

KANSAS FARMER

For the improvement

of the Farm and Home

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Established 1863. \$1 a Year

TO THE cattle grower economical methods of feeding stock cows and heifers through the winter are of the greatest importance.

Valuable lessons are being taught through the cattle feeding tests made each winter at the Hays Experiment Station. The station has not lost money on any cattle fed during the last four years.

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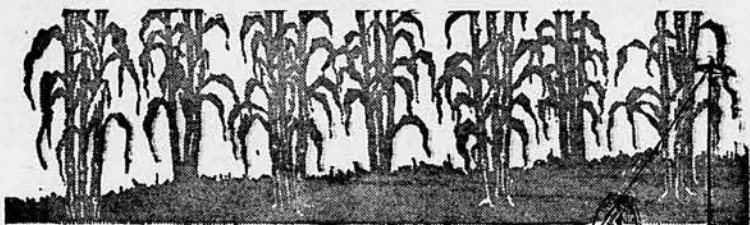
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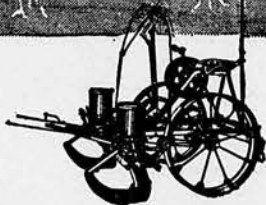
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BRAKE AND CLUTCH

Items of Every Day Interest About The Automobile and for the Motorist

THE governor of a gasoline engine does not usually give much trouble, yet when it does, the trouble is likely to be serious.

There are two types of governors in common use on gasoline engines, viz., the hit-and-miss governor, and the throttling governor. Both act on the same principle in so far as weights or balls are used to regulate the action according to speed. These weights are thrown out by centrifugal force when set in motion, the higher the speed the greater the throw of the weights. The weights may be on a separate shaft or mounted in the fly wheel. Springs hold the weights in so that the centrifugal action will not be too great. Hence, the speed of the engine may be regulated by changing the tension of these springs.

The hit-and-miss type of governor regulates the engine by holding the exhaust valve open when the engine is running slightly over speed. As the weights are thrown out, the governor sleeve moves so as to press a detent arm toward the exhaust valve rod which then engages in a notch or detent on the exhaust valve rod, holding it open until the speed of the engine has gone down to normal.

The throttling governor works in very much the same way, but the movement of the sleeve is transferred through a lever to the throttle, thus partially shutting off or throttling the mixture as it enters the engine.

In either type of governor, if the weights, sleeve, and arm are not working properly, irregularity in the action of the engine will result. Sometimes we find a spring has been lost and the weight is wired in place. This partially or completely destroys the action of the governor. The fly wheel may have slipped on the shaft, causing the arm to cease to act on the detent. Then the engine will run away. The same effect may be produced by accidental bending of the arm. Of course, the opposite effect may be produced by either of these troubles, causing the engine to run too slow, or to refuse to run. An engine is balanced to run at a certain speed, hence should not be made to run much above or much below this speed.—E. R. GROSS, Fort Collins, Colorado.

Selection and Care of Engine.

The selection of a dependable gas engine will be easier if the buyer knows the reputation of the engine and the guarantee offered by the manufacturer.

The problem of obtaining an engine that not only will meet the needs of the present condition of the farm but will also take care of those arising in the future is one which requires much thought. The dealer is familiar with the capacity of each engine and knows the amount of work each can do. Any trustworthy firm is glad to assist the farmer in purchasing a machine that will satisfy him provided he states his needs.

The engine should be adapted to the work at hand. The high speed machine is lighter in weight per horsepower and is better suited for portable and traction purposes. The medium and slower engines are heavier and are adapted for stationary work.

Crude or heavy oil engines which are giving marked evidence of success are being built in sizes suitable for farm use. This engine offers two special advantages over either the gasoline or the kerosene type—the fuel costs less and the electric ignition system is entirely eliminated.

In localities where natural gas abounds, it may be the ideal fuel. The kind of engine to buy and the fuel to be used must rest entirely with the conditions under which it is to be operated, the locality and the peculiar likes and dislikes of the purchaser.

The question of locating the stationary engine is important. To place it on a solid foundation and cover it with a good tight shed or house means time and money well spent. The smaller sizes may be bolted or clamped to the floor or in case of an earth floor may be secured by stakes driven in the soil. The portable engines should be mounted on skids and should never be run unless level and well fastened.

An engine needs constant care. It is not best to wait until something goes wrong to begin the study and observation of the working parts. When in operation the engine should be watched and each part examined to see how its particular function is performed. The operator should become his own expert. The best grade of oil is always the

cheapest. It should not be considered economy to use an oil just because it can be bought for a few cents less than the better grade. The money saved is generally lost on the wear of the moving parts, and the difference is always more than made up in the cost of new pieces to replace the worn out ones. It is not only poor economy but harmful to the engine to use an excess of oil in the cylinder. Too much oil causes carbon to collect in the combustion chamber, and if an excess is used on the bearings it flows out and gathers dirt and grit, which have a tendency to work into the bearings and between the moving parts. Above all, keep the engine clean. After a run the dirt and grit should be wiped off with a piece of waste or some old rags. A large proportion of engine troubles are traceable directly to dirty and gummed parts of the machine.

The operator should always be patient when the engine fails to start. It will not refuse to start if all the conditions are favorable. Remember a machine never thinks—the thinking must be done for it.—J. C. SHUTT, K. S. A. C.

Hazards in Handling Gasoline.

Gasoline vapor mingles with the air in the same manner that water vapor does, the amount carried depending upon the temperature of the air and the readiness with which the vapor can be obtained. If one takes the cover off a full pail of tightly enclosed gasoline and applies a match to the surface, the gasoline will flare up and burn as long as the gasoline lasts. On the other hand if one puts a few drops of gasoline in a small tightly enclosed pail, waits a few minutes and then produces a flame or electric spark, a violent explosion will likely result.

In the first case the vapor burns as fast as it comes from the gasoline and mixes with the oxygen of the air, whereas in the second case the oil vaporizes in the pail and mixes uniformly with the air to form an explosive mixture and upon ignition explodes.

One gallon of gasoline when entirely vaporized produces about 32 cubic feet of vapor. If a lighted match could be applied to pure gasoline in the absence of air, no fire or explosion would result. At ordinary temperatures air will hold from 5 to 28 per cent of gasoline vapor, depending upon the grade of gasoline. In 100 parts by volume of air and gasoline, an explosion would not take place if there were more than 6 parts of gasoline, or less than 1.4 parts. In other words, the explosive range is between 1.4 and 6 per cent of vapor. One gallon of gasoline can, under ideal conditions, render 2,100 cubic feet of an explosive mixture.—H. J. WILSON, Fort Collins, Colo.

Draining Hillside Seeps

Many drains have been constructed by farmers with the idea of "cutting off" the seepage water before it enters their field, and in attempting to do this they have dug an open-drain ditch or constructed a tile drain just above the wet spot on their land. Sometimes a drain of this kind has been successful in every way and has done the work required, but many times a drain of this kind has been an absolute failure, and the seeped area has not been relieved in any way. There are many reasons for these failures, for usually the farmer makes no investigation of the subsoil conditions before installing his drain.

The fact of the matter is, that in most cases our seeped areas are caused by a porous subsoil stratum "pinching off," later filling with water until the surface of the ground shows the effects of seepage. A cut-off drain to be successful, should reach the bottom of this porous stratum, and if no investigation has been made the chances are a hundred to one that the drain does not reach the bottom of said stratum. If the drain cuts through the top of the porous stratum the water can pass through the stratum under the drain, and continue to keep the soil moist.

The proper drainage of land is a problem which requires careful study by an expert, and it will be money well spent to secure the services of a competent engineer before installing a drainage system.—E. B. HOUSE, Fort Collins, Colo.

Carelessness in caring for the hand separator will be paid for out of the cream check. With a cream-grading law in effect, care in handling cream is rewarded.



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The Standard Farm Paper of Kansas

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SILAGE CHEAP WINTER FEED

Eighty pounds of gain from a ton of silage, was the record made the past winter by sixteen head of stock cows fed by E. V. Ney of Leavenworth County. We saw Mr. Ney shoveling silage into feed bunks as we were driving along the road recently. The cows were crowding around the feed with as much eagerness as though it were midwinter instead of grass time. They were being fed on bluegrass pasture. We learned that these sixteen cows had been in this pasture all winter. A straw stack had been run over a shed of poles, so they had good shelter. Silage, straw, and what grass they got from the pasture during the fall, had been their only feed. They had eaten the sides of the straw shed so it was open all around.

Mr. Ney said he bought these cows for five and one-fourth cents a pound when they were almost too thin to cast a shadow. He began feeding the silage January 21, and had fed them about 800 pounds a day. He was not guessing at this as loads were weighed occasionally. He estimated that they had consumed about thirty tons and had gained at least 150 pounds a head. Some of them were near calving and a dairyman was trying to buy three or four at \$75 a head, while we were there. These cows were in good condition and if Mr. Ney's estimate of the gain made was correct, there had been 80 pounds of increase for every ton of silage fed.

Sixteen acres of corn went into this silo. It is not very good and would not have husked out more than fifteen bushels an acre. Not only had good gains been made, but the cows were worth at least a cent a pound more than they were in the fall. Stock cattle are nearly always worth more in the spring than in the fall without reference to their condition.

As we looked at these cattle greedily cleaning up their ration of silage, we could not help contrasting the feeding of sixteen acres of shock corn with this method of feeding. At this time in the spring fodder would be so much waste material if offered to cows on pasture even though they were getting little grass. There also would have been a pile of rejected stalks where the fodder had been fed, and unless extra feed had been supplied the cows could not have been carried through the season on the fodder from this acreage.

DEVELOPING BREEDING HEIFERS

Under farm conditions in Western Kansas stock heifers almost invariably produce their first calves by the time they are two years old. This early breeding has a stunting effect and the tendency is for breeding cows to get smaller from year to year. Can the yearling heifer be so fed as to overcome this tendency without adding too much to the cost of development, is the question at issue in an experiment now under way at Hays Branch Experiment Station.

Eighty yearling heifers are being used in this test. They have been fed through the past winter in two lots of forty each. One lot received alfalfa, silage, and wheat straw, but no grain. The cut on page 5 shows these heifers as they appeared April 7. They are in good, thrifty condition, having gained 110 pounds during the 120 days of the test. The cost was \$4.73 a head. The other lot was fed four and one-half pounds of corn-and-cob meal and a pound of linseed meal in addition to the alfalfa, silage, and straw. Their gain was 225 pounds a head, at a feed cost of \$11.43.

Twenty heifers in each lot will be bred this season, and the remaining twenty carried over a year. During the next year the effect of this heavier feeding will be observed as the heifers develop and bring forth their calves. The heifers fed the grain were valued on the day of the meeting by a live stock commission man at \$9 a hundred, and the others at \$8.50. On this basis feeding grain was a good business proposition without taking into consideration its future effect. It cost only \$6.70 more to feed each heifer grain for the 120 days, and at \$9 a hundred the value would be \$60.43 a head. The other heifers at \$8.50 were worth only \$47.27 a head. In addition

to their being worth more now, the grain fed heifers will without doubt be heavier at calving time and should develop into larger cows. Cattlemen will watch this test with interest. Table 2 on page 5 gives in detail the figures for the past season.

When the silo is not used, stock cattle seldom gain during the wintering period. In fact the old-time stockman felt satisfied if he was able to get his cattle all through to grass. Sometimes it took half the summer for them to regain what they had lost during the wintering period. This is a losing game. With the silo there are great opportunities in the sorghum belt for expansion in cattle production. Riley Lake, a Barber County feeder, built his first silo two years ago. He now has six, each having a capacity of 300 tons. He just mar-

keted six carloads of steers that were finished on kafir silage, alfalfa, and kafir grain. The silage cost only \$2 a ton.

TRACTOR DEMONSTRATION

A series of tractor farming demonstrations is to be conducted this year, the first being that to be held at Dallas, Texas. The next demonstration will be at Hutchinson, Kansas, July 24 to 28. The Hutchinson demonstration last year was a great success, thousands of farmers taking advantage of this opportunity to study the many makes of tractors at work in the field.

Already thirty-nine tractor and plow companies have signified their intention of taking part in this year's demonstration. The committee in charge expects fully twice this number to be entered before the demonstrations begin.

Club Member Starts Record

ONE member of the Kansas Farmer Dairy Club has started the year's work. As soon as he was properly enrolled and had made all the necessary arrangements with the bank, Ralph Edwards of Leavenworth County, started out to hunt a cow. He succeeded in getting a Jersey cow that was due to be fresh in a few days. This cow has dropped a fine heifer calf, and Ralph feels that he has made a good start in building up a dairy herd.

The cow had not become accustomed to her new surroundings at the time of our visit and was not doing as well as she probably will later. This is something with which all club members will have to contend. The dairy animal is always affected by strange surroundings. Ralph was in school when we stopped to see his cow, but his father stopped his work and showed us the cow and calf and explained how carefully they were being handled. It was easy to see that the father was proud of the interest the boy was taking. We made inquiry as to how the cow was being fed and inspected the milk and feed records.

This cow had calved at a rather critical time. There was not enough pasture, and she had lost her appetite for dry feed. Inspection of the feed record showed that Ralph had not learned how to feed a milk cow under these conditions so as to secure the best results. Mr. Ross, the county agricultural agent, who is greatly interested in the work of the dairy club, left instructions for feeding which should result in a much better milk flow. Ralph was depending on alfalfa hay as his sole protein feed, and was feeding corn chop as the only grain ration. The cow was eating very little of the dry feed and as a result was not getting enough protein. Mr. Ross' instructions were to use a grain ration consisting of four parts of corn chop, by weight, two parts bran, and one part cottonseed meal, and feed about seven pounds a day, in addition to all the alfalfa the cow would eat. Ralph had been feeding nine or ten pounds of corn chop daily and this was costing \$1.50 a hundred. The ration advised by Mr. Ross will cost less and supply more of the nutrients required for milk production.

A little later when the pasture is good the grain ration may perhaps be reduced somewhat, but it will pay to feed a cow that freshens in the spring, some grain all summer.

The boys and girls of the Kansas Farmer Dairy Club will not be working in the dark, as many dairymen do, for they will have their feed and milk records to guide them. These will show them each month just what the product has been, its value, and also what the feed has cost. We do not believe these club members will wait until the end of the month to check up their records. The work will become so interesting that they will want to know each week and from day to day, just how much profit they are making over the cost of feed. It is profitable to thus closely watch records for variations in feed may be desirable. Possibly the cow will pay a profit on a heavier grain ration than she is receiving. The only way to find out is to try giving her a little more and then watch the results.

We want our club members to get all they can from this work and urge them to ask for help on any questions that puzzle them. After the club is well started we will expect to receive many letters from members.

Who will be the next boy or girl to start the year's work? Remember that as soon as your cow is fresh you can start. All you have to do is to fill out the blank and mail it to KANSAS FARMER, and start to keep your records according to instructions. You have to June 1 to enroll, but can start the record at any time up to September 1.

Send Your Name For Membership

The first step in becoming a member of the Dairy Club is to fill in the following coupon and mail to Albert T. Reid, president Kansas Farmer Company, Topeka, Kansas:

I desire to become a member of the KANSAS FARMER DAIRY CLUB and will follow all the instructions and report regularly as directed.

My name is.....Age.....

Address.....R. F. D. No.....

My parent's or guardian's name is.....

The bank we patronize is.....

CLOSE OF HAYS EXPERIMENTS

In this issue we give the results of the winter's experimental work at Hays. For several years very careful studies have been made in the wintering of beef cows and heifers. The past season one lot of two-year-old heifers was fed for four months at a cost of only \$5.64 a head. The ration was kafir silage valued at \$2.50 a ton, and Sudan grass straw valued at \$4 a ton. The Sudan matured seed and had been threshed. The most expensive lot had cost but \$7.54 a head. The cheapest lot had been fed on the open range with only the shelter of the timber along the creek. These had cost for the four months, \$5.35 a head.

A cattleman once wrote us that he did not suppose anyone took such figures as those given out at Hays, seriously. A lot of our cattlemen, however, are learning the value of silage in wintering cattle, and it is not necessary to depend entirely upon the figures from the station. Professor Cochel has adopted the plan of calling in the stockmen each year at the close of the test, so they can see the cattle and observe how they are being fed. It is to be regretted that the six-and-one-half-inch snow which preceded the Hays meeting prevented many from attending.

FORAGE FOR PORK PRODUCTION

Too much emphasis cannot be placed on the importance of good forage in pork production. Ray A. Gatewood of the Kansas Experiment Station, recently made the statement that spring pigs fed on forage crops will make five times as much profit as those fed in dry lots. This was based on a number of years of experimental work in growing hogs for market. It has been shown that 100 pounds of gain on young pigs fed corn valued at fifty cents a bushel, and such forage crops as alfalfa, rape, and clover, runs from \$2.88 to \$3.96, and in older hogs from \$4.23 to \$5.31.

The gain credited to an acre of forage varies, the crop, age of the hog, and the amount of grain fed, entering into this. An acre of sweet clover, with corn at fifty cents and hogs at \$5 a hundred, netted \$42.07; rape \$37.50; alfalfa \$65.90; and a combination of oats, peas, and rape \$64.60.

CREDIT OVERSIGHT

We regret that through oversight the article—"Convenient Bungalow"—on page 5 of our issue of April 15, was not credited to W. A. Etherton as it should have been.

Though Mr. Etherton's work is a comparatively recent addition to the department of architecture at the Kansas Agricultural College, it is bearing fruit.

The service rendered by the competent architect is valuable. At a glance he sees the advantage or disadvantage of the proposed structure. Many times he can suggest possible conveniences that might be overlooked by the builder. For these and many other reasons it is profitable to consult an architect regarding the building plans.

In Mr. Etherton the people of Kansas have a consulting architect within reach. His services are offered by the state. If you are thinking of adding any new buildings, write him for ideas and suggestions, telling him what you have in mind. In this way you can prove the value of this help that has been placed at your command.

Small gullies that have started in the field can often be stopped by filling them with straw or similar material. If the gully is large it is advisable to plow in soil on top of this material and sow to oats or later to sorghum so that the crop will come up thick and form a strong root mass to bind the soil together. The proper use of debris for filling and rank growing plants for holding the soil will stop most washes entirely. Eternal vigilance, however, is necessary for complete success.

In no other way is it possible to produce so large an amount of good feed from an acre of land as by raising corn and making the same into silage.

FUTURITY BULL TEST

Maine Association Promotes Testing Sires Merit Through Record of Daughters

By Raymond Pearl, Maine Experiment Station

THE dairy husbandman cannot regularly or indefinitely depend on buying his stock from other people. He must if he is to stay permanently in the business and get the maximum profit out of it breed his own animals. In the improvement of his herd by breeding lies his best hope of increasing profits as time goes by. No better means than the progeny test can be found for helping such progress along.

To promote this object the Sires' Futurity test of the Aroostook Jersey Breeders' Association was planned and the first test held at Aroostook Farm, Presque Isle, Maine, November 15, 1915, under the auspices of the Maine Agricultural Experiment Station.

The secretary of this association and the writer took up with the American Jersey Cattle Club the question of a suitable prize for the sire winning the futurity test.

Realizing the importance and value of a futurity test as an aid in the improvement of the Jersey cattle of the state, the officers of the American Jersey Cattle Club donated a magnificent silver cup, of a value of \$100, to be awarded annually to the sire winning the test under the rules set forth in a later section of this report.

