

KANSAS FARMER

For the improvement of the Farm and Home

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POTATO GROWING FOR WEST

Can Be Profitably Grown for Home Use on Farms of Western Kansas

OVER 100 bushels of potatoes to the acre can be grown in regions where the average annual precipitation does not exceed sixteen to twenty inches. On the government experiment station farm at Akron, Colorado, potatoes made a yield of over 200 bushels to the acre as an average of the years 1908 and 1909.

Early in February we had a talk with W. M. Jardine, director of the Kansas Experiment Station, relative to growing potatoes in Western Kansas. We were so impressed with Director Jardine's explanation of the possibilities of growing potatoes under dry-land conditions in the western part of our state that we urged him to give his experiences to the public in the form of a special article.

The prohibitive price of potatoes at the present time practically bars them from our tables, and if they can be grown successfully on the farms of the West, as was so conclusively shown by Director Jardine, we felt that our readers in Western Kansas should have their attention directed to these facts. Growing enough for home consumption will not greatly tax the labor available. Potatoes mature in a comparatively short period of time and would be a most welcome addition to the family larder.

The quality of the western-grown potato is exceptionally good. Director Jardine said that Western Kansas farmers might easily make a good profit by making a specialty of growing seed potatoes. They could not expect to compete with commercial growers, but good seed potatoes are always in demand and bring high prices.

Director Jardine is not a mere theorist on growing potatoes in regions of light rainfall. Before coming to the Kansas Experiment Station he grew potatoes at a number of points in the plains regions and knows what can be

done under conditions of light rainfall. In what follows he gives the results and conclusions of his experiences in growing this crop under such conditions as prevail in the western part of our state.

"I would urge every farmer in the western half of the state to plant at least a half acre of potatoes this spring. That potatoes can be grown profitably in areas of limited rainfall has been proved entirely possible. A limited acreage has been grown at the Fort Hays Branch Station during each of the last five years with very fair success. At this station in the season of 1916 just past, Early Ohio potatoes planted in early April yielded without irrigation an average of 74.8 bushels per acre.

"In Kansas, Early Petoskey, Irish Cobbler, and Early Ohio will produce the largest yields of marketable potatoes. The difficulty this year, however, will be in obtaining seed for planting. It will probably be necessary to plant those varieties of which seed can be secured. Seed can probably be best secured through the established seed houses of the state.

"It might be of interest to Kansas farmers to know that experiments have been conducted in growing potatoes under dry-land conditions, and to learn what were the results of those experiments. In traveling over dry-farming areas while connected with the United States Department of Agriculture, I found an occasional farmer growing potatoes successfully in a small way. It occurred to me that it would be desirable to undertake some experiments with potatoes to ascertain if there was any difference in the adaptation of varieties and whether or not there might be a best method of growing potatoes under dry-land conditions. In the spring of 1908 I was given permission to conduct some investigations with potatoes in connection with the dry-land grain investigations which I had in charge at

points in North tana, Colorado, and Utah. Experiments with potatoes were conducted as follows:

"Variety tests—ten to twenty-five varieties were grown at the various points.

"Rate of planting tests—one medium-sized tuber was planted to a hill in rows varying from two to four feet apart; hills varying from nine to thirty-six inches apart in the rows.

"Depth of planting tests—in which single tubers of medium size were planted in a hill to depths of four, six, eight, and ten inches.

"Miscellaneous tests—such as comparing whole tubers of different sizes; tubers cut into different sizes, and of three grades, large, medium and small; tubers of the same size, but varying in the number of eyes they contained, etc.

"The following are the most practical features brought out in these investigations: Early Petoskey, Irish Cobbler, and Early Ohio proved to be the best varieties for planting, not because they were the highest yielders, but because they matured early—the chief requirement under dry-land conditions. These varieties yielded as an average at Akron, Colorado, for the years 1908 and 1909, and under a rainfall of sixteen and twenty inches respectively, 225, 202, and 186 bushels respectively, of which amounts four-fifths were marketable. Almost equally large yields were obtained at Williston and Dickinson, North Dakota. Of course these yields were considerably higher than can be expected on an average, although the seasons were not above normal.

"Taking all the stations into consideration for the two years, the probable average yield was in the neighborhood of 100 bushels to the acre. This amount can reasonably be expected when the right potato is grown under reasonably favorable treatment. Only the early-maturing varieties should be grown since

the growing season on the dry lands is short.

