	375,000
The fourth year	$1,470,000
Fifth year, auto licenses	$ 500,000
Penal labor	375,000
Government appropriations	750,000
The fifth year	$1,625,000

These revenues are permanent and dependable and ready for our use and are sufficient to construct permanent rock roads as fast as we can and ought to build them, and in the course of a few years will make Kansas the leading permanent rock road state in the Union. The plans and methods should be along

THE picture here shown is that of a stock judging class at the summer institute of the United States Indian Service, recently held in Lawrence, Kan. More than 500 men and women, all Indian teachers, from fifteen different states, were gathered here. They spent the two weeks in exchanging experiences and in studying how to do better educational work among the Indians in the various parts of the country where they are teaching. This was the best thing of its kind ever attempted by the men in charge of the Indian work.

Those present were addressed by leading educators from our state institutions and from other states. The agricultural college furnished a complete staff of instructors from the Extension Division, who gave lectures and demonstrations on all the different phases of vocational work.

It is difficult to estimate the value of such gathering of Indian school instructors. The Kansas people who assisted should feel highly honored that this state was selected as the place for the first institute of the six that are to be held in the United States this summer.

the lines of first class business and efficiency with the elimination of all politics, or possible graft or inefficiency.

Mr. Dolley suggests the appointment of a highway commission, consisting of the president of the agricultural college, the warden of the penitentiary, and one other business man of successful experience.

With the income shown above, roads to cost $10,000 a mile could be built, which amount will exceed the cost per mile. The first year 100 miles of such roads could be built; the second year, 120 miles; the third year, 130 miles; the fourth year, 147 miles; and the fifth year, 160 miles, or in other words within the next five years, under this plan, 600 or 700 miles of rock road could be constructed.

All that is needed is to provide legislative enactment for it this winter, and then organize the work with brains, brawn and efficiency, and we have the rock road problem adjusted. We can figure along the same lines with greater revenues for the ten, fifteen or twenty years following the first five years, and can look forward to having permanent highways east and west, north and south, and crosswise all over Kansas. Twenty-five years is only a short space of time as the lives and existence of nations and commonwealths go. Kansas has the money in sight. She has the men, and she has the brains. Why not begin now and settle down to organization and results?

Farm Co-operators

Nearly 770,000 persons, largely successful farmers, are now aiding the Federal Department of Agriculture by furnishing information, demonstrating the local usefulness of new methods, testing out theories, experimenting and reporting on conditions in their districts—by helping, in short, in almost every conceivable way to increase the knowledge of the department and to place that knowledge at the service of the people. This army of volunteers receives no pay from the government. Many of these co-operators are actuated solely by a wish to be of service to their neighbors. Others take part in this work because of their own keen interest in testing new methods, or in trying out for themselves crops either new to their own sections or imported from foreign countries through the department's plant explorers.

It is estimated that at least one farm out of every twenty is working in some way with the Department of Agriculture and thus has become a center of advanced agricultural information for its community. In addition to the farmers who work directly with the Department of Agriculture, there are thousands of others who render a similar valuable service to the scientists and field workers of the state agricultural colleges and experiment stations.

With a large number of farmers willing to work with the department and the colleges and test out their recommendations, it is clear tha a significant change has taken place from the day when the average farmer was decidedly skeptical about scientific agriculture and slow or unwilling to give attention to the recommendations of what many used to designate as "book farmers."

The wide use made by the department of this large number of practical farmers indicates clearly how erroneous was the once prevalent idea that agricultural scientists held themselves aloof and that the Department of Agriculure consisted mainly of college-trained men, who were far more at home in their offices or laboratories than on actual farms. As a matter of fact, the scientific agriculturist today does not attempt to evolve theories in the seclusion of a government building. It is true he may develop ideas in his laboratory, but before he is ready to advise farmers to adopt them he tries them out in actual practice on government farms, and then calls on a large number of successful practical farmers to give these ideas an independent practical test on some of their own acres. In many other cases the scientist goes to the farmer both for his history and practice. He studies and analyzes the practice of hundreds or thousands of successful farmers in an endeavor to find the scientific basis or underlying principle of farming methods which have, through long years of practical experience, been found to be most successful for their farms and neighborhoods. Frequently the scientist finds in one community certain farmers who are successful and others who are unsuccessful. He searches for the reason for the success and failure of the two groups, and then endeavors to make clear to the successful ones the scientific reason for their success and to develop sound rules which will enable the unsuccessful to apply to their own farms the methods employed by their prosperous neighbors. In many cases, therefore, the scientist's recommendation represents the consensus of opinion of a large number of successful grain growers, truck raisers, dairymen, or other classes of farm managers.

Of the 770,000 co-operators the great majority are men who farm for a living. A wide variety of other occupations is represented in the list, however, from the masters of merchant vessels who take meteorological observations for the weather bureau to the college presidents who aid in the educational extension work of the department or the pig club boys who supply their neighbors with object lessons in the profitable raising of hogs. In a general way the co-operators may be divided into three classes; those who furnish the department with specific information acquired in the course of their regular occupations; those who demonstrate in actual practice the agricultural methods recommended by the department; and those who volunteer to perform with new crops and new methods the experiments which furnish science with the necessary data for practical recommendations.

Save White Clover Seed

"White clover seed will bring a good price this season, and we believe if the farmers were advised of this right now they could save their seed and make a nice profit. According to the present market, the seed would bring $8 to $10 a bushel. We are in the market for the seed and expect we can buy all that is offered to us."

The above statement was made to J. C. Mohler, secretary of the State Board of Agriculture, by a member of a prominent seed firm.

Anyone who has a field of white clover might do well to consider harvesting a seed crop this year. Most of the white clover seed for sowing in this country generally comes from Europe, and since the war the price has been very high.

The present season has been quite favorable for white clover, and in many fields doubtless an extra good seed crop may be secured. It is ready for harvesting when the bulk of the heads have turned dark brown, even though some of the later heads may still be in full flower. The ordinary field mower is commonly used for cutting the crop, bolting a galvanized platform to the cutter bar to catch the swath. From this platform the clover is gathered into bunches.

The seed crop cures quickly, and may be threshed at once, or stacked and threshed when convenient. The best machine for threshing is the clover huller. An average yield would probably be about four bushels to the acre.

Here is a source of revenue that should not be overlooked.

Manuring Alfalfa

No crop responds more quickly to barnyard manure than does alfalfa. A crop that is capable of producing three, four, and sometimes five cuttings a year, requires plenty of plant food. Perhaps some of the failures to grow alfalfa successfully have been because it was being grown on land low in fertility.

If you are trying to grow alfalfa on thin land, nothing will do more to help it produce big yields than will plenty of barnyard manure. Twelve or fifteen tons to the acre can be spread with profit if this much is available.

If you are planning to start some alfalfa this fall, select some land that has been well fertilized and contains an abundance of plant food. Some soils may need lime also. Alfalfa cannot thrive on sour soils and this point should be settled before trying to start alfalfa where it has not been grown before.

Practically every farm in Eastern Kansas could have its field of alfalfa if care is used in selecting land suitable to it and giving it plenty of barnyard manure. Begin building up some field with manure now, if you do not have any alfalfa.

Listing for Wheat

Listing the ground in preparing a wheat seed bed is quite a popular practice in Northwest Kansas, but I see many make serious mistakes in using this method.

Our most successful and persistent listing advocates list early and work down the ridges with the two-row disk weeder late in the season.

The object of listing is twofold: To store rainfall deep in the subsoil and to destroy volunteer wheat. Both are best accomplished by deferring the leveling of the ridges until about September 1.

Of course weather conditions govern somewhat the time for filling in the furrows. In no case should they be filled until sufficient rain has fallen to put the land in good conditions and insure the germination of the seed when sown.

Right here is where many have failed with listing in dry falls. They level the ground while dry and hard, no rain having fallen during the interval between listing and leveling. The rainfall after the leveling cannot be stored unless it is very heavy. It penetrates the dusty ground only a few inches and is soon lost by evaporation.

Narrow listing is generally the most successful. It permits more thorough work both with lister and weeder. My practice is to use five horses on the lister with two of them in the furrows all the time. In using the weeder I keep the shovels raised on the alternate rows, cutting the center of the ridge out with the shovels the last time through when both sides of the ridge have been thrown down by the disks. By this plan there is no trouble with trash bothering the work of the shovels.—I. N. Farr, Rooks County.

Manure supplies the deficiency in organic matter and also plant food in a soluble form. It improves the physical condition, supplies micro-organisms with food and conditions favorable for their work which has to do with the disintegration and solution of the mineral elements of plant food.

Many of the farmers are taking advantage of the lull between harvesting and threshing to wield the hoe—the only method for getting the weeds that have escaped the cultivator.

Charles C. Evans of Sherman County, Republican candidate for State Treasurer. He served two terms as Treasurer of Sheridan County, was Receiver of the United States Land Office at Colby from 1902 to 1909. A member and director of the Kansas Live Stock Association. Shawnee County has a U. S. Senator, Governor, Insurance Commissioner and two members of the Supreme Court. Why not give the west half of Kansas and the farming and live stock interests one representative on the state ticket? —[Adv.]

When You Are Ready—PLOW!

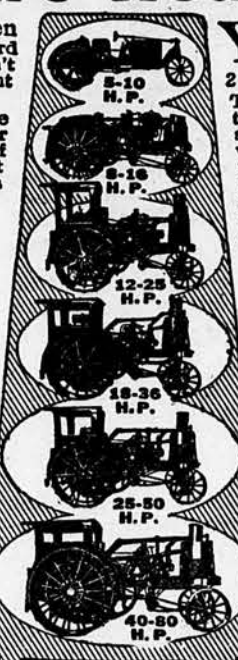
You can do your work on time when you have a Tractor. Hot weather or hard ground can't stop you. Wet weather can't put you back long—you can run your tractor night and day if necessary and catch up soon.