PURPOSE OF SIRE'S FUTURITY TEST

The idea underlying the inauguration of the Sires' Futurity Test was that the surest indication that anyone can have of the breeding value of an animal lies in the performance of its progeny. The only way to tell whether a bull has the ability to transmit high milking qualities to his daughters is to see by actual test whether a fair sample of those daughters are high producers of milk and butter fat. In drawing up the general plans for the Sires' Futurity Test it was decided in the first place that heifers should be eligible to compete in this test even though they were not eligible for registration in the herd book of the American Jersey Cattle Club. Or, in other words, a heifer out of an unregistered dam might compete in the test provided her sire was a registered Jersey bull and had been duly entered for the Sires' Futurity Test. The only bulls eligible to entry in the test were such as were actually registered as pure-bred Jersey cattle in the herd book of the American Jersey Cattle Club.

It might at first be supposed that the test should have been restricted to pure-bred registered heifers rather than opened to grade heifers as well. This point of view would appear to be too narrow. One of the very important functions of a pure-bred bull in any farming community is to bring about the improvement of the grade stock kept in that community. It is quite as much, or even indeed more, to the credit of a sire if his get from grade dams is of superior quality as well as his get from pure-bred dams.

There can be no question that the Sires' Futurity Test is one of the soundest and best methods for the improvement of the average quality of the live stock in a community or state that can be devised. It is greatly to be hoped that the same idea will be taken up in this state for other breeds as well as the Jersey, and that we shall see county and state wide tests of this sort as annual affairs.

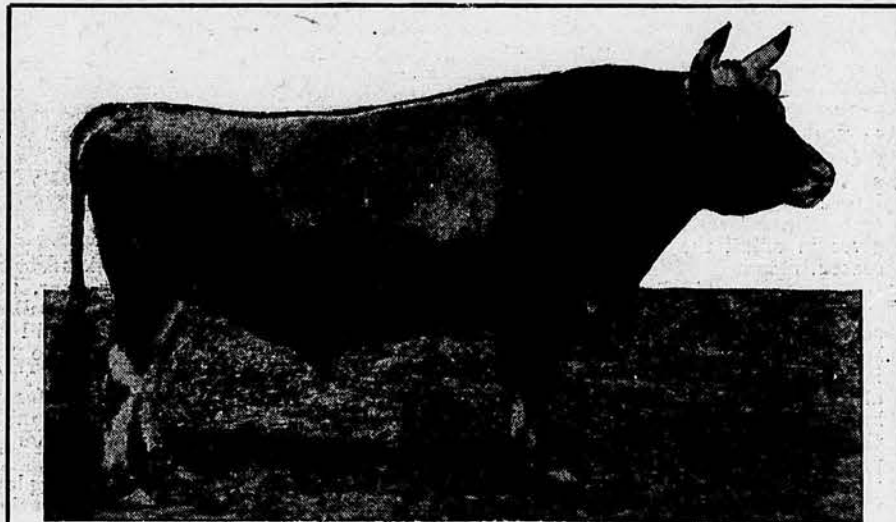
RULES OF 1915 TEST

Since the whole matter of a Sires' Futurity Test based on performing ability in milk production was an entirely new one, the members of the association and the writer of this report felt it not only desirable but necessary to proceed somewhat tentatively in formulating rules. In this section of the report it is proposed to set forth briefly the rules and conditions under which this first test actually was carried out, together with some explanation of the reasons for the rules. It should be understood that these rules are not to be regarded as ideal in the minds of their formulators, nor as final. The definitive rules for the conduct of future tests have not yet been drawn up by the Aroostook Jersey Breeders' Association. The only definite and final rules in connection with the whole matter are those governing the award of the American Jersey Cattle Club's cup. These rules are set forth at the close of this report.

As actually carried out, the first test operated under the following rules:

Heifers dropped in the calendar year 1913 were eligible to compete in the test.

The production of butter fat in a



SUREST INDICATION OF VALUE OF A BULL IS THE PERFORMANCE RECORD OF HIS PROGENY. THIS SIRE HEADS HERD OF DORNWOOD FARM, SHAWNEE COUNTY

period of seven days, all of the heifers being tested at the same time in the same barn, was taken as a basis for the placing of the awards.

In order to put all heifers on a perfectly fair and equitable comparative basis, the actual milk and fat production records were corrected for the age and stage of lactation of each heifer at the time when the test was made. These corrections for age and stage of lactation were based on correction tables covering these points which have been worked out in the biological laboratory of the Maine Experiment Station. The corrections rest on a much sounder scientific basis than those made by any other plan hitherto devised. In particular they are much more just and accurate than the rules for taking account of age in the testing of cows for advanced registry by any of the registry associations in this country.

Each owner having one or more heifers entered in the test was required to provide whatever he wanted fed to his animals beyond hay and potatoes. These parts of the ration were furnished by the station. Each owner was allowed perfect choice as to what his animals should be fed during the test. This seemed much fairer than it would have been to put all the heifers on the same ration. In case any owner failed to furnish instructions as to how his animals should be fed, they were to be given a standard grain ration. As a matter of fact no owner failed to specify how he wanted his animals fed.

Any owner might have his heifers milked as many times during the day as he desired. As a matter of fact, all agreed on three milkings per day, morning, noon and night.

Samples of the milk from each milking were taken by the supervisor of the test, C. H. White, a member of the staff of the Maine Experiment Station, and shipped to the station. The determinations of fat percentage were made by the station chemists. The supervisor of the test weighed the milk from each cow at each milking, took all weights of feed, etc. The test was officially under the direction and supervision of the present writer, Mr. White acting as his agent.

That heifer was adjudged the winner which produced in the seven days the largest total number of pounds of butter fat after proper correction for age and stage of lactation as set forth above. That heifer was adjudged second in the test which produced the next largest total number of pounds of butter fat after correction, and so on.

METHODS OF CARRYING OUT TESTS

There are some points in the rules set forth in the preceding section which possibly require further comment. One of the first points needing consideration is in regard to the bringing of the animals all to one place for testing. This regulation is likely to be opposed by the wealthy breeder who is doing advanced registry work. To him it is perfectly easy to arrange for a seven-day test at any time in his own barn as a part of his regular work, even the official tester in some cases being a person already in his own employ. Under these circumstances it would be much more convenient for such breeders to have a futurity

test conducted, so far as his own animals are concerned, in his own barn. The situation is very different, however, in regard to the small breeder in an outlying section of the state, where no official tester is located near at hand. If a plan of the sort mentioned were adopted it would mean that the small breeder could never by any possibility compete, or enter animals, because the expense of having a tester for his heifer or heifers alone for a period of seven days would be absolutely prohibitive. It would cost him so much that he would be foolish to enter the contest, even though he were sure to win.

Another factor enters here too. The men who are doing advanced registry work are, to a considerable extent, well-to-do or wealthy breeders, who are able and willing to hire expert herdsmen, and give them special training in regard to the fitting and handling of animals to make high advanced registry records. The fitting and handling of animals for these high records is a matter requiring the skill of an expert. The results obtained may or may not have a significant bearing upon the question of the true innate inherited capacity of the animal in regard to milk production. Now the basic purpose of a Sires' Futurity Test is to get trustworthy evidence on a practical breeding problem. It aims to find out the true breeding worth of different individuals and strains of blood. This means that the test must be made under what might be called average working conditions for cattle. The scientific correction of records with respect to age and stage of lactation makes it possible to carry out a Sires' Futurity Test at a central place and at one time for all animals competing, and still get absolutely reliable and perfectly fair results. This plan of testing heifers all at the same time, regardless of when they freshen, and then correcting the results on a scientific basis so as to make them all strictly and justly comparable, eliminates for all practical purposes the element of expert skill in jockeying cows for high records, and puts the animals of the small and inexperienced breeder on a fair basis of competition with those of the larger breeder, who from long experience in advanced registry work knows all the "tricks of the trade."

In carrying out such Sires' Futurity Tests at a central place and at a given time it is by no means necessary to have large transportation costs or to subject the animals to dangerous risks of catching cold, etc. In the first place the actual milking tests should be made more or less local affairs, the heifers being brought to some center readily accessible to a group of entrants. For example, it would be perfectly fair at any time to require that heifers competing in such a test within the borders of Aroostook County should be brought to Aroostook Farm at Presque Isle for testing. If such a test were to be held in the southern part of the state, it would be equally fair to require that heifers entered from Kennebec, Franklin or Androscoggin counties should be sent to Highmoor Farm at Monmouth for testing. Cow test associations undertaking the work in other parts of the

state could arrange to have the milking test brought off at the barn of some one of their members whose location was central, and who had sufficient barn room to accommodate for a week the heifers entered.

In regard to the time of year when the test is held, it is probably to be regarded as generally undesirable to hold a test so late in the fall of the year as this Aroostook test was held. It would seem much more desirable to make the test a summer affair. Of course the only thing that it is necessary to take account of if one is to change the date of the test is also to change the dates within which an animal will be eligible for entry. Thus to take a concrete example, suppose it were thought desirable to hold a Sires' Futurity Test in June. As a matter of fact, June would in some respects be a good month in which to hold such a test. It is a month in which the weather conditions are favorable and it comes after the heavy work of planting and before the beginning of haying and other summer operations. In case such a test were planned, let us say, for June 1916, it would then seem desirable to make the requirement that any heifer would be eligible for entry in this competition which was dropped between the dates of September 1, 1913, and September 1, 1914.

AMERICAN JERSEY CATTLE CLUB'S CUP

This \$100 cup offered by the American Jersey Cattle Breeders' Club, will be awarded annually under the conditions hereinafter specified, to the owner who entered the winning sire in the Maine Jersey Sires' Futurity Test, held annually under the auspices of the Aroostook Jersey Breeders' Association.

Any animal to be eligible for competition for this cup must be a pure-bred Jersey bull, registered in the herd book of the American Jersey Cattle Club, and properly entered in the Maine Sires' Futurity Test according to the rules and regulations of that test.

Of eligible bulls, as specified in the preceding paragraph, that bull shall be adjudged, in each year, the winner of the American Jersey Cattle Club's Maine Sires' Futurity Test Cup, which has the highest total performance score to his credit.

The total performance score of a bull shall be calculated in the following manner:

All heifers in the test will be graded in order of the total pounds of butter fat produced in the seven days of the test, after correction for exact age and stage of lactation, as set forth in detail in the general rules of the Maine Sires' Futurity Test.

The corrected butter production—in pounds and months—of each heifer shall be treated as follows in determining the total performance score of her sire:

The corrected butter fat production of the first or winning heifer shall be multiplied by five.

The corrected butter fat production of the heifer having the second highest record shall be multiplied by four.

The corrected butter fat production of the heifer having the third highest record shall be multiplied by three.

The corrected butter fat production of all heifers finishing fourth or lower in the test shall be multiplied by one.

No corrected butter fat production of less than ten pounds in the seven days shall be counted in any manner in making up the total performance score of a bull.

The sum of the figures, obtained in the above described manner, for all of the daughters properly entered and completing the test of any sire, shall constitute the total performance record of that sire.

The name and registry number of each bull winning the cup, and the name of the owner of that bull at the time of his entry into the Maine Jersey Sires' Futurity Test shall be engraved upon the cup.

If any bull shall win the cup three times, whether in succession or not, the cup shall then become the permanent property of the owner of that sire; provided, however, that the bull shall be owned by the same person at the time of each such winning.

Smut-free kafir seed will produce a smut-free crop regardless of weather conditions.

Make sure that the work horses' collars fit before starting them on the heavy field work.

HAYS CATTLE MAKE MONEY

Experiments Show Cows Can Be Wintered in Good Shape on Five Cents a Day



GROUP OF YEARLINGS AT HAYS IN EXPERIMENT ON DEVELOPMENT OF BREEDING HEIFERS. HALF OF EACH LOT TO BE BRED SOON. OTHER HALF NOT TO BE BRED FOR A YEAR

THE annual cattlemen's roundup was held at Hays on the Experiment Station farm, April 7.

"If the cattle feeder continues to lose money, he will have to go out of business," said W. A. Cochel, professor of animal husbandry, who explained the winter experiments at this meeting. The producer, the feeder, the commission man and the packer all deserve to make a fair profit, and it still should be possible for the people of the country to afford to eat meat.

"The experiment station is trying to encourage the Western Kansas farmer in utilizing the feeds at his command. Young stock should be so handled that they will not only go through the winter in good shape but will make some gain in weight. Too often the wintering period is one of loss, and it takes weeks in the spring to regain this loss.

"The purpose of our experiments is to learn how to turn into cash by-products of grain farming that would otherwise have no value. We must adapt our cattle management to our farm methods in order to get the most out of our business.

"Fully 50 per cent of feed given the heifers in our experiments would not have been worth a nickel had we not had cattle to feed—it was not in marketable form. Alfalfa was used that was badly damaged and of no commercial value.

"We find that the poorer rough feed should be worked off first in wintering live stock. The best feed should be saved until the last of the season.

"We are working to determine economical methods of producing beef under Western Kansas conditions. The experiment station has not fed a load of cattle that has lost money in the last four years.

"The station uses cattle to furnish a market for its grain, hay and other rough feeds. Live stock feeding operations are a means of marketing that which is produced."

Professor Cochel advocated a "safety first" program for Kansas farmers, and especially those of the West. The plan should be to prepare for the normal rather than the abnormal year, he pointed out.

"Grow kafir and other grain sorghum crops and thus provide for a possible shortage," he said. Because there was a good corn crop last year is no reason for counting on a similar crop in 1916. Carry over a portion of the feed from year to year to be used in case of deficiency in yield."

The results of two cattle feeding experiments were given at this meeting. In the forage tests with 2-year-old Hereford heifers, the object of the winter's feeding has been to learn the comparative values of the several classes of roughages commonly grown on the station farm. Maintenance through the winter in good, thrifty condition, was desired in this test more than gain. The following values per ton were placed on the feeds used:

All silage, \$2.50; kafir stover, \$1.50; Sudan stover, \$4; alfalfa, \$6; wheat

straw, 50 cents. Corn and cob meal, 93 cents per hundredweight; linseed meal, \$1.81 per hundredweight.

The cattle were fed according to appetite, economy considered. Considerable waste of kafir stover and Sudan stover took place.

The feterita silage was relished, though much of it was a little dry and slightly moldy. Kafir silage was better preserved and more palatable than the feterita. The amount of grain was about the same in each kind of silage, but fully half the grain was immature.

Most of the alfalfa hay was lessened in feeding value by rains during the curing period.

The heifers were with calf during this test and one-third of them calved during the last twenty days. The distribution of calves was unequal, but this did not materially affect the total weights of the lots; cows and calves were all included in the final weights.

There were twenty heifers in each of the five lots and they were fed 120 days. The results are given in Table I on this page.

The other experiment was the development of breeding heifers. This was started last fall with eighty yearlings. Forty of them were fed, for the 120 days of the test, silage, alfalfa and straw. The other forty were fed the same with the addition of 4.94 pounds of corn-and-cob meal and one pound of

linseed meal, daily, to each heifer. The object of this test is to learn the effect of these two methods of feeding upon the development of the heifers and the calves they produce. One-half of each lot will be bred soon. The other half of each lot will be allowed to develop one year more before breeding. The cost of wintering these two lots, the gains made, and the feed consumed, appear in Table 2.

The tendency in breeding herds in Western Kansas is for the cows to become smaller in size. This is probably due to early breeding and poor feeding of the heifers. It is to be hoped that this experiment will in the course of the next year or so, furnish some valuable information on the proper feeding of young heifers that are to be used in the breeding herds.

When to Plant Kafir.

D. L. M., Morris County, asks how early it is safe to plant kafir.

No definite date can be given, for the reason that soil conditions will vary even on the same farm. Kafir will not grow in cold, wet ground. It is even more susceptible to this condition than is corn. The seed is smaller, consequently the germ is not as large and strong. Land that has been cultivated early in the springs warms up more rapidly than land that has had no early cultivation. Heavy clay soil does not

warm as quickly as sandy loam. The lay of land will have its influence, a southern slope getting more sunlight than a northern slope.

As a general rule, it is best to wait until corn-planting in the neighborhood is well under way. It is of course important that the land be as free from weeds as possible at the time the seed is planted. It would be better to delay the planting a few days rather than plant in a foul seed bed.

The kind of seed to be planted should be taken into consideration. Carefully selected seed that has been well cared for will be stronger and more vigorous in its germination than will poor seed. This seed of strong vitality can safely be planted a little earlier than the poor seed.

Quarantines Against Foreign Corn

A number of injurious corn diseases have been found in Southeastern Asia, Australia, the Malayan Archipelago, Oceania, New Zealand, the Philippines, Japan, and adjacent islands. In view of the value and importance of the American corn crop, it is considered advisable to establish quarantines against all countries from which the diseases might reach the United States. A public hearing on the question of extending the existing quarantine against Indian corn from Java, India and parts of Oceania has just been held at the Department of Agriculture, Washington, D. C.

Recent investigations have shown that maize in British India, Java, Formosa and the Philippine Islands is subject to destructive attacks of at least two and possibly three species of downy mildews. One of these is known to occur also in the Fiji Islands and Queensland, Australia; it attacks sugar cane as well as maize.

The downy mildews found in Java, British India and the Philippines are favored by warm, moist weather such as is considered to be ideal for corn growing in the Mississippi Valley. If any of these mildews or other Oriental diseases of corn should succeed in entering the United States and reaching the Mississippi Valley, they would do immense damage.

A rapidly growing chick gains not only in flesh, but makes bone at the same rate, and in order to make this necessary bone growth, a large amount of ash is required in the form of lime and phosphates. Some of this is furnished from vegetable juices but, it must also be furnished from animal and mineral sources. Shell and grit are the two most common mineral sources, while beef scrap and granulated bone are the most common animal sources. Beef scrap should not be fed in excess, so bone is the most reliable source from which to obtain the bulk of this animal requirement.

While the past year's requirements are fresh in your mind, is a splendid time to figure on your feed supply for next year.

TABLE 1

FORAGE TEST WITH TWO-YEAR-OLD HEIFERS FED 120 DAYS—TWENTY HEIFERS IN EACH LOT

	Lot 5. Feterita Silage and Alfalfa Lot	Lot 2. Kafir Silage and Alfalfa Lot	Lot 3. Kafir Stover and Alfalfa Lot	Lot 1. Kafir Stover, Alfalfa on Range Lot	Lot 4. Sudan Stover and Kafir Silage
Average initial weight December 4	927.5 lbs.	928 lbs.	927 lbs.	927 lbs.	928.5 lbs.
Average final wt March 31	998.8	1032.8	990.5	930.5	960
Average gain per head December 4 to March 31	71.3	104.8	63.5	3.5	31.5
Average gain per day per head	.59	.87	.53	.03	.26
Feterita silage	15.4	.....	.....	.....	.....
Average daily ration per head:					
Kafir silage	.....	15.4	.....	.....	15.4
Kafir stover	.....	.....	16.8	14.8	.....
Sudan grass (stover after threshing)	.....	.....	.....	.....	13.6
Alfalfa hay	14.4	13.8	13.1	11.1	.....
Wheat straw	1.1	1.1	1.2	0.6	2.5
Average cost per head 120 days (feed only)	\$7.54	\$7.32	\$6.26	\$5.35	\$5.64
Average cost per head per day (feed only)	.063	.061	.052	.045	.047

TABLE 2

DEVELOPMENT OF BREEDING HEIFERS FED 120 DAYS—FORTY YEARLINGS IN EACH LOT

	Lot 10	Lot 9
Average weight, December 1	446.25 lbs.	445.72 lbs.
Average weight, March 29	671.5	556.1
Average gain per head	225.3	110.4
Average gain per head per day	1.88	.92
Average daily ration per head in pounds—		
Alfalfa hay	7.96	9.12
Silage	8.72	9.53
Wheat straw	.56	.55
Corn and cob meal	4.54	.....
Linseed meal	1.00	.....
Average feed cost per head, 120 days	\$11.43	\$4.73
Average feed cost per head per day	.095	.039

Let These



NORTH DAKOTA Battleships Protect Your Prosperity

Here is North Dakota's invincible Preparedness Fleet in one town of less than one thousand population—giant elevators which house the farmers' grain.