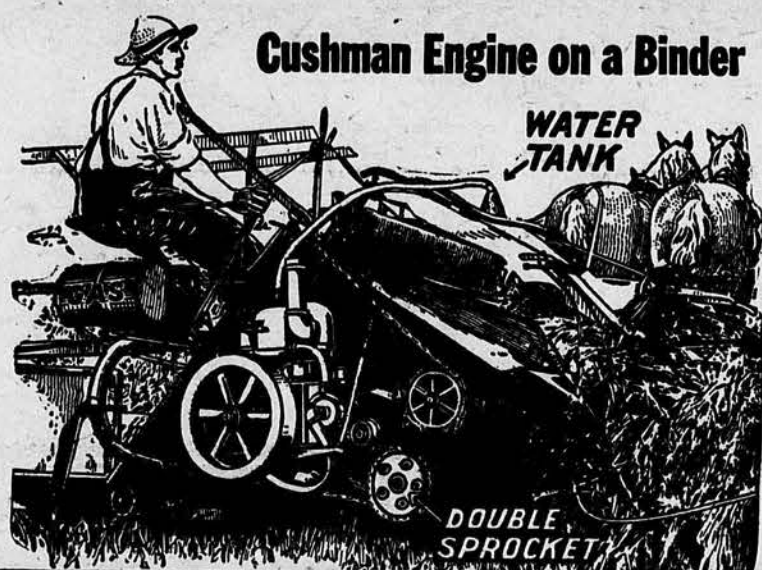
"It was found that potatoes planted in rows three feet apart, hills eighteen to twenty-four inches apart in the rows, gave best results. Medium to large tubers—either whole or sectioned—produced larger yields and more marketable tubers than medium to small tubers—either whole or sectioned. Plantings at depths of four to six inches were more satisfactory than shallow or deeper planting. Tubers with one or two eyes produced to better advantage than tubers with a greater number of eyes. It was also found that potatoes when given the proper cultural treatment during their growth, left the land in very good condition for growing wheat.

"In the western half of Kansas, potatoes should be planted during the last week in March, but the middle of April is not too late for good results. As with other crops, a good seed bed should be prepared and land that has been plowed early should be used. The crop should be well cultivated. Arrangements should be made to combat the common insect pests and diseases affecting potatoes. Probably the greatest danger lies in the Colorado potato beetle. The most effective method of controlling this insect is by spraying the vines with poison. Spraying should begin as early as necessary to prevent injury to the plants and should be repeated as often as necessary to keep the vines covered with poison. For this insect alone two or three sprayings, perhaps more, will be required, but by combining the poison with Bordeaux mixture, both fungus and insect pests are controlled without making separate applications necessary.

"For detailed information on potato growing, spraying materials, and spraying machinery, write to the Kansas Experiment Station, Manhattan, Kansas, for Bulletin No. 194 on Potato Culture."



TYPICAL SPECIMENS OF STANDARD EARLY VARIETIES OF POTATOES FOR KANSAS.—BEGINNING AT LEFT AND IN ORDER, EARLY OHIO, EARLY ROSE, IRISH COBBLER, AND TRIUMPH



Saves a Team

and in Wet Harvest, Saves the Crop

The 4 H. P. Cushman is the original and successful Binder Engine. Attaches to rear of Binder by patented Cushman Bracket, and drives sickle and all machinery, leaving horses nothing to do but pull binder out of gear. Sickle runs at same speed all the time, regardless of horses slowing up, and keeps itself clean. Sickle never clogs, even in heavy or wet grain. With a Cushman, two horses do the work of four, saving a team in harvest.

In a wet harvest, the Cushman saves the crop. The sickle keeps right on going when the bull-wheel slips, making it possible to cut wet grain without trouble. Same 4 H. P. Cushman does all other farm work, after harvest. Weighs only 190 lbs. and is easy to move around from place to place.

Cushman 4 H. P. Engine

For Binders and All Other Farm Work

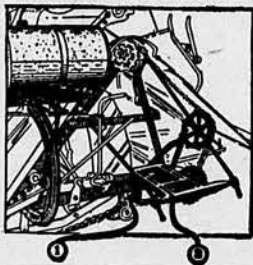
When stripped for binder Cushman weighs only 167 lbs. Water tank on front balances engine on rear, therefore binder is not thrown out of balance. Engine and tank are connected by hose, through which water is forced by pump, driven by engine. This keeps engine cool on all-day run in hot field. Proper water cooling is very important on a binder engine, as without it any engine will soon overheat.