Plowing and preparing the seed bed at just the right time has a lot to do with the size of your crop. Mr. Carl Vrooman, Assistant Secretary of Agriculture, says, "I have seen the time when it would be worth the price of a tractor to get a week's work out of it."

Let an AVERY Tractor Start Making More Money for You

The larger crops you can raise and the expense you can save by farming with an Avery Tractor mean more profits at the end of the year. Getting a tractor will make you more money for buying other things—better farm equipment, better house furnishings, better education for the children, traveling, etc.

A tractor also makes the work more pleasant. It saves hard work and time. Most men and boys like to handle machinery. Few like to curry horses. There's always a fascination about handling mechanical power. When you own a tractor all you have to do at noon and night is to turn a switch and you are through. No unhitching, watering, feeding, unharnessing or bedding. You can get through work earlier in the evening, which means more time for recreation, for reading, going to entertainments, for the family to spend together, etc. *Owning an Avery Tractor means more profits and pleasure for the whole family.* The sooner you get one the sooner all these benefits will be yours.



You can get a size Avery Tractor to exactly fit your size farm. There are six sizes, as shown here, from 5-10 to 40-80 H. P., for pulling from 2 to 10 moldboard plows or from 2 to 20 disc plows.

The five larger size Avery Tractors have exactly the same design. They have special strong, slow-speed tractor motors, with opposed cylinders, valves in the head and renewable inner cylinder walls. They have two-speed double-drive transmissions with special sliding frames, which eliminate the usual intermediate gear, shaft and bearings. No fan, fuel pump, water pump or outside lubricator is used. Equipped with double carburetors for burning kerosene or gasoline.

Avery Tractors have been put to the hardest possible tests—proven successful by thousands of users—entered in every important contest and demonstration ever held—introduced by being sold on approval. Avery Plows are the original patented "Self-Lift." Avery Threshers have made the best proven grain-saving records ever made.

Sold at Low Prices

Avery Tractors are sold at low prices: 5-10 h. p. $365 cash, 8-16 h. p. $795, 12-25 h. p. $1195, 18-36 h. p. $1775, 25-50 h. p. $2190, 40-80 h. p. $2625. All built and backed by an established company owning a large factory and many branch houses, which insure your getting well built machines and prompt and permanent service after you get them.

Write for latest free complete Avery Tractor, Plow and Thresher Catalog and get *all* the facts about Tractor Farming, Threshing, Road Building, etc., with an Avery Outfit.

AVERY COMPANY
1408 Iowa St.,
Peoria, Illinois

AVERY

All six sizes of Avery Tractors will be shown at all eight of the National Tractor Demonstrations. See them there and pick the size to fit your size farm. Stop at the Avery Bull Dog Tent

Win Against the Hessian Fly

To Escape the Main Attack of the Fly—sow your wheat late. The early brood is most destructive to young wheat and provides for future broods. Your own Experiment Station will tell you this.

The Best Wheat Yields come from plants that enter the winter strong and vigorous. Your own experience will tell you this.

To Win Against the Fly, seed late, feed the crop with available fertilizers which will hasten growth to overcome the late start, and secure vigor with consequent resistance to later broods. Use 200 to 400 pounds per acre containing at least 2 percent of ammonia. Acid phosphate alone does not give the necessary quick growth and resistance to the fly.

In Farmers' Bulletin No. 640, U.S. Department of Agriculture, fertilizers are recommended to give vigor to late sown crops and resistance to the Hessian Fly.

Write for our map showing best dates for sowing wheat in your locality; also our Bulletin, "WHEAT PRODUCTION," both mailed free.

Soil Improvement Committee of the National Fertilizer Ass'n.
CHICAGO Dept. 170 BALTIMORE

Only $2 Down
One Year to Pay!
$24 Buys the New Butterfly Jr. No. 2. Lightrunning, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 6 1-2 shown here.
30 Days' Free Trial Earns its own cost and more by what it saves in cream. Postal brings Free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.
ALBAUGH-DOVER CO. (12) 2181 Marshall Blvd. CHICAGO No. 5½

CONCRETE SILOS
DICK HOPPER
MANHATTAN, KANSAS

BINDER attachment and harvester cuts and throws corn in pile on harvester or windrows. Man and horse cuts and shocks equal to a Corn Binder. Sold in every state. Price only $22.00 with fodder binder. Testimonials and catalog FREE showing picture of Harvester.
PROCESS MFG. CO., Dept. 209, SALINA, KANSAS

BEE SUPPLIES Lowest prices
Full line of everything needed. Write for new 1916 catalog.
Clemons Bee Supply Co., 140 Grand Ave., Kansas City, Mo.

Your Time Our Money

If you will give us the former, we will pay you the latter.

We would like to have you look after subscription renewals and new orders for KANSAS FARMER, the oldest farm paper west of the Missouri River, full of farm information. Just a farm paper—no political, religious or race subjects discussed. Will pay you liberally for so doing. Territory arranged to suit. If you are interested, address

Agency Division
Kansas Farmer, Topeka, Kan.

Kansas Farmer Dairy Club

Next Winter's Feed

WHAT will you feed your cow when the pasture season is over? As far as possible, the feeds should be farm-grown. From the economical standpoint you should plan to use all the rough feed the cow will eat. Rough feed for a milk cow must be something she likes or she will not eat enough of it. Stock cattle will eat poor roughage but this will not do for cows giving milk.

There are two kinds of roughage that should be available on nearly every farm in Kansas, that meet these requirements—silage and alfalfa. If you can have all the good silage and choice alfalfa hay your cow will eat, your feeding problem for the winter is just about solved.

If you will follow carefully through a few figures we will show you why these feeds give such good results and why your plans for the winter should include silage and alfalfa. Let us find out first just how much of the different nutrients — protein, carbohydrates, and fat—your cow must have. She will first take what she needs to keep her body running and to repair the waste. This will take for every 100 pounds she weighs, .07 pound digestible protein daily, .7 pound digestible carbohydrates, and .01 pound digestible fat.. If your cow weighs 1,200 pounds she will require for her own body .84 pound digestible protein daily, 8.4 pounds digestible carbohydrates, and .12 pound digestible fat. To make average milk she will need for each pound of that milk, .049 digestible protein, .22 digestible carbohydrates, .019 digestible fat. If she has capacity for producing thirty pounds of milk, the digestible nutrients required will be as follows: Protein 1.47 pounds, carbohydrates 6.63 pounds, fat .57 pound. The total nutrients required for the 1,200-pound cow giving thirty pounds of milk daily, are shown in Table I. These figures are those worked out by Prof. T. L. Haecker of the Minnesota Agricultural College.

TABLE I.
Nutrients for 1,200-Pound Cow Giving Thirty Pounds of Milk Daily.

	Protein, Lbs.	Carbohydrates, Lbs.	Fat, Lbs.
For maintenance ...	.84	8.40	.12
For 30 lbs. milk....	1.47	6.63	.57
Total	2.31	15.03	.69

You must feed your cow such combination of feeds as will supply the digestible nutrients shown in this table. The feeds used must be palatable or the cow will not eat enough to supply the requirements. In Table II is shown a sample ration consisting of farm-grown feeds. You can figure this ration out yourself from the tables that were printed in KANSAS FARMER issues of July 1 and this issue, giving the digestible nutrients in the different kinds of feeds. Note how closely this combination conforms to the requirements as shown in Table I. This ration is made up largely of bulky feeds and supplies just about all a cow of this size can handle. If your cow has the capacity to produce fifty or sixty pounds of milk daily, the extra nutrients cannot be supplied by feeding more silage and alfalfa. These feeds are too bulky for her to eat enough to supply the nutrients required. The extra amount must come from groin and mill feeds. These are concentrated and after the cow has consumed all the roughage she can handle she can still use enough of such feeds to give her the material from which to make milk to her full capacity.

In another article we will tell how to figure out rations for the cows giving larger quantities of milk. The main point of this article is to emphasize the value of silage and alfalfa as a roughage for a milk cow. The ration given in Table II at the prices quoted in the feed schedule, costs only 18¾ cents a day, and these prices allow a profit for growing the feed. The silage is an important part of this ration. Don't think that your cow will eat the same feed in dry form. Dry fodder is poor stuff to feed a milk cow. She will leave more of it than she eats.

TABLE II.
Ration for 1,200-Pound Cow Giving 30 Pounds of Milk Daily.

	Protein, Lbs.	Carbohydrates, Lbs.	Fat, Lbs.
Silage, 50 lbs.	.55	7.50	.35
Alfalfa hay, 15 lbs..	1.59	5.85	.135
Corn and cob meal, 4 lbs.	.24	2.55	.158
Total.	2,38	15.90	.643
Required	2.31	15.03	.69

How Much Milk for Calf?

Clarence Adams of Labette Count, one of the club members, writes that he is feeding his calf ten to twelve pounds of milk a day, and wants to know if this is enough. The calf is in good condition and growing fast.

The fact that the calf is doing so well is an indication that it is well nourished. This amount of milk is enough for a calf two or three weeks old. Of course, as it grows older the amount should be increased. A calf four or five months old can be fed as much as sixteen to twenty pounds a day. The rule suggested by Prof. O. E. Reed of the Kansas Agricultural College, is to feed ten pounds a day to a calf weighing 100 pounds. For the second hundred pounds of weight, add five pounds of milk daily, and for the third hundred pounds add two and one-half pounds more. Of course, calves cannot be successfully grown on skim milk alone. They must be fed grain and given hay and all the water they want.

Value of Rough Feed

We want our dairy club members to study the feeding value of the different kinds of feed. Unless you know just how much of the nutrients—protein, carbohydrates, and fat—the feeds contain, you cannot figure closely on the ration. We have already given you the digestible nutrients contained in the more common grain feeds—the ones given on the feed price slip. This information you will find on page 9 of KANSAS FARMER of July 1. This article is important and you should study it carefully.