Why don't you come and enjoy this protection with our North Dakota farmers? PREPAREDNESS with them means more acres of grain, more live stock, comfortable homes, schools and churches. NORTH DAKOTA is coming rapidly into its own. The 1915 crop of grain along the Great Northern Ry. in that state amounted to more than EIGHTY-SIX MILLION bushels. The acreage of corn and alfalfa is increasing enormously every year. This means stock raising, combined with grain growing, for bigger and steady profits. Dairy and live stock products have more than doubled in the past few years.

Are you farming on high-priced lands? Then read of results on low-priced land in North Dakota.

M. C. Crockett, one of our big farmers writes:—"I came from Iowa to North Dakota—came from a good stock country, and I have always kept a good herd of cattle and some hogs, and know that all kinds of live stock can be profitably raised here just as well as in Iowa. I now own 2080 acres which I have added to my homestead as I could pay for it, and I figure my soil and farm just as good as they have in Iowa for \$200 per acre. And farm is not for sale."

Medium-Sized Farms Pay Best

Joseph Kasal is a 180-acre farmer in North Dakota. In 1915 he threshed from 127 acres in grain, wheat, 1,743 bushels—oats, 841—barley, 518. Cows, pigs and poultry supply the table necessities.

The Great Northern Railway has no land for sale in North Dakota, but there are hundreds of large farms like Mr. Crockett's and larger—there is a great amount of land owned by non-residents. We are in-

terested in having these large farms divided into 160 and 320 acre working farms. If you own or rent high-priced land, you will be interested in learning what our North Dakota farmers are doing on land equally productive, but which costs only about one-fifth as much and may be secured on very easy terms. In fact, what is ordinarily paid by renters will make the payments on a North Dakota farm.

North Dakota Bulletin FREE

Write for free bulletin and map and facts about the soil, and days of crop yields, experience letters from actual settlers. We will assist you in every way possible in finding a suitable location in any part of the state and our services to you are FREE. Special Low Fares for Home-Seekers. Write today. Address me personally, E. C. LEEDY, General Immigration Agent, Dept. 254, Great Northern Railway, St. Paul, Minn.

—MEMORY JOGGER—

I will send this today to E. C. LEEDY, General Immigration Agent, Dept. 254, Great Northern Ry., St. Paul, Minn.

Please send me free booklets and full information regarding money-making farms along the Great Northern Railway in North Dakota.

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You grow your grain for profit. Wasteful threshing means that both grain and profit are being thrown away.

Buy or Hire a Red River Special

To do your threshing this year, and get all of the grain that you raise and all of the profit that it will bring.

Everything that will do fast, clean and perfect threshing is to be found in this machine: the Big Cylinder, the Man Behind the Gun, the Beating Shakers, all are there to take all of the grain from the straw.

The patented features of a Nichols-Shepard Red River Special will alone thresh and save more grain than other machines can secure with their entire mechanism.

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BUILDERS EXCLUSIVELY OF
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(1) BATTLE CREEK, - MICHIGAN

If on the market for pure-bred stock, read KANSAS FARMER live stock advertisements. You will find what you want.



DRAINAGE IMPORTANT

FARM crops cannot be successfully grown where drainage is poor. If all the space in the soil is occupied by water, ordinary cultivated plants cannot grow in it. Roots of plants must have air and an excess of water in the soil smothers plant life by shutting off the oxygen. In a general way our cultivated plants do best when the soil contains about one-half as much water as it holds when completely saturated.

Even grass does not grow well on land where an excess of water is held too long in the surface layers. In walking over an alfalfa field the poorly drained patches can always be located because the alfalfa lacks in thrift and sometimes is killed out entirely. Last year, due to the excessive rainfall, poor drainage was more apparent than in normal years and in a great many alfalfa fields the alfalfa perished in these spots.

There is hardly a farm in Eastern Kansas that does not have a number of acres of rich land in need of drainage in order to make it productive. This land is in regular patches and it takes more labor and time to farm around them than to farm straight across them. There were such patches in wheat fields last fall that were so wet that they could not be seeded. They are still wet and soggy and cannot be properly prepared even for spring crops. Such land reduces the producing capacity of the whole farm and adds to the labor. Farm land is steadily increasing in value and these acres should not be permitted to lie idle. With proper drainage these seepy spots can be made the most productive land on the farm.

Spring is not the most appropriate time to put in tile or do drainage work, but it is a good time to locate the spots that need draining and make definite plans to properly tile them in the fall. Men who have started by tiling some of the worst of the seepy spots on their farms almost invariably are so well pleased with the results that they continue to lay tile until they have extended the system over land that ordinarily might not be considered in need of drainage.

It is a little hard to realize that taking off surplus water in the spring actually enables farm crops to stand dry weather better. In poorly drained land the roots of the crop spread out on the surface because of the excess of water below. They cannot penetrate into this saturated soil and their feeding area is thus restricted. Later in the season when the water has evaporated or drained away the roots are all surface and as a result the crop suffers more seriously from lack of rain than where the roots have penetrated deeply into the subsoil early in the season. Surface-rooted plants always suffer from dry weather. They must depend upon frequent showers for their moisture. They cannot draw on the reserve stored in the soil below because of the shallow root system.

Variety Tests of Corn

Plants are much more susceptible to environment than are animals. A variety of corn will modify its habits to a considerable extent in the course of a few years if grown under slightly dif-

ferent soil and climatic conditions. For this reason variety types in plants are not as firmly fixed as in animals. Each locality must to a certain extent develop its own adapted varieties. There are standard kinds of corn that have been developed through the careful, painstaking work of corn breeders, but even these have to be acclimated or adapted to the locality before they give the best results.

Arousing interest in the matter of better seed and in the development of corn that is better adapted to the locality, is one of the valuable activities of the agricultural agent. This work is done by getting different members of the county farm bureaus to make variety tests of corn on their farms, planting a few rows of a number of different kinds and keeping a record of the production. These tests furnish a good demonstration as to the value of well bred seed and the whole community will become interested in growing better corn. In planning these tests, some are put on upland soil and some on bottom land, and if there are any special soil types these are also taken into consideration, so that those who study the tests may find some being conducted under such conditions as they have on their own farms.

This is good work and farmers who are willing to devote the necessary time to making the tests are to be commended. It is an evidence of their public spirit and unselfishness.

Plant Corn Across the Slope

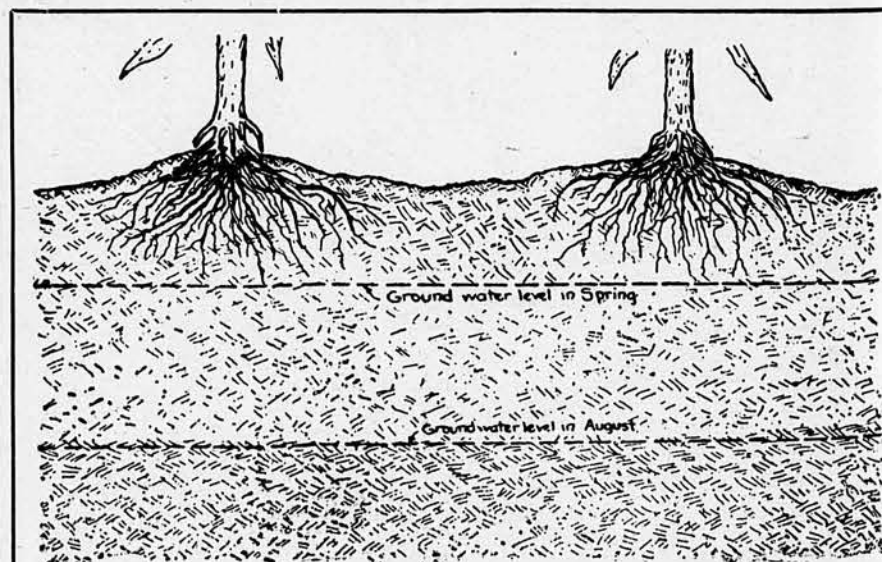
On sloping land, planting and cultivating across the slope where possible will help to reduce soil-washing. When corn is drilled with the slope furrows are made which are sure to increase washing. While checked corn is usually preferred by the best farmers on land that is not subject to washing, it is usually more important on rolling land to cultivate in one direction only, and that around the slope. The greatest damage is done on steep slopes because the faster the flow of water the greater the amount of soil it will carry away. If you double the rate of flow of water, it will more than double the amount of soil removed.

Value of Farm Lands Increasing

The value of farm lands of the United States, without improvements, is estimated at \$45.55 per acre, as compared with \$40.85 a year ago, \$40.31 two years ago, \$38.10 three years ago, and \$36.23 four years ago. The census reported the value of farm lands in 1910 as \$32.40, and in 1900 as \$15.57 per acre.

In recent years the value of farm lands has been increasing at the rate of about 5 per cent a year, or approximately \$2 per acre per year. The exceptional increase of the past year may be explained partly by the reaction in the southern cotton states following a temporary depression last year, and partly by the stimulus given by the war to prices, particularly of grain.

Increases have been general throughout the United States, the only noteworthy exceptions being orchard lands and some irrigated lands in the Northwest, which apparently had been overvalued before.



ROOTS WILL NOT PENETRATE SOIL HOLDING EXCESS OF WATER.—POOR DRAINAGE COMPELS SURFACE ROOTING

Farmers to Teach Students

About sixty farmers in one Missouri community are petitioning their College of Agriculture at Columbia to send its farm management students to them for study this summer. These farmers offer their farms of from 20 to 900 acres each for study and will themselves be the teachers to a considerable extent, although the college classes will be in charge of a professor who will direct their work and take charge of any general meetings which the interest of all parties concerned may make desirable.

As farmers from other communities are also asking that the students be sent to them, it is possible that different portions of the state will be studied in this way. Grain farming, stock farming, and diversified farming will be studied and the farm management methods which make for success in each line will receive special attention. Pure-bred stock will not be left out and the only Mangum terrace in Missouri recently installed by a county agent for the prevention of soil washing, will be a subject of considerable interest if it can be visited as now planned.

The parties will be equipped with small sleeping tents and also with a large work and mess tent if the enrollment is large enough to make this necessary. The course will be open to students from outside the state and to those who have not completed high school work.

Experience with Tepary Beans

C. W. Askew of Ness County, writes us of his two years' experience with tepary beans. He says:

"In the spring of 1914 I secured from the Arizona Experiment Station, seed of several varieties of tepary beans. I first wrote the station, making careful inquiry concerning the crop, and the reply received led me to believe that they might be well adapted to our conditions. We secured a quart each of the several varieties and planted them about the first of June with a lister. Wheat harvest came on early and we were not able to cultivate the beans for six weeks after planting. We then threw the soil to them, and this was all the cultivation they were given. The only rain was a good shower June 30. The beans were harvested the latter part of August. Two varieties—a white and a pink—made yields of about 140 pounds to the plot or at the rate of 33 bushels to the acre after considerable loss due to shattering.

"In 1915 we planted small patches of these two best yielding varieties and got a good crop but not equal to that of 1914. It was very evident that the season was too wet for them. It was the wettest season I have known for over thirty years.

"The vines produce a large growth which makes fine hay. It is relished by all kinds of stock, as are the beans. They are not very desirable for table use without considerable parboiling.

"With the limited experience we have had with them, we are led to believe they are one of the surest dry season crops we have ever tried. We would not advise them for the eastern two-thirds of the state, however, but believe every farmer in the western third ought to plant a field of them.

"The beans should be planted in rows about three and a half feet apart, putting three or four beans to the hill, and the hills sixteen inches apart. I believe where the annual rainfall exceeds eighteen inches surface planting is better than listing.

"On account of their slender, weak vines, harvesting of the tepary beans is somewhat tedious. They grow a heavy cluster of pods that hang below the vines almost to the ground, so that the mowing machine or scythe would clip off many of the beans. The vines are weak, however, and we take the header fork or an ordinary hay fork and shove it under the vine close to the ground and push three hills together. This makes a convenient size forkful to pitch into a barge or tight rack. The beans should be allowed to cure for a day or so before hauling in. In hauling, three rows can be taken at a time. They can be stacked in ricks four feet wide and as high as they can be made to stand. A layer of dry straw should be placed on the ground to keep the beans from spoiling."

Little chicks must never be overfed. Feed four or five times a day during the first feeding week, gradually diminishing the number of feedings until the end of the second week. Cracked grain may be fed three times a day and dry mash kept before them all the time after the second week. Sloppy, wet foods should be avoided.



A Real Value

It is an easy matter to make claims and to advance opinions. It is a simple thing to appropriate all the known motor car virtues and apply them to any automobile. Inexpensive diversions these, and there's the chance that some one may be impressed.

We haven't the inclination or the temptation to submit anything but facts. For we have the facts—convincing and significant facts—and one real fact is worth a legion of mere beliefs.

The Maxwell car holds the World's Endurance Record—22,023 miles without stopping the motor—500 miles per day average.

The Maxwell car has set numerous records for economy of gasoline—varying from 21.8 miles per gallon on the World's Endurance Record run to 36.8 miles per gallon on other runs that were planned to prove the economy rather than the endurance of Maxwell cars.

The Maxwell car, on account of its light weight and correct bal-

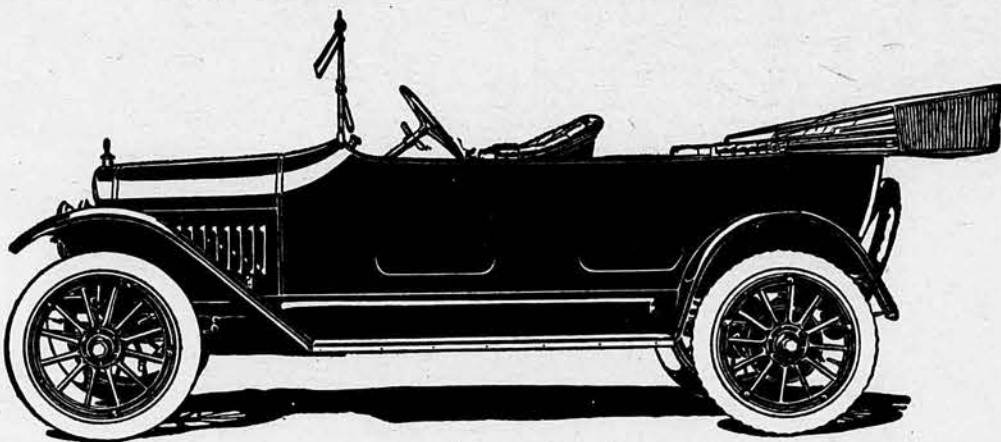
ance, always gives noteworthy tire mileage—averaging 9,871 miles per tire when setting the World's Endurance Record.

These are facts—established and proved facts. They help to make up Maxwell value. And when considered along with the physical attractiveness and the same complete equipment of much costlier cars, the result, Maxwell owners tell us, is a value that stands alone.

It is this value that is responsible for the doubled production of Maxwell factories. It is this value that is responsible for the 40,000 sales of Maxwell cars that were made last year to American farmers. It is this value that is responsible for the good will and popular favor the Maxwell car has earned.

You can get out of any car only what is put into it. Service and satisfaction do not simply happen. There is an adequate and powerful reason for the unquestioned leadership, in their class, of Maxwell Motor Cars.

The World's Champion Endurance Car



Touring Car, completely equipped, including Electric Starter and Lights, \$655, f. o. b. Detroit. Four other body styles.

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MOTOR COMPANY, DETROIT, MICHIGAN

Write to Dept. 28 for our catalog giving detailed specifications and our booklet "22,000 Miles Without Stopping."

Clean Skimming
Easy Turning
Easy Washing
Small Repair Cost
Best Cream Quality
World's Highest
Awards



DE LAVAL Stands On Its Record

FOR nearly forty years the De Laval Cream Separator has led in the cream separator field. It was the pioneer in 1878. It had a long start and has always held its lead. It has always led in every step of cream separator development and popularity, and more De Laval are in use today than all other makes combined.

It has always been recognized as the closest skimming cream separator. That's the main reason why 98% of the world's creameries use it to the exclusion of all others.

Because of its cleaner skimming, ease of operation and wonderful durability, every De Laval user is a "booster" and the better its work is known in a neighborhood the more popular it becomes.

The better quality of cream it produces is attested by the fact that De Laval produced cream and butter have scored highest at every annual contest of the National Buttermakers' Association for twenty-four years and in every great representative contest for over thirty years. Last but not least, the De Laval was awarded the Grand Prize at the San Francisco Exposition in 1915 as at every other great exposition since its invention.

The creamerymen's choice can't be far wrong. The world's greatest dairymen and mechanical experts who act as judges at the great expositions can be depended upon to recognize real merit, and the fact that the De Laval is the choice of the majority of all cream separator buyers must mean a good deal to you. In your purchase of a cream separator can you afford to ignore these considerations?

Let the De Laval start saving cream for you right now. See the nearest De Laval agent at once, or if you do not know him write us direct for any desired information.

THE DE LAVAL SEPARATOR CO.

165 Broadway, New York 29 E. Madison St., Chicago
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER



CARSUL THE ORIGINAL MOORE'S DIP
DISINFECTANT DIP
ON THE MARKET FOR 25 YEARS
Clean up, disinfect with "Car-Sul." Kill the lice on your stock with "Car-Sul." No better disinfectant ever made for general use around your farm and house than "Car-Sul." Your druggist or hardware merchant has it or direct from us with freight charges paid at \$1.25 for 1 gallon, or \$5.00 for 5 gallons. Don't take a substitute. If your dealer does not have "Car-Sul," write us. Take nothing but the original package.
THE MOORE CHEMICAL CO., Room 15 Simpson Bldg., Kansas City, Mo.

15 ⁹⁵ ^{ON TRIAL}
Upward **American**
FULLY GUARANTEED
CREAM SEPARATOR
A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for \$15.95. Skims warm or cold milk; making heavy or light cream. Bowl is a sanitary marvel easily cleaned.
ABSOLUTELY ON APPROVAL
Different from picture, which illustrates our large capacity machines. Western orders filled from western points. Whether dairy is large or small write for handsome free catalog. Address:
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Only \$2 Down
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\$24 Buys the New Butter-ty Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 5 1/2 shown here.
30 Days' Free Trial Earns its own cost. It saves in cream. Postal brings free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.
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There's nothing that makes farm life more worth while than an abundance of pure water for kitchen, bath, lawn, garden, barns, dairy, troughs, fire protection, etc. Goulds Pumps are reasonable in price, and cost little to maintain. Our service Dept. advises free on selecting from the 300 styles of
GOULDS PUMPS
FOR EVERY SERVICE
—hand, windmill, Gasoline, motor. Rigidly tested. Guaranteed. Backed by 65 years' experience. Send to-day for our new free book "Water Supply for the Country Home." Address Department Y
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Main Office & Works: Seneca Falls, N.Y.
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Fig. 1581 "Pyramid"

WITTE
You can't buy any good engine at a lower price. You can't buy a better engine at double the price. Sold direct factory to user. Established 1870.
WITTE ENGINE WORKS,
1601 Oakland Av. Kansas City, Mo.
1601 Empire Bldg., Pittsburgh, Pa.