Cushman Bracket and Attachments are patented and designed to fit any make of binder. They are the result of 10 years' success in field work. The Cushman Bracket is the one proven successful method. Make sure the engine you buy has proper Cushman Bracket and Attachment; then you will not be experimenting.

There is no farm work that requires so much of an engine as binder work. If the engine fails for a few days, or if it is necessary to experiment with it, the crop may be lost. You want an engine that you know will do the work quickly and without trouble when the time comes.

Cushman Binder Engines have been used for 10 years by farmers all over America, and thousands of them are in use all the time—saving the crop during harvest and doing all other work the rest of the year.

Arrow marked (1) indicates the Cushman adjustable clamp, to attach to the main cross bar of any binder. Arrow marked (2) indicates slots in bracket or iron frame on which the engine sets, and by which it may be adjusted to proper position forward or backward. No holes to drill, easy to attach.



Position of engine on the rear of binder may be adjusted in three ways—forward and backward, right or left and up or down.



4 H. P. Cushman is shown above, mounted on iron truck, which we supply, with water and gas tanks in front. Easy to pull around by hand from job to job. This is the same engine used on binder.

Cushman Light Weight Engines do many jobs in many places, instead of one job in one place. Weigh only about one-fifth as much as ordinary farm engines, but run much more steadily and quietly, like automobile engines. No loud explosions—no jerky fast-and-slow speeds. 4 H. P. weighs only 190 lbs. 8 H. P. 2-cylinder only 320 lbs.

What a Missouri Farmer Says:

Ben F. Barnes, Miami, Mo., writes: "I purchased a 4 H. P. Cushman last summer for my binder. I think it is the best engine on the market. I have used it on the binder and wheat fan, wood saw, washing machine, and I also rigged up a drag saw which it handled to perfection. I have never tried this engine on anything that it failed to give satisfaction. It pulls the wood saw as good as lots of the six and eight horse power engines."

Before Buying Any Engine, Ask These Questions:

1. Has it been successful for years as a Binder Engine?
2. Is it water-cooled? This is very important.
3. How much does it weigh?
4. Is it Throttle Governed?
5. Has it a good carburetor?

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922 N. 1st Street
Lincoln, Nebraska

Orchards Made Profitable

Proper Treatment Made Orchard Produce \$1.01 in 1916
Compared With \$100 in 1915. — By Zenith Mullen

THE old apple orchard may be made an important source of revenue on the farm and should be given the chance it deserves. Thousands of orchards through neglect have ceased bearing sound fruit and many do not bear at all. That many such orchards, considered practically worthless, can be made to yield abundantly, has been proved by the orchard demonstration work of George O. Greene and his associates in the extension division of the agricultural college.

The orchard of John W. Rothenberger, in Leavenworth County, produced \$1,015.92 in 1916 as compared with \$100 in 1915. This orchard was renovated and cared for under Mr. Greene's direction as stated in a contract drawn up between the extension division and Mr. Rothenberger.

The cost of pruning and spraying and all other expenses was \$224.98. This leaves a profit of \$790.94 for one season. As the expense is greater the first year and the yield less, because of the necessity of cutting back so much of the tree, his profits should be greater next year.

In a report sent to the college—one condition of the contract in demonstration orchard work—Mr. Rothenberger says he is now making preparations for next year's crop. He considers his experience a valuable part of last year's profit.

Some of the trees were left unpruned and unsprayed, the others being carefully pruned and given four sprays during the season. The report points out that the check trees—those not treated—showed the presence of various apple diseases and pests in the early summer while the renovated trees did not. At apple picking time five trees of Cooper's Early White yielded an average of fifteen bushels to the tree, with a loss of one bushel per tree. Three-fourths of the apples from the unrenovated trees had fallen before picking time and the remaining one-fourth were so small and scabby as to be practically worthless.

O. J. Brown, a traveling salesman, bought a Kansas farm near Potter, with an old orchard on it which had not borne for years. A contract for rejuvenating it was drawn up with the extension department. Mr. Greene and some of his associates in orchard demonstration, on request, visited it, pulled out many trees considered useless or unprofitable, and directed pruning and spraying through the summer. These men did more than boss the job. While at the farm they donned overalls and helped in the work of pruning and spraying this orchard.