We are here giving the pounds of digestible nutrients contained in 100 pounds of some of the commoner rough feeds:

DIGESTIBLE NUTRIENTS IN 100 POUNDS

	Protein Lbs.	Carbohydrates Lbs.	Fat Lbs.
Alfalfa hay	10.6	39	.9
Clover hay	7.6	39.3	1.8
Cane hay	2.8	44.8	2
Prairie hay	4	41.4	1.1
Corn silage	1.1	15	.7
Green corn fodder....	1	12.8	.4
Green alfalfa	3.3	10.4	.4

Cow Meets With Bad Accident

No doubt you think me negligent for not writing sooner, but my cow met with an awful accident nearly two weeks ago and have been waiting to see how she was going to get on, so now I see she cannot enter contest at all. The veterinarian says she may some time get over the cut, but not soon, if ever. So I am writing you this explanation. I felt it was due you. Am so sorry that after all I cannot now enter the contest.

My cow was a $120 Holstein, four-year-old. She was fresh June 29, and cut herself two days after on wire fence.

Thanking you for your interest and kindness, I am,—HODGIN MARSH, Johnson County.

Let Cows Graze Nights

No matter how good the pasture may be, cows will not graze enough in hot weather to keep up the flow of milk. It takes from 100 to 125 pounds of grass to supply the nutrients for three gallons of milk daily. Cows will not exert themselves to gather this much grass during such hot weather as we frequently have.

To get a large flow for the year, it is necessary to make a special effort to keep them from falling off at any time from any cause. In addition to furnishing plenty of supplemental feed of a palatable nature, it is a good plan to arrange for night grazing. Cows will graze in the cool of the evening and early in the morning if given a chance. Of course, the pastures are frequently too far from the barn where the milking is done, but a small pasture near the barn might be saved for night grazing. If such pasture is available, it would be better to use it for the cows and take other stock to pastures farther away.

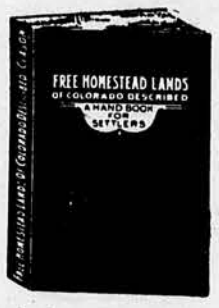
DON'T FAIL TO STUDY CAREFULLY THE ARTICLE ON THIS PAGE ABOUT FEEDING YOUR COW NEXT WINTER.

While the Mexicans are causing our southern states considerable worry, nevertheless Roswell, New Mexico, expects to ship out 2,500,000 pounds of wool this year.

HOTEL KUPPER
KANSAS CITY, U. S. A.

Located in the center of the shopping district, convenient to car lines, stores, and all points of interest.
The hotel of quality, comfort and refinement.
European Plan, $1.00 to $2.50 per Day.
Cafe in Connection.
ROBINSON-MARS HOTEL CO., PROPS.
Eleventh and McGee Streets

FREE GOVERNMENT LAND



Endorsed by Professor Cottrell, Agricultural Expert of the Rock Island System.

Professor Cottrell says: "A conservative publication of unquestionable value to all seeking the free homestead lands. I am especially pleased with the careful appraisement of the cash value of these raw lands. A copy occupies a prominent place in the library which accompanies me on my travels over the Rock Island System."

Every citizen has a homestead right and is entitled to file on 160 or 320 acres. Thousands and thousands of acres of the most valuable lands in Kansas were secured in this way a few years ago. At this time eighteen million acres are still vacant in the state of Colorado. Why not use your privilege as an American citizen and secure a valuable tract of land free in Colorado?

THIS BOOK DESCRIBES THE LANDS.

A new book, **"Free Homestead Lands of Colorado Described,"** has just been published, and KANSAS FARMER has made arrangements to distribute copies of this book in connection with yearly subscriptions to KANSAS FARMER, new or renewal.

The character of this land varies in different localities. Considerable of it is especially good, other portions only of fair quality, and some is poor, broken, and of little value. It is most important for a settler to locate in the right district and at the least possible expense. With this end in view, this book has been published, classifying the lands open for entry and giving accurate detailed **description and location** of the land in every township containing vacant land in Colorado, describing the surface, soil, timber, distance from railroad, etc.

This is the same book for which many have been glad to pay $2. However, for a limited time we will send a copy of this book and a year's subscription to KANSAS FARMER to anyone sending only $1, our regular subscription price, and 10 cents extra for mailing—$1.10 in all. The book is complete—320 pages, same as the higher-priced book, only this is in a strong paper binding instead of cloth. Send all orders to

KANSAS FARMER, Topeka, Kan.

A Modern Topeka Home

TO SELL AT A BARGAIN

Inside location, on a good street, near school. Seven-room house, all modern conveniences. Good barn. This proposition will interest anyone wanting a choice location and a good home. Priced to sell. No trades. Address

BOX 5, Care KANSAS FARMER

Why Not More Dairying?

IN Eastern Doniphan County, Kansas, according to a local paper, a good part of the milk consumed in small towns comes from dairies across the river in Missouri. In a county capable of growing alfalfa and as fine bluegrass as is found in Kentucky, this seems incredible. Surely there are some splendid opportunities for building up a profitable dairy business in this county, and there are many others where similar conditions exist.

The market is right at home for much of the product. In this particular county the conditions are ideal for dairying. In fact, the same might be said of the whole northeast corner of the state. Pure-bred herds could be established there and the sale of surplus breeding stock be made to return good profits. The whole Southwest is eager for dairy cattle, so there would be no difficulty in disposing of dairy-bred animals.

Kansas might just as well be growing the stock to meet this demand as to let buyers go to older dairy states to the north and east.

Dairying is one of the abiding industries and no one need hold back for fear the bottom will drop out of it some time in the near future.

Dickinson County Cow Report

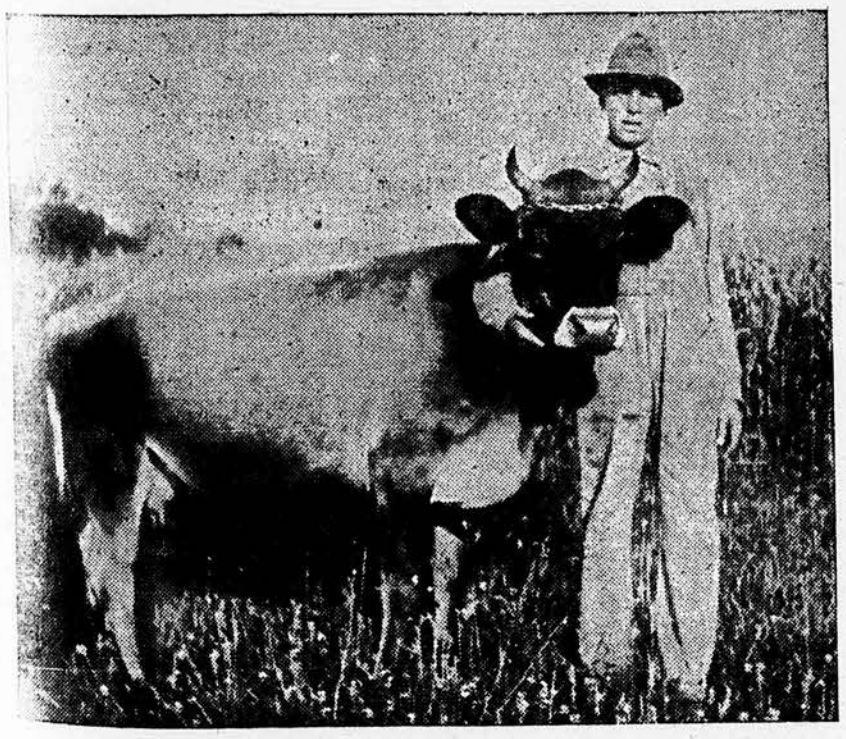
Records of cows in the Dickinson County Cow Testing Association which produced more than forty pounds of butter during the month ending May 30, 1916. "H" stands for Holstein; "S. H." for Shorthorn; "J" for Jersey; "Her." for Hereford; "R. P." for Red Polled.