Large Cows Best Producers

UNDER-SIZED cows are seldom heavy producers of milk and butter fat. The cow must have capacity to handle large quantities of feed in order to produce a heavy flow of milk. It matters not what the breed may be, it has been our observation that the most profitable producers are the cows that are large in size for the breed. The very small cows of the breed nearly always fall below what the better cows of the breed are able to produce. The little cows may not require so much feed for their own maintenance, but the sole function of the milk cow is to turn feed into milk, and the cow that will handle the largest amount of feed is almost invariably the one that will produce the most profit providing she is of dairy temperament.

There seems to be a constant tendency to reduce the size of the milk cow. Heifers are not grown out to normal size, and by continuing this for a generation or two, all the cows in the herd may become under-sized for the breed.

We just visited a herd in which these points were especially noticeable. There were only two pure-bred cows in the herd. One of them was a cow of large size and her conformation gave every indication that she had great capacity for feed. She had been fresh for two months and had been giving almost sixty pounds of milk a day. In the same herd there were a number of little heifers giving milk that did not appear to be over a year or a year and a half old. There is no hope for these little heifers to ever attain the capacity for production of the big cow. They will always be under-sized. The owner said he bought these heifers knowing they would be fresh but did not know they would calve so young.

We believe this point of keeping up the size of milk cows should be given more attention. Unless the heifers are fed well as calves and kept growing and developing properly they will not be near so valuable as producers when they are added to the milking herd.

There has been much discussion of the relative economy of large and small cows. Some have maintained that the smaller cows would produce butter fat more economically. At the Washington Experiment Station a test was recently conducted to determine the comparative economy of the large and small cow. The results of this test as given in the following extract of the report of the station, confirm the results of previous tests and the observation of experienced dairymen:

The cows were divided without regard to breed into groups of large and small cows. Cows weighing 1,100 pounds or more were taken as large cows and those weighing less than 1,100 pounds as small cows. The results showed that with the cost of feed alone considered the small cows produced butter fat for one cent per pound less than the large cows, but did not produce milk as cheaply. When the total expenses were considered the large cows produced butter fat at three cents less per pound and milk at 57 cents less per hundred than the small cows. The data obtained in this short test tend to show that the larger dairy animal having a large capacity for consuming feed is the more economical and more profitable animal. However, these conclusions are tentative, and to obtain conclusive results it will be necessary to continue the test for several years, which it is planned to do.

Breeder Endorses Dairy Club

The Kansas Farmer Dairy Club is attracting the attention of some of the best dairymen of the state. J. H. Lomax, who conducts an up-to-date dairy farm in Northeast Kansas, writes as follows:

"I think the Kansas Farmer Dairy Club is a grand proposition. It makes me think of when I was a twelve-year-old boy and milked the old red cow on the home farm, trying to make her give more milk than the one my brother milked. Many a farmer is today milking cows that hardly produce enough cream for the coffee. I never knew there was so much difference in cows until I had experience with the Jerseys. Knowing what I do now of the dairy business, I can say to the young farmer or dairyman that it is one of the best paying types of farming. To make it most profitable he needs a good, clean, warm barn, a silo, alfalfa hay, and good

cows of dairy type. They will make his farm better, will feed his hogs, calves, and chickens, as well as the family, and in addition will pay his hired help."

Silage for Spring Feeding

Silage is generally considered as a winter feed, but there is no season of the year when it is more needed than in feeding the cows early in the spring before the grass has matured sufficiently to supply the nutrients needed for milk production. When cows are once given a few nips at the early grass they lose their appetite for hay and other dry feed. If allowed to run on the pasture they spend their time grazing but get little feed value. Even if they are kept from the pasture they seem to lose their taste for dry feed and begin to fall off in milk.

Cows will eat heavy rations of silage even when given a chance to run on pasture early in the spring. They do not seem to lose their appetite for silage when they get the first bite of grass. We saw this demonstrated on neighboring farms only last week. On one farm the silage had all been fed and the cows were running on bluegrass pasture but getting little in feed value and were falling off in milk even though given two pounds of cottonseed meal daily with some chop and bran. On the other farm cows were eating forty and fifty pounds of silage daily even though they were running on pasture.

The dairyman needs enough silage so that he can feed it almost the year round if necessary. It has been said that silage is grass without hot weather and flies. On most Kansas dairy farms during the summer season there are periods when there is no pasture but plenty of flies and hot weather are certain, and unless there is silage for the cows to eat they will give but little milk.

Oleomargarine Fight in Congress

All producers of cream are interested in the oleomargarine legislation now pending in Congress. Mr. Haugen in introducing the National Dairy Union Oleomargarine Bill, H. R. 13825, made the following statement: "Several bills are now pending in Congress which in effect would materially weaken the present oleo law if enacted. One bill goes as far as to provide, 'That the artificial coloration of oleomargarine causing it to look like butter is hereby expressly permitted,' which, if enacted into law, would greatly build up the oleo industry at the expense of the dairy industry, making it possible to pawn off the counterfeit article for the genuine article at butter price. Thus, by deceiving the consumer, it would not only deprive the dairy industry of its legitimate market, but it would also enable the oleo manufacturer and dealer to swindle the consumer to the extent of the difference in the cost of the two articles."

"Hitherto objections have been made to the ten cent tax, upon the contention that it is a tax upon the customer. Now that the National Dairy Union and other representatives of the dairy interests have suggested and agreed to its removal, by substituting therefor a nominal tax, and prescribing a color standard beyond which oleo shall not go, the ten cent tax argument has been abandoned and copies of a resolution introduced in Congress and circular letters purporting to quote officials in the Department of Agriculture discrediting butter have been sent broadcast over the country, evidently to prejudice the people against the use of butter."

The present law was not passed for the purpose of adding to the price of oleo or to the burden of the consumer as alleged by some, but to insure honest dealings in oleo. It was believed that with proper enforcement of the law it would prove effective. Undoubtedly it has served a good purpose as it has in a large degree, protected the consumer against deception and the dairy interests against imposition, but according to the report of the Secretary of the Treasury for the fiscal year ending June 30, 1915, page 139, wholesale fraud is still being practiced.

"The Secretary in his report states that the Government had been defrauded through artificially colored oleo being sold under tax-paid stamps at one-fourth of one cent a pound instead of at the rate of ten cents due on such

product, by four manufacturers, the enormous sum of \$17,692,410.47, since the inception of the present law. By another manufacturer, \$1,503,205.30 in six years period. The five alone, in the aggregate \$19,195,613.77 stamp taxes, exclusive of special taxes of wholesale and retail dealers incurred.

"In view of the alleged difficulty in enforcing the present law and the fraud perpetrated under it, the Secretary recommends amendatory legislation to correct these faults and at the same time afford adequate protection to the revenues and to the public. Mr. Cabell, former Commissioner of Internal Revenue and others, testified and reported to the Agricultural Committee, numerous violations and suggested amendments to the present law. Recently forty-three persons were sent to the penitentiary for violations. Others are under indictment and, undoubtedly, will also go to the penitentiary.

"For some time it has been evident that the present law is not perfect in all its details but that it should be amended. For a number of years several, especially the officers of the National Dairy Union in consultation with others, have labored industriously and conscientiously to have the present law amended, not to weaken it but to strengthen it, to make it just and fair to the oleo interests, to prevent fraud and to protect the dairy interest and consumer against imposition. In preparing and presenting such a bill, with the prevailing misconception of the purpose of the ten cent tax, it was decided not to insist upon the ten cent tax but to prescribe and insist upon a color standard, 70 per cent white beyond which oleo cannot go, except when colored for one's own family table, which is in line with the laws of the state of Pennsylvania and of Denmark and made possible by a practical means for scientifically measuring color recently worked out by the National Bureau of Standards.

"The bill introduced provides that the name of oleomargarine shall be changed to margarine, that it shall be sold in one-half, one or five pound packages properly marked, wrapped and branded, that books shall be kept in such form as is prescribed and open to inspection, that a strip stamp shall be wrapped around each wrapper instead of the coupon stamp now used, for a flat tax of one cent per pound on all margarine, for special taxes on manufacturers, wholesalers and retailers, that the sale of margarine shall be subject to the laws of the state and shall not be exempt therefrom by reason of being introduced in the original packages or otherwise, and for heavy penalties for violations of the law.

"This bill was introduced at the request of the National Dairy Union. It was prepared by men of experience and talent, with the aim to make it just and fair to all concerned. It is indorsed by the representatives of dairy interests. It should be passed speedily, without change, and as prepared by the Committee that drafted it.

Early Corn for Silo

Ninety-day corn does not grow as big nor make as large yields as later maturing varieties, but on live stock farms a patch of early maturing corn is a big help in supplying some cheap feed for the stock early in the season. Grain is high in price and some early corn will help cut down the feed bill.

The dairy farmer having a silo can with profit put in some early silage and begin feeding it at once. It is always difficult to keep up the milk flow at this time of the year. Such varieties as Minnesota 13, Northwestern Dent, Sherrod's White, or other small, early maturing varieties will be ready for the silo in July or August. They will not make large tonnage yields but some well matured silage will be most acceptable at that time. The regular silage crop can be filled in on top if any of this early silage is left at filling time.

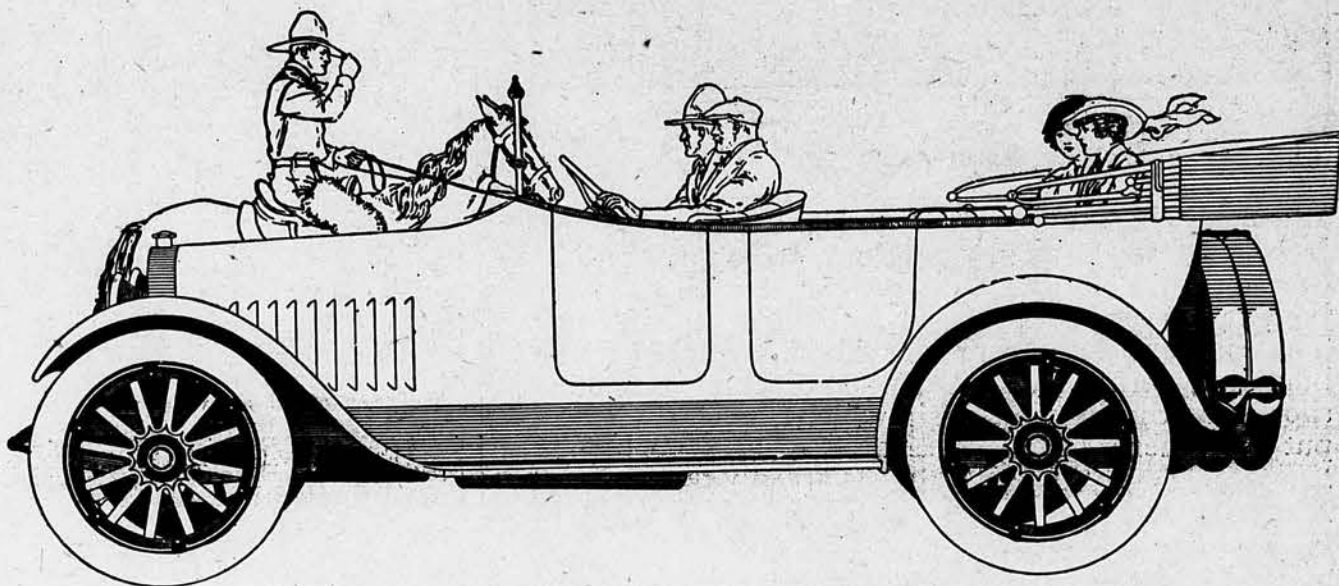
It is not a bad idea to plant some early variety of cowpeas at the last cultivation in this field of early corn. The peas will come on and can be pastured down with hogs or turned under in the fall as green manure. If pastured down, rye can sometimes be seeded with profit for fall and winter pasture.

At a conservative estimate two cows can be kept by feeding silage at the cost of one cow from the same acreage fed on hay or other roughage.

An inch of rain coming down on a single acre of ground would fill more than 600 barrels of 45 gallons capacity each. This amount of water would weigh more than 110 tons, or nearly a quarter of a million pounds.



Quality First



Price, \$1090 Detroit—One Reason For a 900 Per Cent Increase in One Year in Chalmers Farm Business

A car that merely looks well, "steps" smartly, and rides comfortably on boulevards, is emphatically not for the rigorous demands of the American farmer.

The value of length of life in a piece of machinery is nowhere more thoroughly understood and more keenly sought, than on the farm.

Length of life is a thing of scientific certainty in the 3400 r. p. m. Chalmers. Its high engine-speed is in part responsible, for the higher the engine speed, the less the side-thrust of the crankshaft, and the side-thrust means destructive wear and tear that rips an engine to pieces.

Long life is also insured by the big margin of reserve between your normal driving speeds and this car's safe maximum engine-speed of 3400 revolutions per minute.

3400 r. p. m. does not mean that the engine turns at this high rate at all times. It means that it can attain this record speed without skipping and with absolute safety. Normally, you do not require any such crankshaft turning. At 10 miles an hour, for instance, you

need only 500 r. p. m., at 20 you require 1000 r. p. m., and at 30 miles 1500 r. p. m.

Here is conservation of energy at its best; ahead of the 8400 r. p. m. stretch years of obedient work; and all intelligent judges of machinery know that a car thus built and thus conducting itself cannot wear itself out in a few years of hard usage.

Buyers, moreover, are reminded that with every 3400 r. p. m. Chalmers goes a book of 100 half-hour free service and inspection coupons, negotiable at any Chalmers dealer's on the map.

Go and see this machine the next time you go to town. Examine her engine. And you'll no longer be in doubt what machine you ought to own.

Five-Passenger Touring Car, \$1090 Detroit

Two-Passenger Roadster, \$1070 Detroit;

Three-Passenger Cabriolet, \$1440 Detroit;

Color of Touring Car and Roadster—Oriford Maroon or Meteor blue. Three-Passenger Cabriolet—Oriford maroon, Valentine green, or Meteor blue. Wheels—standard dark, primrose yellow or red. Wire wheels optional on Roadster or Cabriolet at extra cost.

Chalmers Motor Company

Detroit

PUT THIS ATTACHMENT on Your FORD and you've got the BEST and CHEAPEST farm power—costs less than 1/3 Ordinary Gasoline Engine or to Operate.

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WHY have 2 men and team haul a stationary engine over farm when you have a real "self-portable" one? This is a real snap for you. Mr. Ford Owner—you can just knock out all kinds of farm work and at half the expense. Guaranteed Absolutely.

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AUTO POWER TRANSMITTER

weighs only 55 lbs. Remove the crank, slip on and clamp. Car cranks just as before. Throws in and out of gear—can leave on all time. Guaranteed not to injure engine. Furnishes

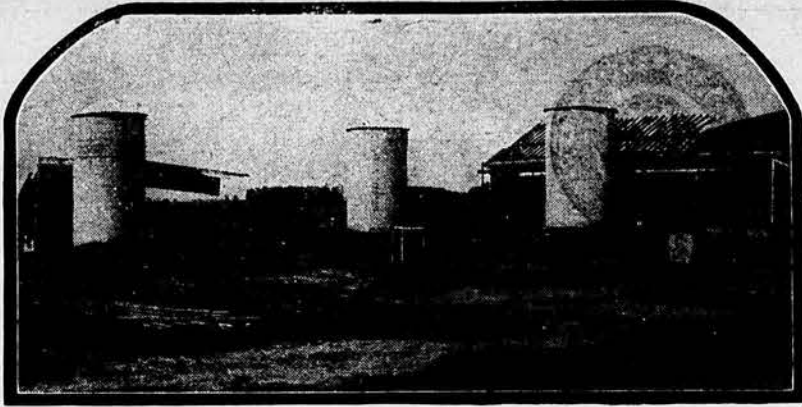
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In the Path of a Tornado

In June, 1914, the Poor Farm of Outagamie County, Wisconsin, was struck by a cyclone, which demolished everything in its path but the concrete silos. Four buildings were wrecked—two of them completely. The concrete silos, right along side the wrecked frame buildings, were unharmed. Filled or empty, concrete silos resist the heaviest strain which the elements can put upon them.

Fireproof Time and again, concrete silos exposed to the intense heat of burning barns have not suffered the slightest injury. The walls are fireproof; fire cannot be communicated to the contents. There is nothing about a concrete silo to burn.

Rat and Rotproof Rats can not gnaw through concrete, and let air into the silo. The contents are thus prevented from molding. Moisture can not rot the concrete walls.

There are so many concrete silos to be found in all parts of the country, that it should be an easy matter to inspect one in your own neighborhood. Then write us for instructions how to build it.

CONCRETE FOR PERMANENCE

PORTLAND CEMENT ASSOCIATION

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Kansas City

Ideal Building
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Atlanta

116 New Montgomery Street
San Francisco

Southwestern Life Building
Dallas



Shipping Live Stock Co-Operatively

FARMERS' live stock shipping associations have proved so successful that there are now 500 such associations in the United States that are shipping stock in a co-operative way. About 200 of these are in Minnesota, where the movement started, and the remainder are chiefly in the Middle West. Several have been successfully conducted in Kansas for a good many years and new ones have recently been formed. Brief editorial mention was made of these in KANSAS FARMER, April 1 issue.

The main purpose of these associations is to enable their members to ship in carload lots to the central markets instead of being more or less at the mercy of local buyers in disposing of a few animals from time to time. The fact that no capital is required for their organization makes these associations possible in communities in which more complicated forms of co-operation would not succeed. Such associations are scarcely practicable, or necessary, in regions where there is so much live stock that it is generally marketed in carload lots under any circumstances, or where there is so little that the association has practically nothing with which to work.

To organize such an association it is necessary only for the farmers of the community to meet together, adopt a simple constitution and by-laws, a sample of which is given in Farmers' Bulletin No. 718 of the Federal Department of Agriculture, to elect officers, and, in turn, for them to appoint a manager. It is recommended, although it is not absolutely necessary, that the organization incorporate. This can be done at a nominal cost—usually not more than ten dollars. For this small expenditure of trouble and money the association usually enables the farmer to market his stock when it is ready instead of compelling him to wait until the local shipper is ready to buy it. He obtains for himself the benefits of the cheaper carload transportation, and the shipments of the association realize for the owner the market price of his stock less the actual cost of marketing. In particular, it has been found that when thin stock, calves, or lambs are sold in small numbers, the local price is usually very low. It is on this class of stock that the associations have been able to save their members the most money.

In order to avoid misunderstanding, it

is important that all stock be marked at the shipping point. This precaution prevents disputes in regard to shrinkage and dockage and assists in making adjustments in case of loss or damage in transit. There are three common methods of marking. Numbers or other characters may be clipped in some conspicuous part of the animal, paint may be employed, or numbered ear tags used. The last method is the least frequent because it is somewhat difficult at the stock yards to get close enough to the animal to see the number on the tag. If the second method is adopted, ordinary paint is undesirable, especially for hogs, as it does not dry readily enough to prevent smearing. This difficulty may be overcome by using paint containing about one-fourth varnish. In the case of sheep, however, painting is objectionable because the marks will not scour out and wool manufacturers object to them, and branding fluid, therefore, is preferable. Whatever system of marking is adopted, the important features are that it should be uniform for all shipments and that the marks should be plain and conspicuous. In many cases hogs are not marked, but are graded by the manager at the shipping point. A record of those subject to dockage is kept in such cases. Marking is advised, however, as a precaution against mistakes.