Mr. Brown reports a profit of \$290.20 after reserving twenty bushels of apples for home use and deducting seventy-five bushels fed to the hogs. Although many of the trees were pulled out, the orchard produced more than it ever did before. Quite an impression was made on the community and many of his neighbors who had practically no apples are preparing to follow his example.

Four important steps are necessary in renovation. They are pruning, fertilization, cultivation, and spraying. In the winter or early spring before the growth starts, cut out all dead and diseased wood, leaving a smooth wound. All wounds over two inches in diameter should be painted over with a mixture of white lead and raw linseed oil. This treatment excludes moisture and consequent disease and decay. The pruning

saw is the most important tool in dealing with old trees, as it is necessary to cut off large limbs.

As a rule neglected trees are too high for spraying and fruit picking handily. In such trees the top must be lowered and thinned to admit more sunlight. The work of lowering should not be done in one pruning, but should cover a period of three or four years. Always prune to throw the growth outward and to allow sunlight to reach the inner part of the tree. Begin at the top and work downward. If the crotch of the tree is splitting, two eyebolts with number nine wire may be used to draw and hold the limbs together.

A limb badly rotted on one side may be strengthened and the rot prevented from spreading by clearing out the rotted portion thoroughly, disinfecting the bare surfaces, applying tar, and then filling the cavity with cement. Poor or unknown varieties are usually pulled out or top grafted.

Mature trees closer together than thirty by thirty feet are too close for profit and it is necessary to cut out alternate trees.

If it is necessary to fertilize the orchard, barnyard manure will best supply the necessary plant food. It should be applied during the winter and should be uniformly spread over the surface of the ground. Some growers plant some leguminous crop, such as clover, cowpeas, or alfalfa, in the orchard about the middle of August and plow it under in the spring.

Plow the orchard in the fall or spring to a depth of three to five inches. Deep plowing breaks the roots. After plowing, the disk harrow is the best tool to use. The orchard should be gone over with this several times during the first month in which it is possible to get on the ground in the spring. After the soil has been worked into fine mechanical condition it should be given subsequent cultivation in order to maintain moisture and to keep down weeds.

It is usually necessary to spray the orchard to prevent disease and insect attacks. It is impossible to give a spraying schedule applicable to all orchards. Judgment, experience, and keeping in touch with the methods of successful growers are essential to successful orcharding.

Four sprays at least are ordinarily recommended. For apple scab, plum curculio, spring canker worm, and apple rust, the spray should be applied when the cluster buds are showing pink but before the blossoms open.

The second spray, which is for control of codling moth, apple scab, black rot, and rust, is applied when the petals are two-thirds off the blossoms. The third one, for apple blotch, black rot, plum curculio, and codling moth, is applied twelve to eighteen days later. The fourth spray, for the control of codling moth, apple blotch, bitter rot, and black rot, is applied from eight to ten weeks after the second one has been applied.

The methods for preparing sprays can be procured from the Kansas Agricultural College upon request. One unfamiliar with spraying should consult with some experienced person on the subject, as it is important to have the material properly prepared.

Do not now prune lilacs and other shrubs that flower early in the spring. Wait until they have flowered.



ORCHARD DEMONSTRATION.—HEADING IN OLD TREES.—CUT IS MADE JUST ABOVE SMALL LIMB LEADING OUTWARD

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KEEP RECORD OF EACH COW

At each station where the Santa Fe Dairy and Poultry Special made a stop, a demonstration talk on dairy cows was given, illustrated by the four typical animals of the Ayrshire, Holstein, Jersey and Guernsey breeds carried on the train. Following this talk, which was given by Prof. J. B. Fitch of the agricultural college, at the points visited last week, the people were permitted to pass through the exhibit cars. It was easy to single out those having a real interest in dairying by the way they gathered around the cows and lingered after the crowd had passed on. To these men there loomed up an ideal toward which they were working, and these exceptional cows served to visualize these ideals. They remained to ask questions and to admire and study the animals more closely. These are the men who will make a success of dairying by ever striving to learn better methods of feeding and of breeding and thus realize a larger return from their land and their cows.

We noted such a group at Vinland, where the train made a stop last week, and we lingered to hear the discussions taking place. Among other things, the matter of records was mentioned. Many busy farmers maintain that it takes too much time to keep production records of individual cows. One farmer in this group told how he had kept close account of the cream produced by his seven cows for a year, and found he had sold an average of \$84 worth per cow. We asked him how the cows were fed and found that alfalfa hay and silage was all the feed used with the exception of a ton of bran fed last spring when the hay and silage were getting low. They had good bluegrass pasture during the pasture season.