Owner—	Pounds Milk	Per Cent of Fat	Pounds Butter 80% Fat
George Lenhert, H.	981	3.5	42.9
George Lenhert, H.	1,170	3.0	43.9
George Lenhert, H.	1,098	3.0	41.2
George Lenhert, H.	1,092	3.1	42.3
George Lenhert, H.	1,254	3.8	59.5
George Lenhert, H.	1,314	3.34	54.9
George Lenhert, H.	1,761	2.93	6.45
George Lenhert, H.	1,305	3.14	51.2
J. A. Weishar, H.	1,077	3.4	45.8
J. A. Weishar, H.	1,116	3.6	50.3
J. A. Weishar, H.	1,245	3.2	49.8
J. A. Weishar, H.	1,317	2.51	41.3
J. A. Weishar, H.	999	3.86	48.1
J. A. Weishar, H.	1,047	3.42	44.5
J. A. Weishar, H.	1,023	3.23	41.3
L. T. Hoffman, H.	1,065	3.1	41.3
L. T. Hoffman, H.	1,005	3.4	42.8
William Hause, H.	1,092	3.6	49.1
William Hause, S.H.	840	4.1	43.0
William Hause, S.H.	942	4.0	47.1
William Hause, J.	840	4.6	48.3
William Hause, S.H.	972	4.3	52.3
William Hause, S.H.	1,005	3.8	47.8
William Hause, S.H.	903	4.1	46.3
William Hause, S.H.	1,152	3.5	50.4
William Hause, H.	858	4.2	45.0
William Hause, S.H.	960	4.3	51.6
William Hause, S.H.	900	3.9	46.9
Dr. E. N. Farnham, H.	1,020	4.4	56.1
Dr. E. N. Farnham, H.	909	4.9	55.6
Dr. E. N. Farnham, H.	1,050	3.8	49.9
Mott & Seaborn, H.	1,344	3.7	62.1
Mott & Seaborn, H.	1,020	3.2	40.8
Mott & Seaborn, H.	876	4.8	52.5
Mott & Seaborn, H.	918	3.5	40.1
Mott & Seaborn, H.	1,167	3.0	43.8
Samuel Mitch, Her.	984	4.1	50.4
A. H. Diehl, S.H.	822	4.8	49.3
A. H. Diehl, S.H.	942	4.1	48.3
A. H. Diehl, H.	1,302	3.6	58.5
A. H. Diehl, S.H.	762	4.3	41.0
A. B. Wilcox, H.	1,458	3.7	67.4
A. B. Wilcox, H.	1,161	3.3	47.9
A. B. Wilcox, H.	1,107	3.6	49.8
A. B. Wilcox, H.	732	4.8	43.9
A. B. Wilcox, H.	1,542	3.0	57.8
A. B. Wilcox, H.	1,311	3.1	50.8
A. B. Wilcox, H.	1,071	3.0	40.1
Joe Pryor, H.	1,107	3.8	52.6
John Collins, R.P.	810	4.2	42.5
John Collins, H.	1,272	3.1	49.3
E. S. Engle & Son, H.	1,413	3.7	65.0
E. S. Engle & Son, H.	1,629	3.8	77.4
E. S. Engle & Son, H.	813	4.0	40.6
E. S. Engle & Son, H.	789	4.2	41.4
E. S. Engle & Son, H.	981	3.6	44.1
E. S. Engle & Son, H.	804	4.6	46.2
E. S. Engle & Son, H.	909	4.0	45.5
E. S. Engle & Son, H.	999	3.3	41.3
E. S. Engle & Son, H.	864	3.7	40.0
E. S. Engle & Son, H.	1,074	3.6	48.4
E. S. Engle & Son, H.	951	4.1	48.5
E. S. Engle & Son, H.	804	4.4	44.3
E. S. Engle & Son, H.	996	3.5	43.6
E. S. Engle & Son, H.	1,743	2.7	58.8
Ralph Sterling, J.	768	4.8	46.1
Ralph Sterling, J.	789	4.8	47.4
Ralph Sterling, J.	720	5.2	46.8
D. S. Engle & Son, H.	960	3.5	42.0
D. S. Engle & Son, H.	1,683	3.2	67.3
D. S. Engle & Son, H.	1,059	3.7	48.9
D. S. Engle & Son, H.	621	5.4	41.9
D. S. Engle & Son, H.	1,175	3.2	47.0
D. S. Engle & Son, H.	962	3.6	43.3
D. S. Engle & Son, H.	1,530	3.3	63.1
D. S. Engle & Son, H.	1,194	3.1	46.3
H. S. Engle, H.	1,215	4.2	63.8
H. S. Engle, H.	1,110	4.0	55.5
H. S. Engle, H.	1,116	3.0	41.9
L. L. Engle, S.H.	957	3.6	43.0
L. L. Engle, S.H.	843	4.2	44.3
L. L. Engle, S.H.	1,287	3.4	54.8
L. L. Engle, S.H.	1,059	3.6	47.6
L. L. Engle, S.H.	780	4.2	41.0
L. L. Engle, S.H.	768	4.4	42.3

Do not forget that the calf you are feeding skim milk needs water to drink. Some think that calves getting skim milk do not need water, but this is a mistake. The calf will appreciate a cool drink on a hot day, as much as you do yourself, and needs it as much as do you.

By building a silo now you may readily save one-half of the building cost this season provided corn does not mature fully. Ordinarily dairymen and cattle feeders figure a gain of 20 to 25 per cent from feeding silage as compared with dry roughage.

Another Leavenworth County Member Writes



I AM enclosing a picture of my cow and me—anyway I hope she will be mine. It was taken June 28—two days before I started in the contest. The cow is doing fine and I am going to buy three little pigs and feed them the surplus milk.

Tell the other members that information on feeding can be secured from the agricultural department at Washington, D. C., by sending for Bulletin No. 22—"The Feeding of Farm Animals."—PAUL STUDDARD, Leavenworth County.

"DOG DAYS"
the best time
to buy a
DE LAVAL
SEPARATOR

THERE WAS NEVER BEFORE as good a time to buy a De Laval Cream Separator as right now.

THE "DOG DAYS" ARE AT hand when dairying is most difficult without a separator and when the increase in quantity and improvement in quality of cream and butter are greatest through the use of a good separator.

THEN THERE IS THE GREAT saving of time and labor, which counts for more in summer than at any other season and often alone saves the cost of the separator, aside from all its other advantages.

THIS IS LIKEWISE THE SEASON when De Laval superiority counts for most over other separators — in closer skimming, larger capacity, easier running, easier handling, easier cleaning and absolute sanitariness.

A DE LAVAL CREAM SEPARATOR bought now will easily save its cost before the end of the year, and it may be bought for cash or on such liberal terms as to actually pay for itself.

Look up the nearest De Laval agent AT ONCE, or drop us a line and we will have him look you up.

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50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

Bumper Grain Crops
Good Markets—High Prices

Prizes Awarded to Western Canada for Wheat, Oats, Barley, Alfalfa and Grasses

The winnings of Western Canada at the Soil Products Exposition at Denver were easily made. The list comprised Wheat, Oats, Barley and Grasses, the most important being the prizes for Wheat and Oats and sweep stake on Alfalfa. No less important than the splendid quality of Western Canada's wheat and other grains, is the excellence of the cattle fed and fattened on the grasses of that country. A recent shipment of cattle to Chicago topped the market in that city for quality and price.

Western Canada produced in 1915 one-third as much wheat as all of the United States, or over 300,000,000 bushels. Canada in proportion to population has a greater exportable surplus of wheat this year than any country in the world, and at present prices you can figure out the revenue for the producer.

In Western Canada you will find good markets, splendid schools, exceptional social conditions, perfect climate, and other great attractions. There is no war tax on land and no conscription.

Send for illustrated pamphlet and ask for reduced railway rates, information as to best locations, etc. Address

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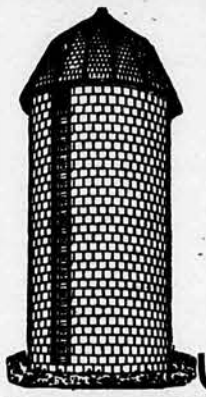
Canadian Government Agent.

NO PASSPORTS ARE NECESSARY TO ENTER CANADA.



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Last Forever Test of years has proven the strongly re-inforced Tile Silo to be the most permanent, efficient and economical Silo in use. Cheapest to Install. Freedom from Trouble. No repairing or upkeep. No painting. No blowing in or blowing down. No cracking. No rusting or rotting. No freezing.

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Fill out coupon and mail to us. You will get the information by return mail. Get started on your silo NOW. Prices: 12x30, $169; 14x30, $211; 16x35, $224; 18x35, $242; 20x40, $313.

National Tile Silo Company 511 R. A. LONG BLDG. KANSAS CITY, MO.

I expect to build a silo about.....tons capacity.....feet in diameter by.....feet in height, about the month of..... Please send me information and prices.

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TILE SILOS BETTER AND CHEAPER

Blocks curved and vitrified. Fire and Frost Proof. Tire steel hoops imbedded. Easy to build.

12x30, 75 Tons $148.00
14x30, 100 Tons 169.00
16x35, 149 Tons 226.00

Other sizes proportionately low. Fully Warranted. Why Pay More?

CLIMAX ENSILAGE CUTTERS Ask for our FREE trial offer.

HOOSIER EXTENSION SILO ROOFS Eliminates Settling Nuisance

This saving makes your roof FREE. Agents wanted. Write today.

AMERICAN SILO SUPPLY CO., 210 Traders Bldg., Kansas City, Mo.

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INFANTILE PARALYSIS

Reliable Information Concerning Much—Dreaded Disease—By Merrill K. Lindsay, M. D.

INFANTILE paralysis is an infectious disease which attacks parts of the spinal cord, sometimes the base of the brain and occasionally the brain itself. The symptoms depend on the part of the nervous system which is attacked. The usual form is the spinal type and results in paralysis of the legs and arms.

HISTORY OF THE DISEASE

Infantile paralysis has been studied since 1840, at which time it was known as infantile spinal paralysis. From that time until 1890 little progress was made by investigators; then from Sweden came a description of the different forms which had been observed in an epidemic. In 1905 and 1906 the transmission of the disease from one case to another became better understood by the discovery of very mild cases, which previously had not been diagnosed as infantile paralysis but which were capable of carrying the disease to other children.

In 1908 and 1909 several investigators were successful in infecting animals with the disease and also succeeded in infecting one animal from another. This created a great interest in the cause of the disease and shortly afterward it was demonstrated that the juices obtained from the nervous system of an infected animal would, even after being passed through a porcelain filter, infect another animal. This is similar to hydrophobia, which is also infectious after being filtered.

The germ is not killed by either freezing or drying, but is killed by being heated for half an hour at the temperature used for pasteurizing milk (55 degrees Centigrade). The germ has been grown in an incubator in vessels from which the air is excluded and is the smallest organism ever discovered, being roundish in shape and less than one ten-thousandth of an inch in diameter. It has been transferred from one animal to another by the bite of the stable fly and the germ has been found in the mouth and throat of parents of an infected child.

IS ANY ONE IMMUNE TO THE DISEASE?

One attack of the disease gives a high degree of immunity. Animals which have once been infected cannot be reinfected and second attacks have not been reported in children. The blood serum of a person who has had the disease will render harmless fatal amounts of the infection. This leads us to hope that before long we will have a vaccine to prevent this disease. The danger of causing the disease by vaccines prepared in the usual way must be overcome first.

IS THE DISEASE CONTAGIOUS?

Infantile paralysis always comes from a pre-existing human case. It has not been demonstrated that it is transmitted by milk or water or any other food. Since it is not killed by drying, it may be carried by inanimate objects or on the person of any one coming in contact with the disease. Dust and the secretions from the nose and mouth seem to be the chief factors in the spread of the contagion. Monkeys have been experimentally infected from both sources. It has already been said that flies transmit the disease.

It has been argued that the disease is not contagious because frequently only one child in a household is attacked. This may be explained partly by the fact that many cases are so slight in character that they are not diagnosed, and, also, that the resistance of the average healthy child is sufficient to prevent infection, leaving only certain children susceptible.