Since no payments are made for stock shipped until returns from the central market are obtained, these co-operative associations may be formed without capital. All that is necessary is for the farmers to comply with their engagement to furnish the stock to the manager when, where, and in such quantities as they say they will. In some associations a fixed sum of money is exacted from a shipper for failure to deliver stock to the manager as agreed. In every case the amount to be exacted should be reasonable and should fairly represent the actual loss which it is estimated the association will suffer as the result of non-delivery. The provision for liquidated damage is proper, because the manager must arrange for a certain amount of car space, and if all of it is not used, the expense to those who do ship is proportionately greater.

Fuller details in regard to the organization and management of such associations are contained in Farmers' Bulletin

Hail

ARE YOUR CROPS PROTECTED ?

You know the deadly work of hail. Within a few hours all your crops can be destroyed. Your income is gone. Your labor is wasted.

What a sense of security you have when your crops are protected against hail in a safe and conservative company. Don't risk another day, but insure now in a company whose officers are bonded to the State of Kansas for \$50,000.

THIS IS THE COMPANY

that first put the insurance in force from the moment the application was signed and the premium paid. Always has adjusted all losses, no matter how small. We ask for your application on our past record. Don't wait for the storm, but write us for full particulars or see our agent before you insure your grain.

THE GRAIN GROWERS HAIL INSURANCE COMPANY

Elmer F. Bagley, Secretary, Topeka, Kansas.

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12x30, 75 tons, \$134.00	18x40, 229 tons, \$255.00
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Other sizes proportionately low. Fully warranted. Why pay more for any good silo? Agents wanted in unoccupied territory. Write today for illustrated booklets also of CLIMAX Ensilage Cutters and HOOSIER Extension Silo Roofs.

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Cost of Growing Mule Colts



Thirty-one mule colts weaned November 26, 1915, were experimentally fed at Hays Experiment Station for 130 days. Results are given in figures that follow:

Average initial weight per animal.....	545 lbs.		
Closing weight per animal.....	654 lbs.		
Average gain per animal	109 lbs.		
FEED CONSUMED:	PRICE	TOTAL VALUE	
Sudan hay	6,510 lbs.	\$4.00 ton	\$13.02
Cane hay	3,380 lbs.	2.50 ton	4.22
Alfalfa hay	10,115 lbs.	6.00 ton	30.34
Kafir tailings	12,660 lbs.	2.00 ton	12.06
Sorghum fodder	6,860 lbs.	1.50 ton	5.14
Oats	201 lbs.	.45 bu.	2.81
Corn and cob meal.....	10,664 lbs.	.93 cwt.	99.18
Oil meal	1,000 lbs.	1.81 cwt.	18.10
Oil meal	239 lbs.	1.54 cwt.	3.68
Salt	50 lbs.	.75 cwt.	.38
Alfalfa pasture 1½ months at 35c per head per mo.			16.27
Veterinary work			8.00

\$203.80

LABOR:

Man labor	146 hours at 21 cents per hour....	\$30.66
Horse labor	150 hours at 10 cents per hour....	15.00
Equipment	100 hours at 3½ cents per hour....	3.50

49.16

Total, thirty-one head

\$252.96

Cost per animal, \$8.16; cost per animal per month, \$1.88.

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OR PAIN KILLER FOR THE HUMAN BODY

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IT HAS NO EQUAL

For — It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Boils, Cancers, Boils, Corns and Human Bunions. CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

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**Sore Throat
Chest Cold
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Sore Lungs
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and
all Stiff Joints**

REMOVES THE SORENESS—STRENGTHENS MUSCLES
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OTTO A. BEYER.
Price \$1.50 per bottle. Sold by druggists, or sent by express prepaid. Write for Booklet B.
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You can do it easy every season on every stack with Martin Metal Stack Covers—made in galvanized corrugated sections—can be quickly fitted to any size stack.

Are better than barns or sheds. Are water tight and rust proof. Can't blow off. Easy to put on and take off as desired. Stack right in the field with them.

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Save ALL your hay or alfalfa. Save the cost of extra building, save extra hauling, extra handling, save extra labor, and wages and extra wagons, teams and men.

These covers will save enough to pay for themselves—and more—on the very first stacks they cover. Write for your free literature. Make it sure better, grade better and bring you a better price—\$1 per ton more at least. Made and continued to last for years. SPECIAL OFFER! Write today for free illustrated literature and introductory price.

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Stack Your Hay The "Jayhawk"

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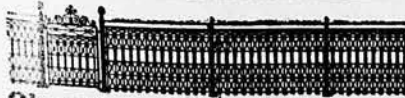
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Grow Pure-Breds and Increase Profits

That pure blood is potent and works improvement, there is none to deny, and in view of this, a more general production of registered cattle will not only raise the standard of merit, but will prove a profitable undertaking. I have often heard this reply from men when appealed to in public auctions of registered cattle, to make an investment, "Oh, I am not a full-blood man," meaning that they regarded it as a business distinct from the production of unregistered cattle. This prevailing impression is unfortunate; because of it, many men have refrained from taking advantage of the larger profits which the breeding of registered cattle offers.

When it is considered that the use of pure-bred sires has raised the standard of merit wherever it has been introduced, it seems rather inconsistent that registered stock are not more generally bred and in larger numbers. If all of the registered animals of the Shorthorn breed—this being the strongest bovine breed in point of numbers in America—were placed within a state of average size, there would not be nearly enough animals to stock one-half of the farms within its borders.

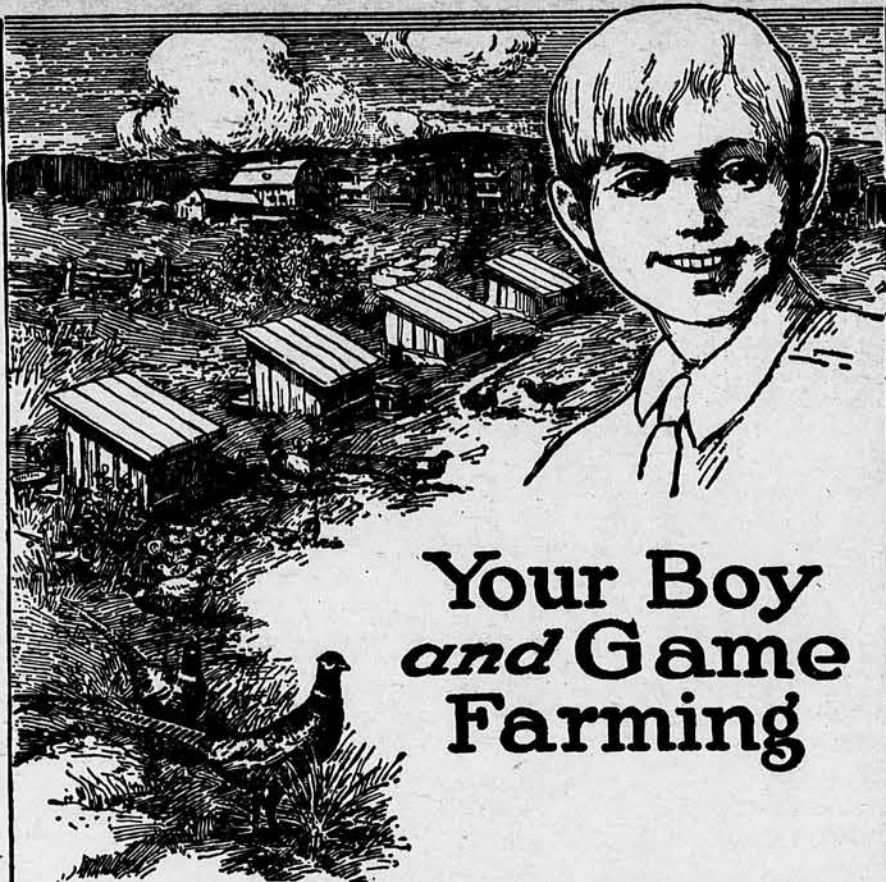
If the average man will make selections of breeding stock, adhering to the type which he holds in favor, he will realize larger profits and an increased interest in the business over the breeding and handling of grade stock. The keeping of records involves but little time and is in no sense complicated. It requires merely making a notation of the birth date, of the calves, crediting them to the proper parentage, giving them a name and sending them for record in accordance with the simple rules of the pedigree associations. If the owner does not wish to sell the male calves for breeding purposes, they may be sent to the feed lot. Yet in seven years out of ten, they will pay larger profits if sold for breeding purposes. The prevailing practice among experienced breeders is to consign the least promising ones to the feed lot, a plan that works for the improvement of the breed.

There is no longer any doubt as to the superior merit, for practical purposes, of registered stock. Cattle are no longer grown to be subjected to trying conditions of endurance. They are grown to meet the market requirements and the better they are fed and cared for, the earlier they are matured, the more certain the profits for the producer. It is under this treatment that the registered animal, the well bred animal, responds better than the grade carrying a varying percentage of inferior blood. This isn't a theory. It is an established fact that has been so widely demonstrated that there is no longer any question as to its reliability.

If there is a reader of this paper who clings to grade cattle on the assumption that full-blood cattle are not adapted to his purpose or that there is something professional in their production, he will do well to modify his views to conform to the accepted experience of the present day. Comparatively few men will rely wholly upon the patronage of breeders of registered cattle to take their output for breeding purposes, but a large majority will find it profitable to grow registered or full-blood cattle for market purposes. The practice will insure increased profits to any intelligent man who follows it. It required good judgment, intelligent care and liberal feeding, and what successful stockman can proceed on any other basis? The subject merits thoughtful consideration.—FRANK D. TOMSON.

A sufficient variety of live stock should be kept on every farm to utilize as nearly as possible all forms of vegetable matter that it is possible to raise. Cattle manufacture roughage into beef, milk and butter. The hogs also do their share in converting waste material into pork, and the farmer who manufactures his vegetable matter into wool, mutton, pork, beef, milk and butter, has a commodity that is seven times as easy to market so far as hauling is concerned, and in manufacturing these various products there is left on the farm the most valuable fertilizer that it is possible to get.

"Good blood and liberal feeding will pay better in draft horses than any class of stock providing a man buys no more mares than he needs in his farming operations and exercises good judgment," says Wayne Dinsmore, secretary of the Percheron Society of America.

**Your Boy
and Game
Farming**

HAVE you ever considered what an opportunity game farming, as it is developing in this country, affords your boy? It offers him a splendid chance to show his worth, increase the value of your farm, and, what is most important to him, earn extra pocket money.

Thousands of ambitious, industrious boys on American farms are playing a big part in the intensive development of our agricultural resources. Game farming falls right in line with their activities.

Profit and Pleasure in Game Farming

This is a profitable and pleasant industry for you and your wife as well as your children.

The breeding of game birds is profitable from a marketing standpoint. The demand for eggs and for breeding stock is much greater than the supply, and will be for years to come. Pheasant eggs, for instance, sell today at from \$20 to \$25 a hundred. Live birds bring from \$5 to \$7 a pair.

It will, at small expense in time and trouble, supply you with an abundance of food for your own consumption. Pheasants, wild turkeys, and other birds

forage much of their own food and require comparatively little attention.

Game farming will provide more shooting for you and for everyone, for it is a fact that game raised for sporting purposes cannot be confined in any restricted area. At the same time those who own large acreage, or who pool their land with others, get profit from those who pay for sport.

If you yourself haven't the time to devote to game farming give your boy a chance at it. You put up the money—and it won't be much. Let him contribute the work. You will find the combination a good one.

Write today, or let your son write, for the booklet, "Game Farming for Profit and Pleasure." You will find it well worth reading. Please use the coupon below.

Game Breeding Department, Room 98

HERCULES POWDER CO.

Wilmington, Delaware

Manufacturers of Explosives; Infalible and "E. C." Smokeless Shotgun Powders; L. & R. Orange Extra Black Sporting Powder; Dynamite for farming.

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Gentlemen:—Please send me a copy of Game Farming for Profit and Pleasure. I am interested

in game breeding from the standpoint of.....
Very truly yours,

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of experience at once on the farms of
Western Canada

To replace the young farmers who have enlisted for the war. Good wages and full season's work assured.

There is no danger or possibility of
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DELUGE** What matter?
Inside a **FISH BRAND
REFLEX SLICKER \$3**
you're always dry and happy.
A.J. TOWER CO.
BOSTON

GOPHER TRAPS something the gophers can't cover up. Circular free.
A. F. Renken, Box 32, Kramer, Neb.



Cave Life or Civilization

Civilized man is distinguished from the cave man by his habit of co-operation.

The cave man lived for and by himself; independent of others, but always in danger from natural laws.

To the extent that we assist one another, dividing up the tasks, we increase our capacity for production, and attain the advantages of civilization.

We may sometimes disregard our dependence on others. But suppose the farmer, for example, undertook to live strictly by his own efforts. He might eke out an existence, but it would not be a civilized existence nor would it satisfy him.

He needs better food and clothes and shelter and implements than he could provide unassisted. He requires a market for his surplus products, and the means of transportation and exchange.

He should not forget who makes his clothes, his shoes, his tools, his vehicles and his tableware, or who mines his metals, or who provides his pepper and salt, his books and papers, or who furnishes the ready means of transportation and exchange whereby his myriad wants are supplied.

Neither should he forget that the more he assists others the more they can assist him.

Take the telephone specialists of the Bell System: the more efficient they are, the more effectively the farmer and every other human factor of civilization can provide for their own needs and comforts.

Or take our government, entrusted with the task of regulating, controlling and protecting a hundred million people. It is to the advantage of everyone that the government shall be so efficient in its special task that all of us may perform our duties under the most favorable conditions. Interdependence means civilized existence.



AMERICAN TELEPHONE AND TELEGRAPH COMPANY
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One Policy One System Universal Service

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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.

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OTTAWA, KANS. CATALOG FREE

If on the market for pure-bred stock, read KANSAS FARMER live stock advertisements. You will find what you want.

GOOD KANSAS LAND CHEAP

Those who located in Central Kansas 20 years ago are farmer-kings today. Their land has made them independent.

Your chance now is in the five Southwestern Kansas counties adjacent to the Santa Fe's new line, where good land is still cheap.

With railroad facilities this country is developing fast. Farmers are making good profits on small investments. It is the place today for the man with little money.

Wheat, oats, barley, speltz, kafir and broom corn, milo and feterita grow abundantly in the Southwest counties referred to. Chickens, hogs and dairy cattle increase your profits.

Write for our illustrated folder and particulars of easy-purchase contract by which you get 160 acres for \$200 to \$300 down, and no further payment on principal for two years, then balance one-eighth of purchase price annually, interest only 6%—price \$10 to \$15 an acre. Address

E. T. CARTLIDGE,
Santa Fe Land Improvement Co.,
1870 Santa Fe Bldg., Topeka, Kansas

NEW FEATHER BEDS ONLY \$5.40
6 POUND FEATHER PILLOWS \$1.00 PER PAIR
New, clean, odorless, sanitary and dustless feathers. Best ticking. Satisfaction guaranteed. Write for FREE catalog and our wonderful Free Offer. Agents wanted. Address Southern Feather & Pillow Co., Dept 1136 Greensboro, N. C.



Little Talks to Housekeepers

Helpful Hints Here for the Women Folks of the Farm

Home and Love

Just Home and Love! the words are small,
Four little letters unto each;
And yet you will not find in all
The wide and gracious range of speech
Two more so tenderly complete:
When angels talk in heaven above,
I'm sure they have no words more sweet
Than Home and Love.

Just Home and Love! it's hard to guess
Which of the two were best to gain;
Home without Love is bitterness;
Love without Home is often pain.
Not each alone will seldom do;
Somehow they travel hand in glove;
If you win one you must have two,
Both Home and Love.

And if you've both, well then I'm sure
You ought to sing the whole day long;
It doesn't matter if you're poor
With these to make divine your song.
And so I praisefully repeat,
When angels talk in heaven above,
There are no words more simply sweet
Than Home and Love.
—Robert W. Service.

The housekeeper who is a slave to her work never completes it. It might better be done a little less thoroughly, leaving time for some of the pleasures of life.

A number of young folks in Finney County recently drove twenty miles in a spring wagon to hear the state's club

work plan for boys and girls, outlined. Such interest, if encouraged, is sure to bring results—not only for the young people, but for the community in which they live.

If the mush to be fried is packed in greased baking powder cans and covered, no crust will form. This also gives it a convenient shape for slicing.

Two teaspoonfuls of baking powder should be allowed for each cup of flour, if eggs are not used in the mixture—one and one-half teaspoonfuls if eggs are used.

Do not mistake the lure of Nature as a sign of laziness. Respond to the call by laying aside all possible of the indoor work for a day, spending the time outside, and you will feel refreshed and your work will not seem so uninteresting.

Bread should not be kept wrapped in cloth as the cloth absorbs moisture and an unpleasant taste is developed. Jars or tin boxes in which bread is kept should be washed and scalded several

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. 7605—Ladies' Middy Blouse: Cut in sizes 34 to 44 inches bust measure. Made in the simplest manner possible, this blouse slips on over the head, the neck opening being cut down a little to make it large enough. There is a medium size collar as a neck finish. The low shoulder joins the plain sleeve, which is loose, and either full length or shorter. No. 7604—Girls' Dress: Cut in sizes 4, 6, 8, 10 and 12 years. Blouse and skirt are joined in this dress. It has a side front closing with either a high neck and standing collar, or round neck and flat collar. The sleeves are plain and either long or short with fancy cuff finish. The skirt has four gores. No. 7623—Ladies' Waist: Cut in sizes 34 to 44 inches bust measure. All the new materials are soft and such a waist as this is ideal for them. It is quite full in both front and back, with plain center front and with side front closing. The sleeves are long and are full from the shoulder. No. 7625—Ladies' Apron: Cut in sizes small, medium and large. This natty apron is for use when engaged in light work only. It is often sufficient except on cleaning days. It has a bib in front with cross straps in the back and the skirt is in two parts. No. 7595—Ladies' Skirt: Cut in sizes 22 to 32 inches waist measure. Made with two gores, this walking skirt closes at the left side. There is a small pleating which fills in the upper part of the front gore, where the material is cut away from the pocket outline. No. 7599—Ladies' Dress: Cut in sizes 34 to 42 inches bust measure. The plain waist closes at the side of the front, the open neck has a chemise and standing collar and a wide revers trimming. The skirt is made with four gores and has a reversed box plait in the back.

times a week in winter and every alternate day in summer, to prevent mould.

There will probably be many days yet when a little fire will be needed, though at times it is hard to believe it.

Let Child Help Himself

The child should early be taught to do for himself those countless little things which hardly seem like work and yet when added to the work of each day tax the mother's strength more than she realizes at the time. At the close of the day if the playthings are put in order by the little hands, it will be a bit of helpful training and will save many steps for the mother.

How True

A rural civilization that will hold men to the soil must be satisfactory materially, intellectually, socially, and spiritually, to the boys and girls born and bred on the soil.

So long as we think of country life as competitive instead of co-operative, we shall never have an ideal rural civilization.

So long as our children are taught in the rural schools in terms of the city, by teachers who in their secret thoughts regard the life in the city as the only life worth living, these children when grown up will prefer the city.