Keeping account of this herd's production record for a year had furnished valuable information, but a herd record is not enough. There is so much difference in cows that it is almost impossible to even feed most economically without having some information as to the capacity of the different individuals. Some cows will return a good profit on a heavy grain ration, while others will produce to their full capacity on hay and silage without grain.

Feed can be saved and production increased by keeping records on individual cows in the herd so each cow can be fed according to her capacity. Sometimes cows are so poor that they might better be sold and the feed they consume given to the better individuals. Unless records are kept, the real producers might easily be carrying the poor cows along. It is also impossible to know what heifer calves are worth keeping for the herd without having information as to the production of their mothers. These and other points were brought out in the talks taking place after Professor Fitch's lecture. Professor Fitch went on to explain that the dairy department of the agricultural college is anxious to co-operate with dairy farmers who would keep records and will furnish the blank forms necessary. We were somewhat disappointed when the man who told us of keeping account of his herd production for the year refused to take one of the blanks that he might more easily keep individual production records.

It may seem like quite a chore, but it is time spent in doing something that can be made to return a good profit. Every real dairyman will sooner or later come to the point where he will see he cannot afford to do otherwise than keep individual production records of the cows in his herd.

SUMMER FALLOW WHEAT GROUND

It is probable that a good many acres of winter wheat will be badly winter-killed. There is always a certain percentage of the acreage of winter wheat that must be put to other crops. It is too early yet to know whether it will pay to leave the crop or not. In view of the high price of wheat and the probability that it will continue high for another year, we believe it good policy to delay as long as possible before plowing up wheat. Every wheat grower knows how the crop can revive and improve under favorable

spring conditions when early outward indications are all against its making anything.

Nothing can be done to the wheat crop at the present time to increase its probable yield. For the time being it is simply a waiting game. If the loss from winter-killing should prove to be unusually heavy, some might be tempted to put out a larger acreage of spring crops that could be tended properly with the labor and equipment at hand. We believe considerable caution should be exercised in this respect. Little would be gained by planting a larger acreage of spring crops than could be properly tended.

We would suggest that if a large acreage of wheat is winter-killed, plans be made to do some advance preparation for the 1918 crop. Put out only such spring crops as can be handled and hold the rest in reserve for wheat, beginning the preparation in May. In the western part of the wheat belt in Kansas, summer fallowed land frequently produces double the acre yield of wheat put in by usual methods of preparation. Plow or blank list this land after the spring crops are seeded. Give it such cultivation through the summer as will keep down all weed growth, always striving to leave the surface as rough as possible to avoid danger of blowing. Land prepared in this way accumulates a reserve of moisture and the cultivation is favorable for the development of plenty of available plant food for the crop.

PREPARE GOOD SEED BED

The planting of good seed in a good seed bed is the first step in the growing of a profitable crop. This is a means of increasing the profitableness of crops which involves reducing the amount of necessary cost in proportion to the acre yield. In other words, the cost of seed adapted to the conditions and of known vitality is not much greater than that of uncertain vitality and unadapted to the conditions. It takes just as much work to plant the wrong kind of seed as to plant that adapted to the conditions. The same amount of cultivation is necessary.

It of course takes more work to prepare a good seed bed than to prepare a poor one, but the same amount of work given to a little better preparation will bring greater returns than if devoted to increasing the acreage. This is becoming more and more true as land increases in value.

It has been our observation and experience that the early work in preparation for spring crops is the work that counts. The very best corn or kafir growers always disk or blank list their land just as early as it can be worked in the spring. A good double disking in February or March is of far greater value than the same work done just before listing in the seed. It is thus not a matter of doing more work, but doing it early so that it will produce maximum results. A second disking of stalk land at right angles to the first disking would in many cases prove valuable if weather and time will permit this work to be done.

The statement made many years ago by Jethro Tull, one of the earliest of agricultural writers, that "tillage is manure," is based on sound scientific facts. There may be plenty of plant food in the soil, but unless it is in such form that the plant can use it, it is of no value in crop production. Tillage or cultivation has a most important part in making plant food available, and since time is an element it is necessary to have the working of the soil take place a reasonable time in advance of planting the crop that is to use the fertility thus made available.

We believe no work can be done that will be of greater value in the growing of corn or kafir, than thoroughly disking the land just as long in advance of the listing or plowing as possible.