IS THERE ANY WAY TO PREVENT IT?

If the disease is carried by those who do not have it, or by those not known to have it, it becomes a very difficult measure to prevent exposure. During an epidemic or in the presence of isolated cases of infantile paralysis, children should be kept from contact with those who are associated with the disease as well as those who have it. Public gatherings and public places and also children's parties should be avoided. Children exposed to the disease should not be permitted to go to school. No child should use another's towel or handkerchief or public drinking cup. Quarantine and the compulsory disinfection of clothes are not practical for the reasons given.

SYMPTOMS OF THE DISEASE

The usual time between exposure and the appearance of the disease is from five to ten days. Exceptionally it may be shorter—less than three days—or longer—fifteen days. The first symptoms are not different from many children's disorders. Fever, a slight cold or sore throat, listlessness, diarrhea and vomiting; rarely convulsions, rigidity or general eruption. In from one day to one week paralysis develops. In the spinal form the extremities are paralyzed. In about three-fourths of the cases the lower extremities are involved. It is characteristic of this disease that the paralysis assumes its full development when first seen and except in rare and fatal cases, is not progressive.

Within the first few weeks there is considerable recovery from the paralysis and the real extent of the disease is determined. As time goes on the paralyzed muscles shrink and those muscles not paralyzed contract, causing club foot, flat foot and other deformities. It is thought that from one-third to one-half of the cases do not develop paralysis and can only be diagnosed by laboratory methods.

For the next two years a gradual repair process goes on. In perhaps one-half the cases under eleven years of age there is complete recovery; in older children and adults the disease assumes its most serious forms.

A Definition of Good Bread

Bread should have a nutty and sweet odor. There should be no sour taste or smell.

Bread should be of fine, even texture, with no large holes in it. When pressed with the finger it should dent easily, but the dent should spring back to the level surface. If the dent stays in the bread, it is not sufficiently baked. If the bread is so hard you cannot press it easily, too much flour has been used in mixing.

The crust should be uniform in thickness on all sides of the loaf. It should be rather thin and should not be hard.

The bread should be baked in such pans that it will rise easily and be of uniform height in all parts.

These are the points kept in mind by home economics workers of the college of agriculture in scoring breads at county fairs and other contests.—Extension Circular, University of Nebraska College of Agriculture.

SOME IDAHO KANSAS FARMER BOYS AND GIRLS CANOEING ON AN IRRIGATION CANAL.—THE CANOE WAS BUILT BY THE 14-YEAR-OLD BOY WHO IS GIVING HIS SISTERS THE OUTING

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White Plymouth Rocks

Hard to beat as all-purpose fowls. Excellent layers, with yellow legs and yellow skin. Eggs, $2 per 15, $5 per 45, express or postage prepaid. Have bred them exclusively for twenty-four years.
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POLITICAL ADVERTISEMENT.

GEO. C. PRITCHARD, CANDIDATE FOR County Commissioner, Third District, Shawnee County, subject to the Republican Primaries August 1. Your support respectfully solicited.

Real Estate For Sale

MR. FARMER:

You have been thinking about a bluegrass and big red clover farm. We have it for sale. Write for special description of any size farm which would interest you. Special price on 320 acres 1½ miles of good town. Exceptional bargain in 160 acres 4½ miles of town. The land to buy for the big increase is land which can be builded up by changing the same to clover. Write today for special list of what you want.
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Do you want to move to Topeka to educate your children? If you do, this modern five-room home near Washburn College will just suit you. New, only occupied ten months. A choice location. Must sell quick. $3,200 takes it. Address
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800 Acres adjoining town; two sets of buildings; every acre lays perfect; 250 acres of finest growing wheat, all goes with sale if sold before cutting, which will be about July 4th. Price, $27.50 per acre. Will carry $10,000 at 6%. No trades. Other bargains.
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1,280 Acres, two streams, two sets improvements; 175 acres under irrigation, fenced and cross-fenced, outside range. $10.00 per acre. No trade considered. This is a bargain.
C. A. WILLIS, DOUGLASS, WYOMING

160 ACRES, Two Miles Osage City, Kansas. Eighty acres corn; 30 acres hog pasture, balance pasture and meadow. Eight-room house, good cellar and cistern; large barn, dairy barn, wind mill. One hundred growing trees. Price, $65 per acre. Easy terms. Will consider trade for smaller farm.
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KANSAS FARMER
Topeka, Kan.

Little Talks to Housekeepers

Helpful Hints Here for the Women Folks of the Farm

A man has no more religion than he acts out in his life.—HENRY WARD BEECHER.

Training Is Law of Discipline

"The important thing for parents to understand from the first is what discipline and punishments are for. Often a child is punished merely because he has been disobedient, or angry, or violent, without the larger view that he is punished to teach him that he has done wrong, and to help him to avoid doing so again. Training, not mere punishment, is the great law of discipline. After one has reached maturity and does wrong, he must then suffer retribution; but while a child is growing up all discipline must exist merely in order to teach the child the right way.

"Spencer, in his book on education, tells us that the right way to train a child is to let him suffer the natural consequences of his wrongdoing. That is, if he puts his finger in the fire he will be burned; if he tears his clothes, he must mend them or go ragged; if he quarrels with other children, he will soon be left to play alone. But unfortunately, this theory, while effective in its way, ignores the fact that we must take into account the moral law."—Woman's Home Companion.

Refreshing Drinks

The hot, tired farmer in the field will enjoy a refreshing drink made for him and carried to him by the children. Cool, fresh water is hard to beat, but the addition of a fruit flavor will be very acceptable and will quench the thirst quite as well. We remember one of the delights of our childhood was the summer afternoon drink made from grape jam and cold spring water. The jam was dissolved in a little water and this was strained before the bulk of the water was added. This was very refreshing. Lemonade is always good, as are iced tea and coffee for those who like these drinks.

It matters little whether it be lemonade or iced tea—Father will enjoy the surprise, and the little folks will be learning a lesson of helpfulness to others.

FASHION DEPARTMENT — ALL PATTERNS TEN CENTS

This department is prepared especially in New York City, for Kansas Farmer. We can supply our readers with high-grade, perfect-fitting, seam-allowing patterns at 10 cents each, postage prepaid. Full directions for making, as well as the amount of material required, accompanies each pattern. When ordering, all you have to do is to write your name and address plainly, give the correct number and size of each pattern you want, and enclose 10 cents for each number. We agree to fill all orders promptly and guarantee safe delivery. Special offer: To anyone ordering a pattern we will send the latest issue of our fashion book, "Every Woman Her Own Dressmaker," for only 2 cents; send 12 cents for pattern and book. Price of book if ordered without pattern, 5 cents. Address all orders for patterns or books to Kansas Farmer, Topeka, Kansas.

No. 7110—Boys' Russian Suit: Cut in sizes 2, 4 and 6 years. This simple little suit has a plain coat blouse, closing in front, with the neck open and trimmed with a wide sailor collar. There is an inner shield with standing collar which may be made detachable. The trousers are opened at the sides and may have a straight lower edge or bloomer finish. **No. 7832—Ladies' Shirt-Waist:** Cut in sizes 36 to 44 inches bust measure. An irresistible model in plain and striped silk, or your choice of fabrics and colors, or in solid white. The shoulder fronts are gathered and in the back at the waistline, the fullness is gathered under a stay belt. Sleeves are gathered to deep cuffs with a "roll-back" half way, and frill finished in harmony with the collar. **No. 7831—Children's Dress:** Cut in sizes 4, 6, 8 and 10 years. Can you think of anything more fascinatingly odd than this dress design? Any girl will want such a treat, and the mother will find the making a pleasurable task. The model is made to slip on over the head, has a separate guimpe with closing at the front and long or short sleeves. **No. 7269—Ladies' Dress.** Cut in sizes 34 to 46 inches bust measure. This plain style may be developed in taffetas, linen, serge, gabardine and the like. There is a small collar and long revers at the neck and closing and the lower portion of the front overlaps the belt of contrasting material. The skirt is cut in three gores. **No. 7826—Ladies' Skirt:** Cut in sizes 24 to 32 inches waist measure. Fascinating in the awning stripes, of which we hear so much, this skirt is made on a raised waistline and is in three gores. The outside separate belt is amazingly attractive, and the pocket in each front fore is deserving of all the enthusiasm one can show in the direction of pockets. **No. 7836—Misses' and Girls' Apron and Cap:** Cut in sizes 12, 14 and 16 years. When taking mother's place, show your idea of a neat and practical outfit by wearing this one-piece apron. It is nice enough for chambray and linen, but figured percale and solid color trimming, or gingham may be used to develop the model. An elastic at the waistline adjusts it to the figure.

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Harper County, Kansas, containing 160 acres; sandy loam with clay mixture; 90 acres in wheat, 20 acres ready for spring crops, 50 acres pasture. All fenced and cross-fenced. Running water, two wells. Four-room house, cave, etc. Stable for eight horses, cattle shels and other outbuildings. Cash price, $30 an acre.

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480 Acres, Harper County, Kansas. 160 acres broke, 100 acres in wheat, 60 acres ready for spring crop, all good hard wheat land. $25 an acre, cash.

FARM NO. 3.

160 Acres, 110 acres broke, 60 acres in wheat, 50 acres ready for spring crop; 50 acres mow land on creek bottom; all fenced, meadow cross-fenced; running water, well, granary and stock sheds; good hard wheat lands. $25 per acre, cash.

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74 Acres in Sedgwick County, Kansas. All broke, all fine alfalfa land; 6 acres in alfalfa, balance in wheat, was alfalfa; fenced; good house, well, barn for four horses, and usual outbuildings. Near station; 10 miles from Wichita. $100 an acre. Balance of quarter in alfalfa and can be had for $115 an acre.

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SHETLAND PONIES, GELDINGS, MARES and colts, all colors. C. H. Clark, Lecompton, Kan.