So long as our religion is taught in abstract terms which the people who need most the blessings of the gospel do not understand, without illustrations from rural life, and by preachers whose ambition is to fill or at least occupy a city pulpit, the vacant pews in the rural church will be in the majority.—HENRY WALLACE.

Our Schools

The public school has always been looked upon as an important institution, but never before has it been given the thoughtful consideration it is today receiving. In the past when a change of residence was contemplated, inquiry was made as to whether or not there was a school within walking distance, but today this is not enough—that school's advantages must be the kind that will fit into the life training. The abstract is fast giving way to the practical when there is not time to master both.

When the reform in school methods was first introduced it was looked upon with suspicion by many, but the believers are numbering greater as it is being demonstrated that the "three R's" can be taught as successfully in connection with those things which are a part of the child's present life, as by using as foundation matter things unheard of and unnecessary in the life. Can any harm possibly result from the installation of a Babcock milk tester through the use of which the pupils will learn there is a difference in milk and in cows? And cannot as interesting and valuable a reading or language lesson be based on this testing work as upon any other subject?

Our own Dickinson County High School is putting to practical use the knowledge of machinery gained by the students, by inviting the nearby farmers to bring in their farm implements to be overhauled and repaired by the members of the farm mechanics class. This is only one of the many useful pursuits of our schools.

True it is, that additional room and equipment are needed for this kind of work, but the school history of the past few years shows how willingly these needs are met when once understood. In many instances in farm communities several districts have consolidated, mak-

ing it possible to provide better buildings and supplies for all with comparatively little additional tax upon the individuals. This system is steadily becoming more popular for the reason that it is standing the test.

Kansas' first consolidated school was established in 1898 in Ellsworth County, a special law having been passed in 1897 making it possible for the districts of one township in that county to consolidate.

In 1901 a general law was passed and which at the present time provides that any two or more districts may hold an election for the purpose of consolidating. We now have about ninety of these schools in this state, affecting more than 200 districts. The largest consolidated districts are Burns and Rose Hill, each having combined five districts. The Burns school serves an area of forty-three square miles, and the Rose Hill district is twenty-one square miles.

Within the past twelve months about thirty-five rural high schools have been established in our state.

There are still many who oppose the consolidated school—in fact they are against any change from the school system they have always known. But if they are earnestly seeking to provide their families with the best possible educational advantages and social opportunities which will develop well rounded, useful citizens, sooner or later the light will come to them and they will recognize it as the signal that present-day conditions require different methods and they will not be slow in following their convictions and changing to the method—whatever it may be—that will best serve their purpose.

The value of any new or unknown thing can be proven only by studying and testing it, and when a great number have investigated and conclude it is worthy of adoption, it must have some merit.

We doubt not many were the interesting school meetings held throughout the state last week. The more we study our school needs and supply them, the more useful and substantial will be the citizens now in the building.

Scalloped Salmon

1 can salmon
1 cupful white sauce
Put half the salmon in buttered pudding dish, pour in half the white sauce, next add balance of salmon, then white sauce. Top with layer of cracker crumbs. Bake until brown.

The white sauce is made as follows:

2 tablespoonfuls butter
2 tablespoonfuls flour
1 cupful milk
¼ teaspoonful salt
Fed grains pepper
Put butter in sauce pan, stir until melted and bubbling. Add flour mixed with seasoning and stir until thoroughly blended. Pour the milk on gradually, adding about one-third at a time, stirring until well mixed, beat until smooth and glossy.

Prune Pie

Prunes should be cooked until very tender, and sweetened. Remove stones and fit closely into baked crust. Cover with thick layer of whipped cream.

Cocoa

3 tablespoonfuls cocoa
¼ cupful sugar
Few grains salt
4 cupfuls milk
¼ cupful boiling water
Scald milk. Mix cocoa, sugar, and salt, adding enough boiling water to make a smooth paste. Add remaining water and boil one minute, pour into scalded milk. Beat two minutes with egg-beater, when froth will form; this will prevent the formation of scum.



COMFORTS may be cheap. It's a question of knowing where to go for them.

If you are planning alterations in your home, go to your lumber dealer and ask him to show you Curtis Mantels, Built-in Bookcases, Sideboards, Colonnades and Open Stairways. All Curtis Woodwork—the permanent furniture for your home—carries the Curtis trademark.

Are you going to build? We can help you if you will but write us. There's no obligation on your part. For details of our Home Builders' Service, write today.

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The Makers of CURTIS Woodwork Guarantee Complete Satisfaction to its Users
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"The Permanent Furniture for Your Home"



"You Mean
Sunshine
L.-W. Sodas"



There's a zest to Sunshine L.-W. Soda Crackers that nothing else has. They give the men folk and the little folk muscle and energy because they're nourishing and digestible—light, crisp, flavory crackers that everybody likes. Look for

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at your dealer's. Sunshine L.-W. Sodas are one of 350 kinds of Sunshine Biscuits. And you'll like every one.

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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

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Edgings and Insertions
A special selection of pretty patterns. Large illustrations with complete instructions. Over 50 new designs applied to Handkerchiefs, Towels, Yokes, Curtains, etc.

Every page useful. Price, postpaid, 10c. Pattern Dept.

KANSAS FARMER
Topeka, Kan.



PLUCKING THE FIRST FLOWERS OF SPRING

HUNDREDS MORE EGGS EVERY MONTH

OF THE YEAR WITHOUT LICE OR MITES

Don't let the lice and mites rob your laying flock of the strength and vitality that should be put into egg production. Give your hens a clean, wholesome, well-ventilated, sanitary lice and miteless nest in which to lay. The increase in egg production in this nest is enormous.

Our Special Advantages

Each nest has ten square inches more room, inside, than any other steel nest on the market. It is comfortable for large hens as well as small. It is fastened together with heavy, substantial bolts and nuts. It is easy to assemble and absolutely rigid and permanent when set up. It is entirely complete at prices here quoted, having full metal back, top, bottom, ends, partitions, doors and perch or running board. The perch or running board is an advantage, because hens go easily to the next nest without disturbing a hen already laying.

A Solid Complete Steel Back

is included with each nest at the prices given below. We will not ship nests without backs.

The doors are so hung as to give air and light space entirely around the door on three sides as well as through the openings in the door.

It is the last word in steel nest construction and besides all these advantages—is sold for less money. These low prices are possible because our factory turns out from 8,000 to 12,000 complete sets every season. More than all other factories combined.

THIS IS THE LATEST-LARGEST-STRONGEST STEEL NEST ON THE MARKET



AND IT COSTS YOU LESS

PRESCOTT'S IMPROVED MITE-LESS HEN'S NEST



More Expensive But Worth More. Made round on top so that hens cannot roost and foul the nest. Each nest completely partitioned, roomy, sanitary and inviting to the hen. Easily removed from the poultry house and can be entirely burned out without the slightest injury. Made only of galvanized steel. Put together with heavy bolts and nuts. Portable, light, roomy, but very substantial and should last a lifetime.

1 set of 6 nests, \$6.00; without legs, \$5.00
1 set of 6 nests, \$4.00; without legs, \$3.10
1 set of 4 nests, \$4.00; without legs, \$3.50
Satisfaction guaranteed or money refunded. Order now or write for literature.

Read What Our Users Say

Prescott Sales Co., Kansas City, Mo.—Please find enclosed check for \$6.00 for which send me two more sets of six. Also catalog on other styles. I like these nests because they have backs. Respectfully yours, D. F. Diehl.

My honest opinion of the "Mite-less" Hen's nest is that they are sanitary. They are roomy enough for laying hens and deep enough to prevent them from scratching out the litter. And best of all they are complete with backs. Respectfully yours, Mrs. Chris Smith.

Regarding your "Mite-less" Hen's nests, I frankly say I would not be without them for twice the money. I have saved many hours of work since I had them. No more white-wash, no more insect powder, no more dirt. As soon as I put a new addition on my coop you will hear from me for about five or six sets of the No. 8. Yours very respectfully, Alex A. De Boro.

Enclosed please find check for \$37.75 for which send nests. I like your nests immensely. Respectfully, Mrs. Mike Hendel.

About a year ago we ordered and received one of your "Mite-less" Hen's nests and we like it very much. Yours truly, D. B. Unruh.

Guaranteed For 10 to 20 Years

You can order direct from this advertisement or write for our literature. Louse season is here and you should have the nest in your poultry house at once. Every nest is absolutely complete, made of 26 gauge steel with two coats of black asphalt louse-proof paint, or heavily galvanized as you prefer. AND remember these prices include complete nests with backs, put together with nuts and bolts, absolutely complete and made like a steam boiler.

1 Set of 6 Nests \$4.00. 2 Sets \$7.50.
1 Set of 6 Nests \$4.00. 2 Sets \$8.50.
1 Set of 4 Nests 2.75. 4 Sets \$8.50.

Special Prices and Prepay Freight Offer

Don't wait a minute. Get these nests now. Get the big egg production started at once and keep it going. Nests without lice and mites will add 20% to 100% to your poultry profit. Order from or answer this advertisement and we will prepay the freight on orders of \$7.50 or over. If you prefer galvanized steel add seven cents per nest. Order or write today and mail to

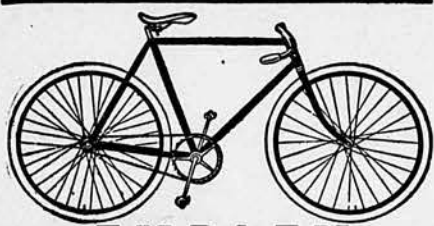
PRESCOTT SALES & MFG. CO.
Room 10, 3908 Bell Street, KANSAS CITY, MO.

BEATS THE HEN

The new-born chick is too weak to be able to choose and get its own feed. Old Mother Hen is a poor rustler, but that's no excuse for losing 82 out of every 100 of her own or incubator chicks before they reach full feather. You can keep your little chicks by feeding

OTTO WEISS CHICK FEED
It beats all others. Beats the hen. It saves the little ones—practically all of them. Contains wheat, oats, beef, meal, and enough "Cryso" to provide plenty of grit for the baby chicks. Get it of your dealer.

THE OTTO WEISS CO.
Wichita, Kan.



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BICYCLES AND MOTORCYCLES.
The Handiest Tool on the Farm.
AGENTS WANTED. CATALOGUE FREE.
EMBLEM MANUFACTURING CO.,
ANGOLA, N. Y.
A 50-cent pack of Emblem Playing Cards for 15 cents.

FARM DYNAMITE

and accomplish more work in removing stumps, rocks, also planting trees, digging ditches, etc., than twenty men. It's effective, safe and easily used; guaranteed Standard Brand; shipped DIRECT from Mill in this state, lowest prices. No salesmen. Established over 30 years. Write for full particulars. **BRUNS POWDER CO.** TERRE HAUTE, INDIANA.

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. **THOMAS OWEN, Route 7, TOPEKA, KAN.**

DOUBLE SERVICE Automobile Tires

Guaranteed 7,000 Miles Service
Absolutely Punctureproof

Double Service Tires are made double the thickness of the best standard make tires. The 100% greater wearing surface naturally gives them much more mileage and service. The average of 12 miles of tough fabric and one inch surface tread rubber makes these tires absolutely punctureproof. These tires excel all others for use in the country over rough and rugged roads as well as on hard pavements. They are as easy riding and resilient as any other pneumatic tire—the air space and pressure being the same. They are the most economical and "care free" tires made and are used where tires must be depended on and tire troubles cannot be tolerated. Many Double Service style tires are in use in the U. S. government and European War service. Our output is limited to a certain amount, but for a short time we offer the following reduced special prices as an introductory offer.

PRICES		Tires Tubes	
30x3 1/2 in.	\$ 8.50	30x4 in.	\$17.45
30x4 in.	10.50	35x4 1/2 in.	21.20
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Some Common Poultry Diseases

SORE HEAD—CHICKEN POX.—The symptoms of this disease appear on the heads of poultry in the shape of eruptions of yellow warts varying in size from a pinhead to a pea. These eruptions are found upon the parts of the head that are free from feathers. The common form of sore head localizes itself to the head. In very severe cases it may spread to other parts of the body. The bites of fleas and mosquitoes do not cause the disease, but may facilitate the entrance of the germ through the sores. Sore head appears to flourish in wet weather among late hatched chicks.

Treatment: Similar to all other poultry diseases, the success in combating them lies almost entirely with the preventative measures. Remove all well birds to fresh ground and uninfected houses. Provide roosts for all of the birds. Do not allow the chicks to roost on the floor or crowd into the corners of the house. Keep the house dry, well lighted, free from drafts, and well ventilated. Above all, see to it that the house is cleaned out regularly and thoroughly, followed by a thorough disinfection with a solution containing 4 per cent carbolic acid and 96 per cent water.

When the disease first appears in a flock, the affected birds should be isolated and treated, and those not yet affected should be driven up into the corner of the pen. Then with a fine mist sprayer spray a 1 to 10 solution of some good coal tar disinfectant upon the heads of the birds. It is well to spray all of the late hatched chicks once a week as above outlined, as soon as sore head is known to exist in the neighborhood.

Individual treatment is given by dipping the birds into a 2 per cent solution of potash permanganate; following this, after the bird is dry, with an application of carbolic ointment, or glycerine, containing 2 per cent of carbolic acid.

COMMON COLDS.—Common colds should be treated as outlined above for sore head with the exception that that part dealing with the application of some healing salve can be eliminated.

LIMBERNECK.—Limberneck is caused by ptomaine poisoning. The bird affected by limberneck loses control of the neck muscles, and stands or walks with its neck in some peculiar position. Ptomaine poisoning is caused by the bird eating putrid meat or maggots. A dead bird or some other animal in unfrequented places to which the fowls may have access, may be the cause. Spoiled beef scrap is sometimes the cause. Nine times out of ten it is caused by some form of dead animal life wasting away in the hot sun, to which the affected individuals gained access.

Treatment: No positive cure. The first thing to do is to remove the cause by burning all dead animals and birds. It may mean crawling under a house, searching through a brush pile, or the careful inspection of weeds and tall grass in order to locate the cause.—Texas Station Bulletin.

Owing to the lateness of the season, the hatching period will be extended several weeks this year.

May and June are likely to be the great hatching months this year, owing to the tardiness of fine spring weather.

When chickens are let out in the spring, the first thing that they go for are the blades of green grass. They will leave all other foods for this, and seem to relish it, as they appear greedy for it. See to it that the chicks are allowed to get to the green food as soon as possible.

While early-hatched chicks are good things to have, late-hatched chicks are better than no chicks at all. It is not yet too late to send off for that sitting of pure-bred eggs.

A neglected poultry house will soon breed disease and the birds will become unhealthy. To keep a poultry house in good condition one must go through it each week and remove all litter and accumulations. The interior of the house should be sprayed and lice powder shaken into the nests.

The yards should be spaded up quite frequently during the spring and summer. It is a means of cleaning up the yards, as well as giving the chickens a good place to scratch in. If you have

more than one poultry yard, it is a good idea, after spading one of them, to sow the same to wheat or rye. Keep the hens out of this yard till the green food is up a few inches, then let them in and spade up the other yard and sow to some green crop. By thus alternating yards you will always have succulent food for the hens, which will keep them healthy and reduce the amount of your feed bill.

Oftimes when a sudden rainstorm comes up the chicks will get caught in the rain before they can be gotten to shelter. They will often be thoroughly chilled and unless something is done for them they will die of the cold and exposure. As soon as discovered the chicks should be picked up and taken near the stove to revive them. Warm flannels should be placed over them until they are fully revived. If some of them are apparently lifeless when discovered, give them a good bath in warm water, then dry them and wrap in flannels, and keep near the kitchen stove until they are lively again.

Be sure to keep the brooders clean. If there is one thing above another that will cause sickness among chicks, it is filthy quarters. Clean out the brooders often and renew the litter in the coops. If you will put in but a little litter each time, just about enough to absorb the droppings, you will find it an easy matter to keep the brooders clean and with but little loss at that. Sprinkling dry earth on the floor of the brooder occasionally will keep things sweet and clean. See that the chicks do not make the brooder damp by puddling in the drinking water. Such a water fountain ought to be provided so that the chicks can only get their beaks in to drink. But even with such fountains they cause a lot of dampness. Whenever it gets damp, sprinkle with dry earth of ashes.

Carelessness and neglect are the worst enemies of any enterprise. They will wreck any undertaking, however favorable the conditions may be for the success of that undertaking. Carelessness in the poultry yard leads to all kinds of troubles. Neglect of the fowls brings in the lice and often lets in the night prowlers. It frequently leaves a broken window till a cold storm comes and the birds are down with a cold that makes it possible for that terrible disease, roup, to develop. More flocks have become unproductive from neglect than from any other cause. Unless a man can give his poultry the care they should have, he will get little satisfaction and less profit out of them. Look after the fowls and they will pay well for their keeping, but neglect them and they are a nuisance and an eyesore on any place.

Very often a breeder hears the story of a poor hatch and poor eggs. The buyer seems to think that the eggs must hatch regardless of the treatment they receive at his hands. Eggs will not hatch if they are left for several hours where they get chilled. They will not hatch successfully where the incubator runs up to a very high temperature or down to a very low one. If the eggs are left out while they cool and are forgotten for several hours, do not blame the breeder for sending you poor eggs. If the hens get cranky and refuse to sit only at stated intervals, do not think that the breeder can do anything to keep these eggs in condition meanwhile. A party once wrote a breeder that the shells of the eggs must have been very thin, for the hen trampled on them and broke nearly every one. This particular hen was undoubtedly doing a war dance on those eggs with the aforesaid result. Sometimes a breeder may have a pen of chickens whose eggs are infertile. If he finds this out, he is always willing to make good the loss. Now if you are going to buy hatching eggs, be fair with the dealer and endeavor to give the eggs sent the best possible show.

A correspondent writes: "In a recent issue of KANSAS FARMER there is an item under Poultry Notes as follows: 'Bran, alfalfa meal, cornmeal, fed in a dry mash.' What do you understand from dry mash? Do you just stir up the different ingredients or should they be cooked first?" By dry mash is meant that the ingredients are fed just as purchased at the stores, in their dry state,

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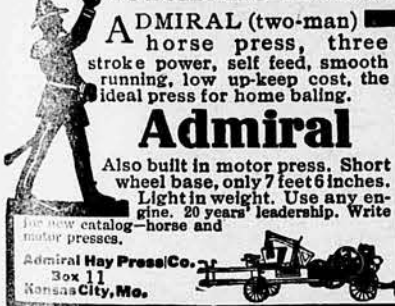


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without any water or milk. In the instance referred to, the dry mash is fed in hoppers, and if moistened would not run through them, but would clog them. Dry feeding has been followed very extensively the last few years by many breeders with great success. The dry mash gives a change from the dry grain feed, and meat meal and alfalfa meal can be fed this way. The writer has been very successful in feeding dry food to young chicks, never giving them any moist food—from birth to maturity. When feeding dry food, however, it is very essential that the chicks and fowls should be kept constantly supplied with plenty of pure, clean water, as well as milk, if possible. To accelerate egg production we like to give the hens a warm moist mash occasionally, especially on cold winter mornings. This we make of alfalfa leaves, corn chop and meat meal, pouring boiling water on the same and stirring up to a crumbly mash. We add a little salt to make it more palatable.

Health is the one great essential and can best be promoted by feeding clean feeds. If wet mashers are to be fed, they should be fresh every time. Sour foods upset the digestive system of chicks very quickly. The litter and sand of the feeding compartments should be kept clean and free from droppings.

Chicks must be induced to exercise. Cover the floor with a thin layer of chaff or fine litter and feed the cracked grain in the litter. The chicks scratch for the feed and exercise in this way.