We would call the attention of our readers to the article on "Potatoes for Western Kansas," which appears on the front page of this issue. We believe it would be unwise to urge the planting of potatoes on every farm in the state unless they could be planted in ground that has been carefully prepared. Seed

potatoes are too high in price to justify planting them in poorly prepared ground, but we believe more potatoes could be grown with profit on many Western Kansas farms. The article referred to tells what has been done under such conditions as prevail in the western part of our state and directs attention to the important points to observe in making a success of growing this crop. The commercial potato growers of Kansas have greatly reduced their acreages this year, mainly on account of the high cost of seed. The prospect for cheaper potatoes next year does not look very promising. If there is some patch of land on the Western Kansas farm that can be properly prepared for potatoes, it certainly would be good policy to try and grow at least enough for home use.

KANSAS HOLSTEIN ASSOCIATION MEETING

The Holstein-Friesian Association of Kansas is now one year old. It has been a busy and prosperous year for this organization and it has already justified its right to existence.

The annual meeting will be held in Newton, April 6, the program beginning at 1:30 P.M. Dr. J. T. Axtell of Newton will give the address of welcome, followed by the annual address of Schuyler Nichols of Herington, president of the association, and the report of the secretary-treasurer, W. H. Mott.

The rest of the program has to do with subjects of special interest to breeders of Holstein cattle. The subject of H. N. Holdeman, of Meade, Kansas, is "Why I Breed Holsteins." Prof. J. B. Fitch, of the agricultural college, will report on "The Progress of Holsteins in Kansas." P. W. Enns, of Newton, will speak on "The Future for Pure-Bred Holsteins in Kansas." "Co-Operation in Live Stock Advertising" is the subject that will be presented by this writer. "Reducing the Overhead" is the subject that will be presented by Marco Morrow of Topeka. Harry Mollhagen, of Bushton, will speak on "Association Bulletins," and J. P. Mast, of Scranton, on "Holstein Sales Organization." F. T. Price, the well known breeder of Holsteins, from Syracuse, New York, will be present and will address the meeting.

At the business meeting immediately following will be taken up the election of officers for the coming year. It is important that every member be present and take part in the election.

At 6:45 in the evening there will be a banquet, followed by a number of after-dinner talks.

The county commissioners in Morris and Franklin counties have made the appropriations requested by the farm bureaus which were organized in these counties several years ago. All the other details have been attended to and everything is now ready for getting the work started. The next step is the employment of agricultural agents to direct and carry into effect the work planned by these bureaus. Anderson and Shawnee counties are next in line. The organizations in these counties are now practically complete. At a recent meeting in Topeka, attended by many of the best farmers of Shawnee County, the sentiment seemed to be in favor of securing a man of experience in county agent work. Such a man will command a higher salary, but the work will start off more vigorously than if one is employed who has not had previous experience in this line of work. It is a requirement of the state leader that no man be employed as an agricultural agent who has not had considerable experience in actual farm work, both before receiving agricultural college training and after. This makes it certain that all men employed as agents will be familiar with practical farm problems.

We recently heard a good farmer say he wished he might spend all his time on his manure spreader for in this way he could make more profit than through any other work on his farm. This farmer has learned the value of putting back into the soil the fertility taken out by the feed crops grown. The use of the spreader is a great improvement over the old method.

GENERAL FARM INQUIRIES

Something For Every Farm—Overflow Items From Other Departments

THE question as to what constitutes an "actual farmer" as the term is used in the Federal Farm Loan Act, is frequently asked.

The Federal Loan Board interprets this to mean one who conducts the farm and directs its entire operation, either cultivating it with his own hands or by means of hired labor. An owner who wishes to borrow under the Farm Loan Act must therefore be responsible in every way—both financially and otherwise—for the cultivation of his land.

The same question is frequently asked in connection with organizing the county farm bureaus. The Kansas law states specifically that the farm bureau must have at least 250 bona fide farmers enrolled before the county can legally vote funds to its support. This question was discussed at some length at the recent meeting held in Shawnee County for the purpose of organizing a bureau. It was explained that a man might live in town and still be a bona fide farmer if he owned a farm and operated it by hired help working entirely under his direction. The farmer who rents his farm, receiving either a cash rental or a portion of the crop, cannot be counted as a bona fide farmer in the farm bureau membership.