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SITUATION WANTED.

WANTED—POSITION AS FARM HAND; married, two small children. References. Commence August 15, 1916. Ethan Beam, Argonia, Kan.

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BIG-TYPE POLAND CHINAS. U. A. Gore, Seward, Kan.

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Have fifteen large, heavy boned, black, registered jacks, 15 to 16 hands high, good heads and ears, good style, good breeders. I have a number of jacks sired by the champion, Pride of Missouri, also several other good herd prospects. In my 1914 sale I sold the champion of Kansas State Fair, 1915, Eastern Lightning, also Demonstrator, first prize aged jack Missouri State Fair. Reference, People's Bank. Written guarantee with each animal. Have a number of Percheron stallions for sale, also saddle stallions. Barn in town. Wabash Railroad. WM. DEIERLING, QUEEN CITY, MISSOURI.

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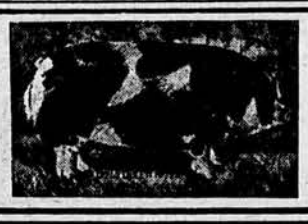

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Sycamore Springs Shorthorns
Master of Dale by the great Avondale heads herd. A few young Scotch bulls and bred heifers for sale.
H. M. HILL - LAFONTAINE, KANSAS

RIVERSIDE SHORTHORNS
Headed by Prince Valentine 4th 342179. Families represented, Orange Blossoms, Butterflies, Queen of Beauty and Violets.
H. H. HOLMES, Route 1, Great Bend, Kan.

LOWEMONT SHORTHORNS.
Brawith Heir 351808 heads herd. Inspection invited. E. E. Heacock & Son, Hartford, Kan.

OHIO IMPROVED CHESTERS

CHESTER WHITE PIGS. Write for breeding and prices.
E. E. Smiley, Perth, Kansas.

OAK GROVE FARM
Offers O. I. C. PIGS at Bargain Prices.
BURD ODELL, R. F. D. 1, Marionville, Mo.

GOOKIN'S O. I. C's.
For Sale—White King 36445 by Chief of All and out of Minnehaha. Spring pigs, pairs and trios, no kin.
F. C. GOOKIN, Route 1, RUSSELL, KANSAS

RED POLLED CATTLE.

RED POLLED BULLS
TWENTY yearling bulls, big rugged fellows, sired by ton sires; all registered and priced reasonably. Will sell a few females.
E. E. FRIZELL, Frizell, Pawnee Co., Kansas

RED POLLED CATTLE
FOR SALE—1915 bull calves by Rose's Grand Champion 17998, a 2,400-pound bull; also a few good cows and heifers.
AULD BROTHERS, FRANKFORT, KAN.

DUROC JERSEYS.

PATTERSON'S DUROCS
For Sale—Ten head of young Duroc Jersey cows, bred to one of the best boars in the state for fall farrow; also spring pigs, both sexes. Price reasonable.
ARTHUR A. PATTERSON, Ellsworth, Kan.

DUROC BRED GILTS
Twenty-five head of gilts, bred for September and October litters, priced at $25 to $30. Five tops at $35. Will send these five on approval. Spring pigs for sale, both sexes.
J. E. WELLER - FAUCETT, MISSOURI

BOARS! BOARS! BRED GILTS!
Eighteen big husky boars, thirty bred gilts, a few tried sows. Crimson Wonder, Illustrator II, Colonel, Good Enuff, Defender breeding. Either by or bred to sons of the greatest champions of the breed. Priced for quick sale. Immune.
O. M. SHEPHERD - LYONS, KANSAS

BABY DUROCS—Choice April pigs from premium stock, $10 each. JACKSON & COUNTER, 43 Crawford Bldg., Topeka, Kan.

SHROPSHIRE SHEEP

REGISTERED SHROPSHIRE RAMS
Yearlings and twos, square built, rugged, hardy bucks with weight, bone and heavy fleece. Quick shipping facilities and priced cheap. 412 head. Above Kansas City.
HOWARD CHANDLER, Chariton, Iowa

BERKSHIRE HOGS.

BERKSHIRE BRED SOWS
Seventy choice bred Berkshire sows, to farrow every week from March 1 until June. Bred to as good boars as the breed has. Cholera immune.
E. D. KING - BURLINGTON, KANSAS

COTTONWOOD GROVE BERKSHIRES
Spring pigs sired by Charming Duke C. You should have one or two of these excellent well bred pigs, past 4 months old, registered, at $15. They will improve your herd. One 2-year-old herd boar at $50. If interested, write
WATERMAN & BROWN, LAKIN, KANSAS

GUERNSEY CATTLE.

THE GUERNSEY is popular among the dairy-men who appreciate that Economical production, richness and fine flavor of products lead to larger profits.
Try Guernseys and be satisfied.
Guernsey Cattle Club,
Box K Peterboro, N.H.

HEREFORD CATTLE.

Herefords and Percherons
Two choice Hereford bulls, 2 and 3 years old, well marked, both will make ton bulls. The 3-year-old weighs 1,950. Also some choice yearling Percheron stud colts.
M. E. GIDEON - EMMETT, KANSAS

SOUTHARD'S MONARCH HEREFORDS
For Sale—Choice cows and heifers bred to Monarch No. 449994 and Repeater 66th. A few extra good herd bull prospects. Annual sale October 7, 1916. Send for catalog.
J. O. SOUTHARD - COMISKEY, KAN.

MULEFOOT HOGS.

Bargains in Bred Sows, Fall Boars and Pigs at weaning time. Pair no akin. History free.
Sinn's Mulefoot Ranch, Alexandria, Neb.

AUCTIONEERS.

P. M. GROSS
LIVE STOCK AUCTIONEER
"Twelve Years on the Block"
Pure Bred Sales a Specialty
Sales Made Anywhere
MACON, MISSOURI

Live Stock and Real Estate Auctioneer
Authorized state agent of Kansas Rural Credit Association. Write me your wants.
H. M. JUSTICE - - PAOLA, KANSAS

J. P. OLIVER Live Stock and Real Estate Auctioneer.
Twenty years' experience. Newton, Kansas.

Live Stock and Farm Auctioneer
Write or wire for date. I can please you.
LAFE BURGER, WELLINGTON, KANSAS

At the Oregon Agricultural College they have a White Leghorn hen that is believed to be the first hen to make a record of over 1,000 eggs in trap nests. Her record is as follows: First year, 240 eggs; second year, 222 eggs; third year, 202 eggs; fourth year, 155 eggs; fifth year, 168 eggs—total 987. She is now in her sixth year, has passed the 1,000-egg mark and is still laying. This performance goes to prove the generally accepted theory that a hen's profitableness ceases after her third year, or she may be the exception that proves the rule.

POULTRY CLUBS

EVERY person who handles poultry should be a member of a poultry club, according to N. L. Harris, superintendent of the poultry farm of the Kansas Agricultural College.

Poultry clubs are organized to benefit the farmer and the breeder. They not only help him commercially, but also aid him in maintaining the vitality of the flock.

There are certain times of the year when the poultry packers are on the lookout for certain kinds of poultry and poultry products. If they know of a locality where they can get a carload of the produce, they are willing to pay several cents above the market quotations. If the community would organize and raise one type of poultry, it would be only a short time until there would be an established market. Prices would also be above those received for ordinary mixed birds.

One of the great advantages of this class of organization is the elimination of the necessity of having to send off for so many breeding males. Those who are interested can see just what they are buying and know what sort of a record is back of the males. By proper management a few high class males purchased once in three or four years will furnish ample new blood for the entire neighborhood.

The different organizations in the county might successfully co-operate with each other through the medium of the county agent. He is better able to keep in touch with the large packing concerns than is the average farmer.

The idea of organization is not entirely new. It has been successfully practiced by breeders of horses, cattle, and hogs. There is no reason why it should not be used just as successfully among poultry breeders.

It is only a question of time until poultry clubs will be extensively organized and will combine not only breeding of poultry but producing of poultry and marketing of eggs.

Fight the Red Mite

Every poultry keeper must fight mites. They are carried by sparrows and in various other ways.

Mites thrive in unclean houses—in the nests, on the floor, and in cracks and crevices about the roosts.

Mites are first noticed in early summer hiding under and about the perches. When allowed to multiply they spread to all parts of the house.

They attack the bird at night and live by sapping its blood.

They may kill little chicks and effectively reduce egg production.

When you first notice the mites, clean the house thoroughly and spray the nests, dropping-boards, walls, and the perches with kerosene. As a precaution, whitewash the entire house.

Poultry Notes

Hot weather is here all right. How is the shade for your chicks? If you have no natural shade in your poultry yards, you should provide some kind of artificial shade.

When hens are three years old or over they had better be sent to market and pullets substituted for them. After her third season a hen seldom pays for her keep.

Young stock will do better if not compelled to pick their living with the old. There will also be less trouble from lice and the old ones cannot get all the feed at the expense of the chicks.

A growing chick will not thrive on short rations, it must be fed liberally and that several times a day. If the right kind of food is fed, there is little danger of overfeeding, especially if they have plenty of range. But care should be taken that they have no musty, mouldy, sour or decayed food, for such is bound to cause trouble.

Give fresh and clean water to the fowls several times a day, and especially let the first drink in the morning be clean water. Water standing over night during warm weather is liable to be full of dust, poison and parasites. These are not good for chickens. Fowls should have all the pure water they can drink, for they drink a great deal in summer, and when fresh water is not furnished to them they are apt to drink any foul water they may have access to. This is bound to cause trouble by breeding all manner of diseases.

During very hot weather chickens often become listless and droopy and fall off in their appetite. To remedy this, change their feed occasionally. Give them a mash of bran and corn meal once a day and it will help considerably. Eating the same thing day in and day out, becomes monotonous after a while, and the hens get tired of it.