Feed all of the spare milk, such as buttermilk, separator milk, and clabbered milk to the chicks. They relish it and it is good for them. It matters not if it is sour provided it be clean.

By feeding sour milk to chicks, the dangers of white diarrhea and other chick diseases can be greatly reduced. The feeding of sour milk has a beneficial influence for the growth of chicks and in lessening mortality from all causes. The milk should be fed in porcelain-lined pans and should be kept before the chicks at all times.

Feed only what chicks will eat up quickly so that they will be anxious and greedy for next feed. Provide plenty of green succulent food. Sprouted oats, lettuce, rape, mangels, beets, and cabbage are good green foods. They are as necessary for chicks as for laying hens.

Keep Nests Free from Mites

Lice and mites are a serious drain on the vitality of the laying hens. Production will be greatly lessened where these pests are allowed to breed and multiply unchecked. Mites suck the blood from the fowls when they are on the nests or perches. They hide in cracks and crevices and breed in the filth which is too often allowed to accumulate on the floor and dropping boards.

To make their control easy, all fixtures and appliances about poultry houses should be movable so they can be taken out, cleaned and sprayed. In everything that goes into a chicken house there should be as few cracks and crevices as possible. Nests and perches are the places where mites are most commonly found. The ordinary wooden box nest furnishes ideal conditions for their increase. We have seen sitting hens occupying such nests, killed by mites. Frequently they are driven from the nest and the eggs thus become chilled.

The ideal nest should be easily cleaned and sprayed. It is an advantage if nests can be burned out on the inside. This insures the destruction of all mites, lice, and their eggs. It is a quick and easy way of getting rid of them. Of course, only metal nests can be treated in this manner. Nests of this material are also more easily cleaned and since they have no cracks in which mites can hide, it is an easy matter to keep them free from these pests.

It is never a good plan to build a long row of permanent nests. By not having more than six or eight joined together they can be carried out for cleaning. The most common location for nests is under the perches, but as these must be frequently sprayed, this is not the best place for them. They must be accessible and in a dark place if possible. Hens do not like nests that are too open and light. If they are dark the hens are not so apt to get to scratching in them, thus breaking eggs and starting the vice of egg-eating. Enough nests should be provided so that three or four hens will not crowd into a single one. One nest to every ten hens is about right for the average flock.



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FOR SALE—SCOTCH COLLIE PUPS. Box 111, Inman, Kan.

AIRDALE—THE GREAT TWENTIETH century dog. Collies that are bred workers. We breed the best. Send for list. W. R. Watson, Box 128, Oakland, Iowa.

SILOS.

MONOLITHIC SILO BUILDER, BUILDS a reinforced concrete silo on your ground. Manufactures every detail from chute to window. Any farmer can operate it. Only ten days to have complete silo set up and in use. Is absolutely a great money saver. Details, photographs and experiences of others sent you for the asking. Address E. H. Euler, 114 Kansas Ave., Topeka, Kan.

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LET US TAN YOUR HIDE: COW, HORSE or calf skins for coat or robe. Catalog on request. The Crosby Frisian Fur Co., Rochester, N. Y.

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PATENTS PROCURED. INQUIRE ABOUT our \$100 cash prize. Free advice. Free search. Free official drawings. Capital Patent Co., Dept. E, Washington, D. C.

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HEDGE POSTS.

HEDGE POSTS FOR SALE—CAR LOTS. H. W. Porth, Winfield, Kan.

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LUMBER! BUY FROM US. HIGH GRADE. Bottom prices. Quick shipment. Keystone Lumber Co., Tacoma, Wash.

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She's The Money Cow

She makes use of every ounce of feed. Her milk is the richest of all the breeds in butter fat and solids. She is rugged and vigorous—will thrive in any climate. She milks steadily. She is beautiful and gentle. She's the mortgage lifter. She's the cow for the everyday farmer, yet she's the rich man's pride, too. And she's the cow for the family. Our free book, "About Jersey Cattle," proves these things. Send for it now—a postal will do—it's interesting and instructive.

The American Jersey Cattle Club
375 West 23rd Street - New York City

SEVENTY HEAD REGISTERED JERSEYS.



Forty cows and thirty heifers for sale. Nothing over five years old. Richly bred. Fox Signal and Fern Lad families. All bred to choice registered herd bull. Must reduce herd.
N. L. DUCHESNE, GREAT BEND, KANSAS

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

JERSEY CATTLE AND CHESTER WHITE HOGS

Two registered Jersey bulls ready for service. Richly bred.
DORNWOOD FARM, Route 1, Topeka, Kan.

SUNSET "CORRECT TYPE" JERSEYS

The famous Blue Belle-Golden Rosebay breeding. A few bred heifers and young bulls for sale, singly, pair or trio. Send for circular giving description of herd, breeding, production, etc., and mention your wants.
The Ennis Stock Farm, Holine Station, Mo. (Just South of St. Louis.)

LINSKOTT JERSEYS

Kansas' First Register of Merit. Estab. 1878. Bargain in month-old bull calf from one of the heaviest milkers in our herd. Flying Fox blood. Fully guaranteed. A beauty. \$25.00.
R. J. LINSKOTT HOLTON, KANSAS

JERSEYS BACKED BY RECORDS.

Calves, yearlings and two-year-old bulls, sired by Sultan's Trinity King, Fern's Baby Boy and Majesty Western King. From dams that will give 1,000 pounds of 5 per cent or more, a month. Also some choice young Poland China boars.
DR. J. H. LOMAX, Station D, St. Joseph, Mo.

BISONTE FARM JERSEYS

\$25 buys a 4-month-old bull from long line of heavy producing cows. Noble of Oaklands and Eminent breeding. Write for pedigree.
BISONTE FARM - LAWRENCE, KAN.

JERSEY BULLS

For Sale—A few great young bulls, ready for light service. Splendid individuals of most popular breeding, sired by Blue Belle's Owl 79641 and H. F. Golden Fern's Lad 9th 101728, all out of great dams. Only bulls from our very best cows, raised and offered for sale. You must buy a good one if you buy here. Address
ROLLA OLIVER, Box 701, St. Joseph, Mo.

SMITH'S JERSEYS

One 2-year-old, two 1-year-old bulls, choice individuals. Thirty cows and heifers, solid colors, a nice lot. Come or write your wants and about the amount you wish to pay. Will describe the best I have for the price. No cows under \$100.
S. S. SMITH, CLAY CENTER, KANSAS.

FOR SALE—Nine registered Jersey cows and heifers. Excellent unrelated bull, Oakland's Sultan 2d.

PERCY LILL - MT. HOPE, KANSAS

FOR SALE—Three registered Jersey bulls, richly bred.

L. E. Pendleton - Dodge City, Kansas

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CLAIM SALE DATES.

Shorthorns.
May 11—E. O'Day, London, Ohio.
Aberdeen Angus.
Aberdeen Angus Breeders' Association sales:
St. Joseph, Mo., April 25; Omaha, Neb., April 26; Sioux City, Iowa, April 27; St. Louis, Mo., May 2. Chas. Gray, Secretary, 817 Exchange Ave., Chicago, Ill.
May 26—E. H. Sallsbury, Kirksville, Mo.

Holsteins.
April 25—F. J. Searle, Oskaloosa, Kan.
April 26—Mark B. Curdy, Howell, Mich.
April 28—Liverpool Sale & Pedigree Co., Inc., Liverpool, N. Y. Iowa Breeders' Sale at Waterloo, Iowa.

Jersey Cattle.
May 20—Robt. I. Young, Route 5, St. Joseph, Missouri.

E. O'Day of London, Ohio, owner of one of the noted Shorthorn herds in that state, announces a sale of Shorthorns to be held at London, May 11, 1916. Fifty-two head of choice Shorthorns will be catalogued for this sale. The offering will consist of twenty young bulls and thirty-two cows and bred heifers. Some of the cows will have calves at foot and be rebred. This is one of the Shorthorn herds noted as heavy milkers.

Bisonte Farm, Lawrence, Kan., is noted as the home of one of the heavy producing herds of Jersey cattle in this state. This herd has been built up by a system of breeding that insures producers. The best herd bulls obtainable have been used in the herd and the cows are all backed by a long line of records. A feature of the herd at this time is the choice lot of young stock, including some choice young bulls.

L. V. O'Keefe at Bucyrus, Kan., is one of the successful farmers and stockmen. Mr. O'Keefe has bred Poland China hogs for about fifteen years and has held two sales each year for a number of years. At the head of his herd of big-type sows are the great breeding boars, Big Logan Ex and A King by Iowa King. Up to this date Mr. O'Keefe has saved about eighty spring pigs and has a number of sows to farrow. One feature of his herd is a number of extra good fall boars sired by Big Logan Ex and A King.

The Iowa State Breeders' sale of Holsteins at Waterloo, Iowa, April 28, will be one of the big events of the season in Holstein circles. Consignments from the best herds in the state will be offered. A choice consignment from the noted herd of W. B. Barney & Sons will be among the lot. Their offering includes Fobes Clothilde 224-973. She freshened at 3 years 2 days and has completed a seven-day record of 21.26 pounds butter, milking over 64 pounds a day. She is making a very nice thirty-days official record which will be completed before sale date. Among the other good ones are Jessie of Home Farm, with seven-day record of 22 pounds butter from nearly 90 pounds milk daily, and her dam has a yearly record of 776 pounds butter from 20,000 pounds milk. Princess Hamilton of Home Farm is a daughter of their former herd sire, Hamilton Prilly, and made 19.38 pounds butter in seven days with first calf, also 78.58 pounds butter in thirty days. There are eight fine granddaughters of the noted Fobes Tritomia Mutual De Kol (sire of 35 A. R. O. daughters, three averaging over 32 pounds butter in seven days). These include a daughter of a 26-pound four-year-old dam's dam 28 pounds; two three-fourths sisters to a 30-pound cow, and several daughters of cows with records from 19 pounds up. There is nothing in their consignment over six years old, all tuberculin tested and a fine clean lot, with the finest blood lines and exceptional A. R. O. backing. There are twenty-two head of choice females and three young bulls, including a son of their famous Sir Sadie Cornucopia.

The second annual consignment sale to be held by F. J. Searle of Oskaloosa, Kan., owner of the famous Sunflower herd of Holsteins, will be one of the big events of the season. One hundred and ten head of choice registered Holsteins have been catalogued for this sale. Sunflower Herd's consignment will consist of some twenty head, choice young cows and heifers bred to the 30-pound sire Prince Artie Pontiac Abbecker 136382, many of them will be nearly springers; also several heifer and bull calves by above bull, and a son of King Walker. J. H. Holston & Son, of Topeka, consign a son of King of the Pontiacs, from an A. R. O. dam of extra breeding, another son of Johanna McKinley Segis (dam 40 pounds) from an A. R. O. granddaughter of Pontiac Korndyke, both ready for service, and a nice lot of cows and heifers bred to their son of Colanthe Johanna Lad. Henry C. Gilsman, Omaha, Neb., will have twelve daughters of his 31-pound herd sire, Sir Pontiac Rag Apple Korndyke 49334 (fourteen A. R. O. daughters, one above 29 pounds at three years). R. E. Haeger, Algonquin, Ill., consigns some forty head from his splendid herd, the home of the famous sire, King Segis Pontiac. Six sons from this great bull from dams of the best breeding, all ready for service. One son of the world's champion show bull, Paul Calamo Korndyke, from a dam who was first prize winner at the National Dairy Show. A son of the 30-pound sire, Oakland Paul Beets Burke from a 24-pound daughter of Hengerveld De Kol, also ten daughters of the great sire, King Segis Pontiac. These should interest breeders from all points of the compass; also splendid daughters of such sires as Woodcrest Hengerveld De Kol, Oakland Paul Beets Burke, Lewis Prilly Roubie Hartog, Woodcrest Nig DeKol and the 40-pound bull, Johanna McKinley Segis, all bred to King Segis Pontiac.

HOLSTEIN CATTLE.

HOME FARM



CLYDE GIROD, At the Farm.

HOLSTEIN FRESIAN FARM, TOWANDA, KANSAS

Pure-bred and high grade Holsteins, all ages. Largest pure-bred herd in the South-west, 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.

HOLSTEIN CATTLE.

Barney & Son's Consignment TO IOWA BREEDERS' SALE

Fobes Clothilde freshened at 3 years 2 days, and has completed a seven-day record of 21.26 pounds butter, milking over 64 pounds a day. Jessie of Home Farm, seven-day record of 22 pounds butter from nearly 90 pounds milk daily; dam has yearly record of 776 pounds butter from 20,000 pounds milk. Princess Hamilton of Home Farm, a daughter of our former herd sire, Hamilton Prilly, 19.38 pounds butter in seven days with first calf, also 78.58 pounds butter in thirty days. Eight fine granddaughters of the noted Fobes Tritomia Mutual De Kol (sire of 35 A. R. O. daughters). Two three-fourths sisters to a 30-pound cow. Several daughters of cows with records from 19 pounds up. Nothing in our consignment over six years old, all tuberculin tested and a fine clean lot, with the finest blood lines and exceptional A. R. O. backing. There are 22 head of choice females and three young bulls, including a son of our famous Sir Sadie Cornucopia.

W. B. BARNEY & SONS, Chapin, Ia.

F. W. ROBISON, Cashier Towanda State Bank

Cederlane Holstein Herd

One of the best bred sires in the state at head of herd. Some of our cows produce 80 pounds milk per day. Buy your next bull from a well bred and high producing herd.

T. M. Ewing, Independence, Ks.

Regier's Holsteins

Holstein-Friesian A. R. O. bulls ready for service. World's record blood flows in their veins.

G. REGIER & SONS, WHITEWATER, KAN.

IN MISSOURI

Eight bulls, 2 to 8 months, \$100 to \$175 each. Always have a few good cows and bred heifers for sale. Nothing but registered Holsteins.

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

BUTTER BRED HOLSTEINS

Buy your next bull calf from a herd that won the butter test over all breeds.

J. P. MAST - SCRANTON, KANSAS

REGISTERED HOLSTEINS

We want to cut down our herd. Will sell ten or twelve choice cows, most of them young, also a few heifers.

M. E. MOORE & CO. - CAMERON, MO.

CORYDALE FARM HERD

Jewel Paul Butter Boy No. 94245
One of the best bred bulls in the state. We offer three bulls ready for service out of good producing dams.

L. F. CORY & SON, Belleville, Kansas.

HOLSTEIN COWS

Holstein cows, springers or bred heifers. Very large, good markings, out of best milking strains, bred to pure-bred bulls of the very best blood. Special prices on carload lots.
J. C. ROBISON, TOWANDA, KANSAS

BONNIE BRAE HOLSTEINS

Twenty head extra fine, big, heavy producing young cows. Fresh and heavy springers. Also springing heifers. Three extra fine Guernsey cows and a few Guernsey heifers.

IRA ROMIG, Station B, TOPEKA, KANSAS

HOLSTEINS

If you want to buy Holstein calves, heifers or cows, at reasonable prices, write to the Whitewater Stock Farm, Whitewater, Wis. Alb. M. Hanson, Prop.

TRUE—We have registered Holsteins rich in the blood of the great sires, but the big end of our profit comes from the milk and fat they produce.

TREDICO FARM

Route 44 - KINGMAN, KANSAS

23-HOLSTEIN-FRIESIAN BULLS-23

Best of sires. A. R. O. dams, fourteen over 20 pounds. Seven of the others from heifers with records of 14.89 to 19.2 pounds. The kind you want. We have only two cows in the herd with mature records less than 20 pounds.

Breeders for Thirty Years.

McKAY BROS., Waterloo, Iowa

Golden Belt Holstein Herd

Canary Butter Boy King No. 70508 in Service.

Herd has won more prizes from Holstein-Friesian Association for yearly production than any herd in Kansas. Young bulls for sale from heavy producing cows.

W. E. BENTLEY, MANHATTAN, KANSAS

CHOICE HOLSTEIN BULLS

Five registered bulls, out of A. R. O. cows. From 1 month to 2 years. Best breeding. Choice individuals. Price reasonable.

BEN SCHNEIDER, NORTONVILLE, KAN.

HOLSTEIN BULLS, "REGISTERED"

Two ready for service. Smith & Hughes, Breeders, Route 2, Topeka, Kansas.

BRAEBURN HOLSTEINS A.R.O. Bull

H. B. Cowles, 608 Kansas Ave., Topeka, Kan.

Albechar Holstein Farm

Offers young bulls, bred cows and heifers for sale. Write for breeding, description and prices. Our herd absolutely free from tuberculosis. Satisfaction guaranteed.

ROBINSON & SHULTZ, Independence, Kan.

HOLSTEIN CALVES, both sexes, fifteen-sixteenths pure, \$20 each, crated. Also carload heifers 1 and 2 years old. Write us for Holsteins. Edgewood Farm, Whitewater, Wis.

REGISTERED HOLSTEIN BULL CALVES.

Fine individuals and breeding.

PLEASANT VIEW FARM, Altoona, Kansas

HEREFORD CATTLE.

STAR BREEDING FARM

FOR SALE—Herefords and Durocs: 65 yearling and two-year-old bulls by Tophon 4th, Hissid, Anxiety, March On and other good sires. 25 females, some have calves at foot and bred again. 10 head heifer calves. 30 head of registered Duroc gilts sired by a son of Ohio Chief and son of Buddy K 4th, out of sows by grand champions. Come and see me.

SAM DRYBREAD - ELK CITY, KANSAS

WILLIAMS & SONS HEREFORDS

For Sale—Seven cows bred to drop calves in summer. Sixty bulls from 8 to 10 months old. Priced reasonable. Come and see us.

PAUL E. WILLIAMS, MARION, KANSAS

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

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

Coburn Herd Red Polled Cattle

AND PERCHERON HORSES.
A few choice bulls. Eight extra good two-year-old stallions for sale at reasonable prices.

MAHLON GROENMILLER, Panna, Kan.

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.

RED POLLED CATTLE.

For Sale—Eight choice young bulls from 7 to 11 months old.

I. W. POULTON - MEDORA, KANSAS

DUROC JERSEYS.

Sisco's Duroc Jerseys PRIZE WINNING BLOOD

Big, growthy, richly-bred gilts, bred to a choice son of the great boar, A. Critic, for spring farrow. Outstanding spring boars. Also a choice herd boar. Prices right.

A. E. SISCO, Route 2, TOPEKA, KS.

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

G. M. SHEPHERD - LYONS, KANSAS

TWENTY-FIVE DUROC BOARS, \$15 TO \$25 100 to 180 pounds; four choice herd prospects, \$30 to \$35. Will ship these four on approval. Few tried sows, bred for summer farrow; fifty gilts for August and September. Write me.

J. E. WELLER - FAUCETT, MO.

L. E. Pendleton of Dodge City, Kan., is succeeding with a herd of pure-bred Jerseys. He is breeding for heavy production and his herd is made up of representatives of the heavy producing families of the breed. He has a choice lot of young stock in his herd at this time, including some choice young bulls.

My First Years Work In The Pure Bred Business



Look It Over !