Bran is one of the very best foods that can be given to chickens, and especially is it good in the summer time, for it is not so heat-producing as grain. Bran can be placed before the fowls all the time, and they will not eat too much of it. One of the main advantages of feeding bran is that it contains more mineral matter than ordinary ground grain, and supplies that which may not be abundant in the ration. It is customary to add one pint of linseed meal to two quarts of bran, mixing this with four quarts of ground grain. When made into a mash, bran need not be fed over once a day, and it is excellent when given with clover hay or alfalfa leaves or cooked potatoes.

When fowls are confined to small yards they should be provided with green stuff daily. It is surprising the large amount of grass and weeds they will eat. When a yard is bare of any green thing for the fowls to eat, cut some grass or even weeds with a sickle or scythe and give to the hungry fowls. They will eat a meal of it three times a day. It is not only healthier for them than any other kind of food, but saves money in the grain saved, for they will not eat near so much grain if fed green stuff several times a day.

Rats are apt to get in their deadly work among the young chicks these days unless you are very careful in closing up their coops perfectly tight every night. And it is sometimes a hardship on the chicks to be closed so tight on very hot nights. The best thing, of course, is to get rid of the rats, but this is sometimes very difficult to do. Poisons and rat terriers and cats all fail at times to get rid of the rodents. Lately we have been scattering air-slacked lime in all holes and runways of the rats around the poultry houses and barn. We scatter it very liberally for lime is cheap. The rats don't like to get their feet in the lime, and if enough of it is spread around, we believe it will drive the rats away in time.

The poultry department of Missouri University has made public the results of experiments with a flock of white Leghorn pullets, which were housed in an open-front poultry house, situated in a yard 100 feet square sown to winter wheat. In a year the fowls ate 2,693 pounds of grain and 962 pounds of mash. The total cost of the feed was $66.27. The flock numbered fifty to sixty. The eggs sold for $157.17, giving a total profit of $90.90. At an average price of 23.4 cents a dozen, the hens returned a profit of a dollar and a half each above the cost of feed. They were fed as a scratch food, a mixture of two parts cracked corn and one part wheat. The mash consisted of equal parts of bran, shorts, corn meal and beef scrap. Grit, oyster shells and water were kept before the birds all the time. These conditions were about what the ordinary conditions are when raising a small flock of fowls, and can be duplicated by most persons. A dollar and a half profit on each hen per year is quite a fair remuneration where everything in the way of feed is bought. Where there are table scraps and other waste material to feed to the hens, the profits are, of course, larger.

Twice as many eggs are laid in the first six months of the year as are laid in the last six months. The first six months gives us part of winter, all of spring and part of summer. This is the time when laying is most prolific and when the most profit is made. The last six months includes the time of molting and the maturing of the pullets to laying age and is consequently the least profitable part of the poultryman's year.

FARM AND HERD

G. C. Wheeler, Live Stock Editor
W. J. Cody, Manager, Stock Advertising. O. W. Devine, Representative

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CLAIM SALE DATES.

Herefords.

Oct. 7—J. O. Southard, Comiskey, Kan.
Oct. 24-25—W. I. Bowman & Co., Ness City, Kan.

Shorthorn Cattle.

Oct. 10—E. E. Carver & Son, Guilford, Mo.
Nov. 22—Tomson Bros., Carbondale and Dover, Kan.

Poland Chinas.

Aug. 16—W. B. Wallace, Bunceton, Mo.
Sept. 16—T. H. Young, Stahl, Mo.
Oct. 10—Sigel Brown, Reeds, Mo.
Oct. 10—E. E. Carver & Son, Guilford, Mo.
Oct. 13—Dr. J. H. Lomax, St. Joseph, Mo.; sale at farm near Leona, Kan.
Oct. 14—T. J. Dawe, Troy, Kan.
Oct. 16—Walter B. Brown, Perry, Kan.
Oct. 18—Fred G. Laptad, Lawrence, Kansas.
Oct. 19—P. M. Anderson, Lathrop, Mo.
Oct. 19—H. B. Walter, Effingham, Kan.
Oct. 20—James Arkell, Junction City, Kan.
Oct. 23—Forest Rose, Hemple, Mo.
Oct. 24—Leonard & Russell, St. Joseph, Mo.
Oct. 25—U. S. Byrne, Saxton, Mo.
Oct. 26—Walter W. Head, St. Joseph, Mo.
Oct. 27—T. E. Durbin, King City, Mo.
Oct. 28—H. H. Foster, King City, Mo.
Oct. 31—Harry Wales, Peculiar, Mo.
Nov. 1—Fred B. Caldwell, Howard, Kan.
Nov. 4—L. R. Wiley, Sr., Elmdale, Kan.
Nov. 6—A. R. Enos, Ramona, Kan.
Feb. 28—Clarence Dean, Weston, Mo.

Spotted Polands.

Aug. 9—H. L. Faulkner, Jamesport, Mo.
Nov. 3—W. W. Otey & Sons, Winfield, Kan.
Oct. 12—Andrews Stock Farm, Lawson, Mo.

Durocs.

Oct. 18—Fred G. Laptad, Lawrence, Kansas.
Nov. 2—Lant Bros., Dennis, Kan.

Girod & Robison of Towanda, Kan., owners of one of the good herds of pure-bred and high-grade Holsteins, recently sold twenty-four head of choice heifers to go to Oklahoma; also sixty heifers to be shipped to California September 1.

If you have pure-bred stock for sale, Kansas Farmer's plan of selling live stock advertising will interest you. Kansas Farmer is the only agricultural and live stock paper in this field that sells space in its live stock columns on an absolutely flat rate plan. Every live stock advertiser gets exactly the same rate, regardless of the size of space used or the length of time the advertisement is run. If you do not have our rate card we will be pleased to send it at once. By buying advertising space at a flat rate you will save money.

B. M. Lyne of Oak Hill, Kan., is one of the farmers and breeders of Kansas who is making a great success with his fine herd of Shorthorn cattle and Poland China hogs. He has about fifty head of registered cows and heifers. Most all the spring crop of calves and a number of yearlings in the herd were sired by Red Laddie by Captain Archer and out of Red Lady 7th. He now has at the head of his herd a splendid red bull, Violet Search 3d by the noted Searchlight, and his dam was Violet Bloom tracing to imported Violet. This bull was a full brother to the bull that topped Mr. Nevius' sale in 1913 at $685. At the head of the Poland Chinas is Kansas Wonder, sired by the noted Big Bob Wonder. This young hog was bred by H. B. Walter at Effingham, Kan. Mr. Lyne has a splendid lot of big medium sows to mate with this boar. He has planned to hold a sale next March and sell a few of his Shorthorn bulls and heifers, also a few Poland China bred sows.

M. E. Moore & Co. of Cameron, Mo., report their Holstein herd making a splendid record this year. Their herd is among the best of the breed now assembled. They are richly-bred heavy producers. A number of the best producing herds in the country were started with foundation stock from the Moore & Co. farm.

Auld Bros. of Frankfort, Kan., owners of one of the good herds of pure-bred Red Polled cattle in the state, report their herd doing well. They have a choice lot of young stock in their herd at this time and report a good demand for Red Polled breeding

W. T. McBride of Parker, Kan., is making a success with his herd of Durocs and Red Polled cattle. At the head of the Durocs is the great boar, Parker Wonder by Ledore Wonder. His dam was Higgins Chandler. Mr. Parker has a splendid lot of herd sows and will hold a public auction on February 8 and sell a draft of both Durocs and Red Polled cattle. In this herd are a number of sows by Tattler, Defender, King of the Colts 2d, and litters by Grand Model. Mr. McBride has just finished a new sale barn, one that can be made comfortable for holding sales and used for the care of small pigs during the farrowing season.

Ellis Linville of Polo, Mo., recently sold on the Kansas City market a carload of pure white Shorthorns, yearling steers. Mr. Linville spent several days on the Kansas City market last fall and bought the white steers, one and two at a time, from the various lots of cattle that were on the market while he was there. They were carried through the winter on rough feed and after a short feed on grass they averaged 1,002 pounds and cold for $8.75 per hundred.

J. P. Mast of Scranton, Kan., owner of the famous Butter Bred herd of Holstein cattle, reports his herd making a splendid record again this year. The breeding of this herd is of the best and there is always a demand for breeding stock from the Mast farm. Mr. Mast's show herd has always been consistent winners at the leading fairs.

Robt. H. Hazlett of El Dorado, Kan., will take out to the leading state fairs this fall a splendid show herd of Hereford cattle. Mr. Hazlett always takes pride in showing cattle that are of his own breeding, and in most all his show herds he has bred both the sire and grand sire and the dam and granddam. Mr. Hazlett is owner of the most intensely bred Beau Brummel Anxiety 4th and Don Carlos herd of cattle in the world. There are about 150 head of breeding cows that are line bred Beau Brummels. Herd bulls have gone out from this herd to stand at the head of some of the best herds in the world. South America would take the entire supply at a good price. A feature of the herd at this time is thirty-seven head of yearling bulls that are sold to be delivered this fall to a South American firm. Mr. Hazlett has made a great success with his Herefords and has made a careful study of the breed, and is recognized as an authority on Hereford cattle.

E. E. Carver & Son of Guilford, Mo., are among the oldest Poland China breeders in North Missouri. They breed both Shorthorn cattle and Poland China hogs. The combination goes well together. They have today a splendid herd of pure Scotch and Scotch topped cattle headed by a pure Scotch bull. The Poland Chinas are of the big medium type, headed by Alixis Again by Trusty King and his dam was by big Orange. This hog was bred by T. E. Durbin of King City, Mo., and is in a class by himself. There are 115 head of Poland Chinas in the herd, seventy spring pigs that are very fine prospects. A feature of the herd at this time is twenty-five large fall yearling gilts that will be valuable in any herd. E. E. Carver & Son announce Oct. 10 for sale date. At this time they will sell twenty-five head of Shorthorn cows and heifers and Poland China hogs. Later mention will be made of this sale.

The record price at the Kansas City market for a steer was paid to Geo. McKnight of Colorado, for a Shorthorn steer weighing 2140 pounds. The price paid was $10.50 per cwt., a total of $224.20. Mr. McKnight had five head on the market June 21st, with an average weight of 1620 pounds that sold for $10.50 a round. They were fed a ration of corn silage and alfalfa for a period of six months and Mr. McKnight states that they made a rapid gain on this ration. It is evident that these steers must have possessed considerable quality to have commanded this price per pound when of this weight. The even flesh covering of the Shorthorn enables the producer to furnish larger weights without sacrificing quality.

J. M. Andrews of the Andrews Stock Farm at Lawson, Mo., announces October 12th as the date for his annual fall sale. Andrews Stock Farm is noted as the home of one of the great herds of old original big bone spotted Poland Chinas. Mr. Andrews has not only succeeded in building up a very fine herd of that popular breed of hogs but has found them a very profitable hog on the farm. His herd is headed by Spotted Clover, a son of Spotted Giant and out of the $100 sow, Veradell. Spotted Clover is a May two-year-old and will weigh about seven hundred pounds, in just breeding condition. Mr. Andrews has raised fifty extra good spring pigs and a draft of these will be included in the October 12th sale.

One of the great herds of Holstein cattle now assembled is on Woodlawn Farm, near Sterling, Ill. This herd is famous for its heavy producers and many of the best herds of Holsteins in this country were started with foundation stock from Woodlawn Farm.

Henry C. Glissmann of Omaha, Nebr., the noted Holstein breeder, reports his herd doing well. Mr. Glissmann now has over two hundred head of registered and high grade Holsteins and his herd is noted as one of the heavy producing herds in the west and is made up of representatives of the best Holstein famalies.

Frank Buzard of St. Joseph, Mo., owner of one of the great herds of Holstein cattle in the west, reports his herd making a good record this year. A feature of his herd at this time is the fine lot of youngsters, including some choice grandsons of the King of the Pontiacs and Pontiac Korndyke.

S. E. Ross of Mountain Grove, Mo., owner of one of the heavy producing herds of Holstein cattle in that state, reports his herd doing fine this year. Mr. Ross has an extra fine lot of young stock including choice young bulls out of heavy producing dams.

J. R. Smith of Newton, Kan., is making a great success with his fine herd of Durocs. Mr. Smith cares for his hogs in a way that they always go out and make good. He has saved 100 spring pigs and they are coming along fine. A feautre of the herd at this time is seven August yearling boars sired by Gold Medal and C. H.'s Colonel. They are big, strong husky fellows, ready for service.

Rolla Oliver of St. Joseph, Mo., owner of one of the best herds of Jersey cattle in Missouri, reports his herd making a splendid record this year. A feature of his herd at present is the fine lot of young stock including a number of choice young bulls out of dams with very high records and sired by the best bulls of the breed.

O. W. Long of Craig, Mo., is making a great success raising Poland China hogs and Shorthorn cattle. At the head of the Poland China herd is A Wonder Special and Rood's Big Joe 2nd, two splendid big type boars. Mr. Long is one of those careful breeders. He culls his herd close and every animal that does not come up to the standard, it goes to the St. Joe market. In this way the breeding stock left on the farm is first class. A feature of the herd at this time is a number of large fall yearling gilts bred for September and October litters.

The writer recently visited High View Farm, at Jamesport, Mo., the home of H. L. Faulkner's famous herd of old original big-boned Spotted Poland Chinas. The bred sows and gilts which will go in Mr. Faulkner's midsummer sale, August 11, is one of the best lots the writer has ever seen on High View Farm. The offering will be bred to the great herd boars, Spotted Chief and Good Enough. A feature of the herd at this time is the large number of spring pigs, probably the best-marked lot that Mr. Faulkner has ever raised. The constantly increasing demand for this popular farmers' hags has made it necessary for Mr. Faulkner to increase his herd in order to meet this demand, and at this time he probably owns the largest herd of old original big-boned Spotted Poland Chinas now in existence, and his annual summer sale will be held on August 9th. At this date he will sell the best lot of bred sows ever sold from the High View Farm.

After harvest would be a good time to build that silo you have been thinking about. In no other way can you make the rough feed go so far. Those who have used silos would not do without them. Many who started with one silo now have two or three.

HOLSTEIN CATTLE.

CLYDE GIROD, At the Farm. F. W. ROBISON, Cashier Towanda State Bank

HOLSTEIN FRESIAN FARM, TOWANDA, KANSAS

Pure-bred and high grade Holsteins, all ages. Largest pure-bred herd in the Southwest, headed by Oak De Kol Bessie Ormsby 156789, a show bull with royal breeding.

Pure-bred bulls, serviceable age, from A. R. O. dams and sires.

A grand lot of pure-bred heifers, some with official records. Choice, extra high grade cows and heifers, well marked, heavy springers, in calf to pure-bred bulls, constantly on hand. High grade heifer calves 6 to 10 weeks old, $25. Bargains. Send draft for number wanted. All prices f. o. b. cars here. Inspect our herd before purchasing. Write, wire or phone us.

GIROD & ROBISON.

CHOICE HOLSTEIN COWS

Two hundred registered and high grade Holstein cows, heifers and bulls for sale, singly or carload lots. Included are ten registered bulls, all out of A. R. O. dams; thirty-five registered females of all ages; several good A. R. O. cows; forty high grade cows; sixty two-year-olds, and seventy-five heifers, one to two years old. All tested by state or federal authorities and priced to sell. Write or come at once.

HENRY GLISSMANN - - STATION B - - OMAHA, NEBRASKA

TORREY'S HOLSTEINS

High grade cows and heifers and registered bulls. The best breeding. Call and see them.

O. E. Torrey - - - - Towanda, Kansas

A BARGAIN

FOR SALE, registered bull calf, born March 28, 1916. A large, growthy, fine individual, sired by Hamilton Prilly 5th, a 23-lb. bull; dam, Lady Aaron De Kol.

S. E. ROSS, Route 4, Mountain Grove, Mo.

HOLSTEIN CATTLE SEND FOR PRICE LIST.
WOODLAWN FARM - Sterling, Ill.

JERSEY CATTLE.

Must Reduce Herd

Forty head of registered cows, heifer and bull calves for sale. Of the best blood lines among the breed.

I am a member of the Southwest Jersey Cattle Breeders' Association.

SWEET SPRING STOCK RANCH
Box 241 Monett, Missouri

Brookside Farm Jerseys

Registered Jersey bulls for sale. Flying Fox and Eminent breeding, good enough to head any herd. Also a few females.

THOS. D. MARSHALL, SYLVIA, KANSAS

LINSCOTT JERSEYS

Kansas First Register of Merit, Estab. 1878.
If interested in getting the best blood of the Jersey breed, write me for descriptive list. Most attractive pedigree.

R. J. LINSCOTT - HOLTON, KANSAS

Sunset Jersey Cattle Herd

Will offer at private sale fifty head cows, heifers, bulls, calves. The famous Blue Belle-Golden Rosebays. Send for special circular before buying elsewhere. Bargains.

Ennis Stock and Dairy Farm, Horine, Mo.
(Just south of St. Louis)

Jersey Cows and Heifers

140 head to select from, pure-bred and grade. 20 heavy springers, bred on farm.

J. W. BERRY & SON, Jewell City, Kansas

Will sell all my choice as in Kansas registered Jerseys in milk at $110 to $165. Others for less. Coming one $65 and two past $85 show bulls by Grand Fern Lad. Dam, the noted show cow Gorgeous Nigretta.

F. J. Scherman, Route 8, Topeka, Kan.

JERSEY BULLS.

That will improve your herd, for sale. Three wonderfully vigorous bull calves from high producing dams, $55.00 each, registered and f. o. b. St. Joseph, while they last. Satisfaction guaranteed. Write,

Rolla Oliver, P. O. Box 701, St. Joseph, Mo.

SMITH'S JERSEYS

For Sale—White Hall's Baron 138966, solid color, 26 months, fine individual. Sire Blue Boy Baron 99918; dam White Hall Duchess 299731, used on a few of our best cows. Females all ages and three bull calves, $25 up. S. S. SMITH, CLAY CENTER, KAN.

REDHURST JERSEYS

Grandsons of Golden Jolly and Noble of Oaklands for sale. Also a few fancy cows and heifers of same breeding. Write.

REDMAN & SON - TIPTON, MISSOURI

SIX REGISTERED JERSEY BULLS

Three to twelve months old, sired by Idyl's Castor and out of Saint Lambert bred cows. Prices reasonable.

LAPTAD STOCK FARM, Lawrence, Kansas

Breeders' Directory

PERCHERON HORSES.
M. E. Gideon, Emmett, Kan.
ANGUS CATTLE.
Geo. A. Deitrich, Carbondale, Kan.
D. J. White, Clements, Kan.
SHORTHORNS.
C. H. White, Burlington, Kan.
HOLSTEINS.
C. E. Bean, Garnett, Kansas.
DORSET-HORN SHEEP.
H. C. LaTourette, Route 2, Oberlin, Kan.
JERSEY CATTLE.
J. B. Porter & Son, Mayetta, Kan.

GALLOWAY CATTLE.

GALLOWAY BULLS

FORTY yearling and two-year-old bulls, strong and rugged; farmer bulls, have been range-grown. Will price a few cows and heifers.

E. E. FRIZELL, Frizell, Pawnee Co., Kansas

HOLSTEIN CATTLE.

IN MISSOURI

Price Segis Walker Pietertje 123955 heads herd. Dam 30.13 lbs. butter in 7 days, milk testing 5.07 per cent. A. R. O. of dam, granddam and ten nearest dams of sire, 29.75 lbs. Six of these are 30-lb. cows. His five nearest dams all test over 4 per cent. Bulls 2 to 8 months old, $150 to $350. Always have cows and bred heifers for sale. Everything registered Holsteins. Tuberculin tested.

S. W. COOKE & SON, MAYSVILLE, MO.

Choice Holstein Bulls

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