I want to thank my friends who gave me their sales in this my FIRST year in the PURE-BRED BUSINESS. I quit selling horses on the ST. LOUIS MARKET, January, 1915, where I had been for nine years (leaving a salary of \$6,000 a year for two days' work each week) to take up the selling of PURE-BRED LIVE STOCK. And aside from selling ALL the FAT AND FEEDER CATTLE AND HOGS that were sold at the FAT STOCK SHOWS held at KANSAS CITY, ST. JOSEPH and DENVER, I sold for the following BREEDERS:

NAME	ADDRESS	SALES	NAME	ADDRESS	SALES
H. L. Faulkner, Jamesport, Mo.		3	W. J. Sandry, Green Castle, Mo.	.....	1
G. C. Roan, LaPlata, Mo.		3	Thorton Stock Farm, Bement, Ill.	.....	1
G. C. Ranch, Stahl, Mo.		3	J. B. Gurthert, Pattonburg, Mo.	.....	1
L. W. O'Keefe, Stillwell, Kan.		2	L. M. Monsees & Son, Smithton, Mo.	.....	1
W. T. Hutchinson, Cleveland, Mo.		2	Pete Summers, Callao, Mo.	.....	1
E. D. Moore, Columbia, Mo.		2	W. J. Ingram, Kirksville, Mo.	.....	1
G. M. Scott, Rea, Mo.		2	C. A. Robinson, Kirksville, Mo.	.....	1
Dr. C. E. Still, Kirksville, Mo.		2	S. J. Miller, Kirksville, Mo.	.....	1
H. O. McCann, Kirksville, Mo.		2	Otto Bros., Kirksville, Mo.	.....	1
L. H. Wiley & Son, Emporia, Kan.		2	H. T. Hineman & Son, Dighton, Kan.	.....	1
William Ronjue, Atlanta, Mo.		2	Louis Alred, New Cambria, Mo.	.....	1
Missouri Saddle Horse Sales Co., Mexico, Mo.		2	Henry Koch, Edina, Mo.	.....	1
Andrews Stock Farm, Lawson, Mo.		1	Charles Bowles, Hunnewell, Mo.	.....	1
J. Gildow & Son, Jamesport, Mo.		1	Frank Hubble, Macon, Mo.	.....	1
Frank P. Boyd, Jamesport, Mo.		1	E. W. Davis, Glenwood, Mo.	.....	1
Shelley & Clatterback, New Bloomfield, Mo.		1	J. & E. Thompson, LaPlata, Mo.	.....	1
E. Limerick, Columbia, Mo.		1	E. M. Gates Estate, LaPlata, Mo.	.....	1
W. J. Finley, Higginsville, Mo.		1	Oscar Miles, Macon, Mo.	.....	1
C. J. Boyd, Centralia, Mo.		1	J. R. Rippey, Lancaster, Mo.	.....	1
Charles Fritz, Gifford, Mo.		1	J. F. Gross, LaPlata, Mo.	.....	1
St. Louis, South St. Joseph, Mo.		1	Lem Naylor, LaPlata, Mo.	.....	1
Lon Sears, Callao, Mo.		1	Thos. Grubb, Brookfield, Mo.	.....	1
G. Leathers, College Mound, Mo.		1	W. H. Crosby, Glenwood, Mo.	.....	1
J. Waddell & Son, Brashear, Mo.		1	W. Z. Baker, Rich Hill, Mo.	.....	1
Ford Jose, Ethel, Mo.		1	C. Yard & Son, LaPlata, Mo.	.....	1
George Williams & Son, Elmer, Mo.		1	D. J. Hutchins, Sterling, Kan.	.....	1
Hallock Bland, Centralia, Mo.		1	D. C. Holderman, Callao, Mo.	.....	1
T. W. Craven, Macon, Mo.		1	C. H. Early, Centralia, Mo.	.....	1
Thompson Bros., Drakeville, Iowa.		1	George J. Evans, Raymore, Mo.	.....	1
H. H. Gluck, LaPlata, Mo.		1	B. J. Trowbridge, Macon, Mo.	.....	1
George Lewis & Son, Stahl, Mo.		1	James B. Park, Cameron, Mo.	.....	1
E. A. Linder, Kirksville, Mo.		1	E. J. Loveridge, LaPlata, Mo.	.....	1
W. S. Polly, Kirksville, Mo.		1	W. H. Roan Estate, LaPlata, Mo.	.....	1
P. M. Bougher, Carle, Mo.		1	A. J. Glenn, Macon, Mo.	.....	1
			S. T. Kimble, Macon, Mo.	.....	1
			W. J. Deirling, Queen City, Mo.	.....	1
			Clarence Dean, Weston, Mo.	.....	1

I have my booking for the coming season about one-half filled, and to ALL INTERESTED PARTIES CONCERNING SALES, I refer you to the above parties. WRITE FOR A DATE. Yours very truly, **P. M. GROSS, Macon, Mo.**

GUERNSEY CATTLE

A GUERNSEY BULL is a sure way to increase your profits. Grade up your herd by using a pure bred Guernsey Bull and you will be surprised at Results. Send for free literature.

Guernsey Cattle Club, Box K, Peterboro, N.H.

OHIO IMPROVED CHESTERS

CHOICE AUGUST AND SEPTEMBER PIGS. Weight 125 pounds, \$25. Booking orders for spring pigs, \$15 each; pair, \$25; trio, \$35. Refunded. Express prepaid anywhere in Kansas. F. C. Gookin, Route 1, Russell, Kan.

SHORTHORN CATTLE.

Tenneholm Shorthorns

For Sale—A number of good bulls 8 to 18 months old. Some Scotch, others Scotch-topped. Some herd headers among them. Two outstanding ones. Can spare a few females. Farm one mile from town. E. S. MYERS - CHANUTE, KANSAS

SHORTHORN BULLS.

Twelve head bulls, breeding age, all sired by pure Scotch bull. Reds, whites and roans. Herd headed by Scottish Monarch by New Goods by Choice Goods, out of Morning Glory a granddaughter of imported Lady Star. Will sell a few females. KELLY BROS. - GARDNER, KANSAS

HILL'S SHORTHORNS

One red Shorthorn bull 11 months old, sired by Bettie's Albion 399451, pure Scotch, well built, weight between 600 and 700 pounds. Ready for service. Priced to sell. C. E. HILL - TORONTO, KANSAS

Sycamore Springs Shorthorns

Master of Dale by the great Avondale head herd. A few young Scotch bulls and head heifers for sale. R. H. HILL - LAFONTAINE, KANSAS

RIVERSIDE SHORTHORNS

For Sale—Five pure Scotch and Scotch-topped young bulls. Prices reasonable. Come and see them. They are extra good and will make herd headers. R. H. HOLMES, GREAT BEND, KANSAS

Twelve SHORTHORN Bulls

For Sale—Twelve Shorthorn bulls, big topky fellows, about one year old. Sired by Goods by Choice Goods, out of Scotch-topped cows. Prices reasonable. Come and see them. K. G. GIGSTAD, Lancaster, Kansas.

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

HORSES AND MULES.

FAIRVIEW STOCK FARM

Home of World's Grand Champion Jack, Kansas Chief 9194

More registered jacks and jennets than any farm in the West. Jacks to 1,240 pounds. Prices and terms reasonable. Written guarantee with every jack. Car fare refunded if stock is not as represented. Young jennets bred to Kansas Chief. Reference, any bank in Dighton. H. T. HINEMAN & SONS, Dighton, Kan.

REDUCED PRICES FOR A QUICK SALE.

Reg. Percheron stallion, 3 yrs. old, black gray, very blocky, extra heavy bone, ton horse, sound, price \$500. Black gray coming yearling, reg. Percheron, heavy bone, blocky, will make better than ton horse, \$175. Span of reg. Clydesdale brood mares, heavy in foal by imp. horse, wt. 3,750 lbs., sound and prize winners, \$700. Two-year-old Clyde filly, extra good, \$260. Coming yearling Clyde stud colt, extra good, will make herd horse, grandson of Benedict (10315) 9033, price \$175. This stock all sound. Will pay expenses if not as described. C. H. WEMPE, Seneca, Nemaha Co., Kansas

CHOICE PERCHERON STALLIONS

One coming 3 years old, black, imported sire and dam, weights over 1,800; good individual, making of a ton horse. Also 6-year-old imported stallion, ton horse. Both guaranteed breeders. M. E. GIDEON - EMMETT, KANSAS

Reg. Percheron Stallions—Twenty-nine black ton and 2,200-pound 4 and 5-year-olds, 44 black coming 3's, 41 black coming 2's, 29 registered mares for sale. 19 Belgian stallions. Just above Kansas City. FRED CHANDLER PERCHERON FARM, Route 7, Charlton, Iowa

ONE HUNDRED

Registered Percheron, French Draft, Belgian and Shire stallions and mares for sale cheap. A. LATIMER WILSON, CRESTON, IOWA.

ANGUS CATTLE

EDGEWOOD FARM

ABERDEEN-ANGUS CATTLE

I have for sale several good yearling and two-year-old bulls, also a few good cows. If you are looking for the good kind, write me or come and see them. They are offered at reasonable prices. CLEMENTS, KANSAS

D. J. WHITE - On Main Line of Santa Fe, 145 Miles West of Kansas City.

ABERDEEN ANGUS

We Offer For Sale Bulls and Heifers, Any Number, Single or Carload Lots. These cattle have size and quality and are bred in the purple. See them at Lawrence—forty miles from Kansas City, on Santa Fe and Union Pacific railways.

SUTTON & PORTEOUS

Phone 8454. Route 6, Lawrence, Kan.

HORSES AND MULES.

The Champion Breeder---Missouri Chief 8365

Sire of the World's Grand Champion Jack, Kansas City 9743. In public service at our ranch south of Ellinwood. Excellent facilities for handling any number of healthy jennets.

Write Us for List of Winnings of His Get. Most liberal terms and other information about this sire possessing excellent size, quality, bone, finish, and unexcelled style and action. Winner first as sire at Kansas State Fair, Hutchinson, 1915.

M. E. RICHARDSON - STERLING, KANSAS



HORSES AND JACKS

FOR SALE—Six coming two-year-old fillies, big growthy fillies, dark steel grays; one black mare, three years old in April; stud colt, two years old; all extra good; all out of imported sire and dams; all raised on the farm; all priced to sell, cash or time. You can see the sire and dams of all this stuff. These are the blacks with meaty noses, the color that all breeders raise. I am now breeding white-faced jacks that will produce white-faced mules, and in a few years the breeding of white-faced jacks, alone, will be continued on this farm. Since running my advertisement every man who came to the farm found what he wanted and bought. OAKLAND STOCK FARM, Box 207, CHILLICOTHE, MO.



DEIERLING STOCK FARMS

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, Peoples 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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TEN LARGE MAMMOTH BLACK JACKS. Ages from 2 to 6 years; large, heavy boned. Special prices for thirty days. Guaranteed right in every way. Come and see me.

PHIL WALKER, MOLINE, Elk County, KANSAS

THE SAUNDERS JACK COMPANY

U. G. Saunders, of Lexington, Ky., and Bruce Saunders, of Holton, Kan., have shipped a carload of registered Mammoth Jacks from Lexington, Ky., to Holton, Kan. Two to six years old, 15 to 16 hands high. Come to Holton and see as good a load of jacks as ever left Kentucky. Write your wants to BRUCE SAUNDERS, HOLTON, KANSAS. PHONE 589

EWING BROTHERS

Stallions from 2 to 5 years old, good ones, the kind that make ton horses. Mares in foal and few yearling fillies. Young bulls, 6 months to 3 years old, some top notchers. A few good cows and heifers for sale. A few Shetland ponies for the children. All priced to sell at let live prices. Come and see us before you buy. EWING BROTHERS - PAWNEE ROCK, KANSAS

PERCHERON STALLIONS FOR SALE

A pair of coming fours and a coming three-year-old, two blacks and the other a bay, sired by the herd stallion Sirocco (51358), which we sold to go to Northern Nebraska. They have the size, bone and quality, and are priced to sell.

A. M. DULL & SONS - WASHINGTON, KANSAS

POLAND CHINAS.

POLAND CHINAS

EIGHTY POLAND CHINAS

Forty fall boars sired by Long Wonder, will weigh 200 to 225 pounds, big bone, wide back kind. Forty fall gilts, mates to these boars, and will be bred to A Wonder's Special and Rood's Big Joe 2d for July farrow. Price, either boars or gilts, \$30 and \$35. First check gets choice.

O. W. LONG, CRAIG, MISSOURI

E. O'DAY'S PUBLIC SALE

Of 52 Head of High-Class Shorthorns will be held on Thursday, May 11, 1916, at London, Ohio. Thirty-two cows and bred heifers; a number of cows with calves at foot and rebred. The cows are big, deep, thick, and heavy milkers. Twenty choice young bulls, rugged, strong-boned specimens that will make good anywhere. Write for catalog. E. O'DAY - LONDON, OHIO

Poland China Boars

Ten fall boars ready for service, sired by Big Logan Ex. and A King. Price, \$20 and \$25. First check gets choice.

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BUCYRUS

POLAND CHINAS

500 Head Registered Poland Chinas. Bred sows and bred gilts. 200 spring pigs. A few fall boars. Farmers' prices. DEMING RANCH - OSWEGO, KANSAS

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OLD ORIGINAL SPOTTED POLANDS.

Booking orders for spring pigs.

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LANGFORD'S SPOTTED POLANDS.

Late fall boars. Yours for good hogs. Spotted Poland. T. T. Langford & Sons, Jamesport, Mo.

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PERCHERON HORSES.
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ANGUS CATTLE.
Geo. A. Deitrich, Carbondale, Kan.
Geo. McAdam, Holton, Kan.
SHORTHORNS.
C. E. White, Burlington, Kan.
HOLSTEINS.
C. E. Bean, Garnett, Kansas.
DORSET-HORN SHEEP.
H. C. LaTourette, Route 2, Oberlin, Kan.
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FARM AND HERD.

Dr. J. H. Lomax of St. Joseph, Mo., reports that his herds of Jersey cattle and big-type Poland China hogs are doing fine. His farm is located near Leona, Kan., and is one of the best stock farms in that section of the state. His herds of Jersey cattle and Poland China hogs are among the best now assembled. His Jersey herd is noted for its richly bred and heavy producing individuals. He reports a very fine lot of early spring pigs that are growing out fine.

Seventy choice Angus bulls have been catalogued for the sale to be held by the American Aberdeen Angus Association at St. Joseph, Mo., April 25; ninety head for the Omaha sale, April 26; forty head for the Sioux City sale, April 27, and sixty-five head for the sale to be held at East St. Louis, May 2. The bulls that will be offered in these sales are from the best herds in the association and will be a very useful lot.

J. E. Weller of Faucett, Mo., owner of one of the best herds of Durog hogs in the West, writes that his herd is doing fine. By breeding along scientific lines for years, Mr. Weller has succeeded in developing a type of Durogs that has attracted the attention of breeders of pure-bred Durogs throughout the corn belt. They are the big, high quality, easy feeding type that are popular with farmers and feeders and it is one of the herds that is drawn upon heavily for breeding stock. The blood lines of the herd are the best of the breed. A feature at this time is the great lot of fall boars sired by Mr. Weller's great herd boar, Lucky Find 172463, that has proven one of the best Duroc sires now in service. He also has a choice lot of gilts and will breed them for August and September farrow.

Notice to Customers of Sears, Roebuck and Co.

Conditions in the farm implement market are so serious at the present time that we find it necessary to make this public announcement to our customers and friends.

A great majority of the implement manufacturers have advanced prices, some as much as 20 per cent over prices of last year.

Prominent manufacturers are quoted as stating that further advances may be necessary. We believe that they will be necessary, for the price increases that most manufacturers have made will not take care of the added cost of the

iron and steel bought in 1916. The material in many implements represents more than half their entire cost. And as these materials have increased over 100 per cent in price since last year, you can readily see that the advances made in selling prices so far will not pay for the added cost of the materials.

This is our reason for warning our customers that implement prices are liable to go very much higher in the near future. We also wish to make the following statement regarding our own implement line:

We will continue to fill orders for David Bradley Guaranteed Implements at our current catalog prices, while our present stocks hold out.

We have not increased our implement prices *as yet*, and we will not do so as long as we can fill orders with implements manufactured from iron and steel that we purchased last year. Fortunately for our customers, we saw this situation coming over a year ago, and purchased huge quantities of the necessary materials while the price was low. Our great factories at Bradley, Illinois, and elsewhere, have been working night and day, storing up immense stocks of implements. We were prepared to handle a much greater implement business than ever before—and we were determined *not to increase prices if it could possibly be helped*.

The demand for Bradley implements has far exceeded our expectations. In many states our sales are *more than four times as great as last year*.

On certain lines our warehouse stocks are practically gone and we shall soon be forced to raise prices to cover new raw material purchased on the present market.

Now is the time to buy that spreader, cultivator, mower or rake you will need later on. Order while our stocks of the famous Bradley Tu-Ro and Little

Jap Cultivators are complete, and you can get just what you want. Don't put off ordering that New Bradley Vertical Lift Mower another day. Those who delay are almost certain to be disappointed.

Please mail implement orders at once if you wish to get goods promptly and at present prices.

Today you can save more money than ever by purchasing implements direct from us, for you can save at least 10 per cent on top of the regular big saving. We are not asking you to pay us an extra profit on materials purchased last year, merely because the same materials would cost more to buy this year. When we are forced to use materials bought at the advanced prices we will raise our prices to match—and *not before*.

But don't wait too long, because that raise in price is at hand on some lines. Get your orders on file in time to clinch last year's low prices on every implement you are going to need for some time to come.

Order from our big General Catalog, or send for a free copy of our 190-page Special Implement Catalog. The coupon will bring it to you quickly.

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We save you both time and money by shipping implements from our big warehouse in Kansas City. Here we carry large stocks of American Beauty Buggies, Economy Gasoline Engines, David Bradley Implements, Econ-

omy King Cream Separators and many other lines.

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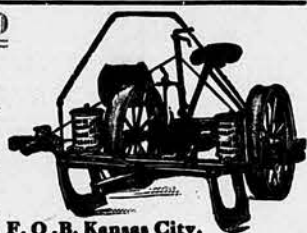


Tu-Ro Riding Cultivator still \$41.35

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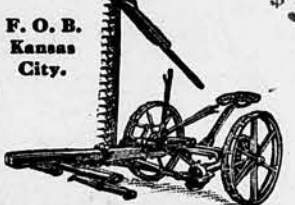
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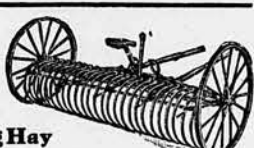


David Bradley Vertical Lift Mower still \$36.00

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David Bradley Self-Dumping Hay Rake still \$19.15

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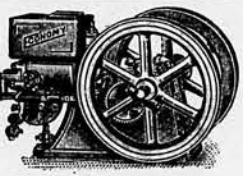
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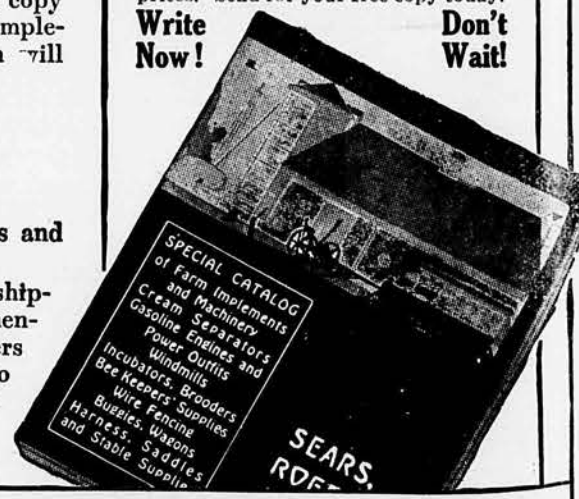
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