Anyone interested in agriculture can become a member of the farm bureau, but such members do not count in that portion of the membership designated as bona fide farmers.

Tankage and Hog Cholera

A Wabaunsee County reader expresses fear that tankage or meat meal may bring hog cholera to the farm.

These packing house by-products are the most valuable feeds on the market for supplementing farm-grown feeds for hogs. High grade tankage or meat meal contains approximately 60 per cent of digestible protein. There are lower grades offered that are not guaranteed to contain as much protein. These, however, are just as safe to feed as the high grade, but should of course be purchased at a less cost.

Corn, which constitutes the chief grain feed for hogs on farms, is very deficient in protein and the tankage supplies this protein more cheaply than any other feed that can be purchased. Seldom is it necessary or desirable to feed more than a half pound daily per hog.

The material is so thoroughly sterilized by the cooking process which it undergoes, that there is not the slightest danger of its carrying cholera or any other disease. In government inspected packing houses no diseased animals or waste material is allowed to go into the feeding tankage, but even if cholera germs did get into the tank they would be killed by the heat. There is no more danger in buying tankage for feeding hogs than there is in buying bran or shorts.

Feed to Mature Gilt

T. B. H., a Shawnee County reader, asks how many pounds of feed it will take to properly feed a gilt weanend May 1, up to farrowing time March 1 the following year. The feed used will be alfalfa pasture, alfalfa hay, corn, shorts and tankage.

It is of course desirable to make as large use of the alfalfa pasture as possible in order to lower the cost. In order to grow a gilt out properly, however, a grain ration should be fed with the pasture. This might be spoken of as a limited grain ration, meaning that the gilts are not fed all the grain they would consume. Beginning May 1, it should be possible to have good pasture for 150 days. Various experiments have shown that a very satisfactory growth can be made on good alfalfa pasture by feeding in addition, grain to the amount of about two per cent daily of the live weight of the pig. Feeding this amount of grain will result in a gain of at least a half pound a day during this period, and the amount of grain required would be from 250 to 300 pounds. There would then follow a period of 150 days in which there would be no pasture. The most economical and satisfactory method of feeding during this period is to use alfalfa hay to the limit. In other words, keep hay of the best quality in racks

where the gilts can get at it all the time. In addition a grain ration which probably will not average more than four pounds a day for the period, should be fed, this to consist of corn, shorts, and a little tankage. Tankage should not be fed in excess of a quarter of a pound daily per sow. On this basis the young sow would consume about 600 pounds of grain during the dry-lot period. It is rather difficult to estimate the exact amount of hay that will be eaten, since this will depend to a considerable extent on its quality. As an average, young sows could be expected to consume at least a pound daily of alfalfa during this period. Of course they should not be expected to eat coarse alfalfa without waste. It would be more profitable to feed a large enough quantity so they could eat the finer parts and reject the stems.

Fed in this way, gilts will develop into strong healthy brood sows and the pigs will be large at birth and possess unusual strength and vigor. The vigor

It is a serious mistake to feed brood sows on corn alone. They get too fat and their pigs will be small and weak. It is all right to have the sow fat if she has been fed so as to be strong in bone and muscle.

If this young sow can be given all the fine alfalfa or clover hay she will eat and then plenty of pasture of the same kind later, there is not much danger that she will get too fat even if nothing but corn is fed for grain. It would be better, however, to give her corn and shorts equal parts. Shorts is practically as cheap as corn now and the two feeds together make a better ration than either alone. If there is no good alfalfa or clover hay to feed, put a little bran into the ration, because the bran contains most of the mineral matter of the wheat and the sow will need this, not only for building up her own bones but for building the bones of her pigs. It is also a good plan to feed about a quarter of a pound of tankage or meat meal a day with these other feeds.

growth she should be fed well on growing feeds after the pigs are weaned. Full grown brood sows can be let run on good pasture with almost no grain after the pigs are weaned, but this is not the right way to treat the gilt that has just weaned her first litter. If she is fed in this way she will never get to be a full-sized brood sow.

The little pigs will begin to eat grain and other feed when quite young if given a chance in a pen by themselves. They like skim milk and shorts, or if there is no skim milk, shorts made into a slop with water. Feed them a little shelled corn also just as soon as they will eat it. If they are fed in this way while they are suckling, they will not shrink at weaning time, since they will be eating other feeds that will take the place of the mother's milk.

It is always important to have plenty of good pasture in order to make pork cheap. The sow and the pigs should be turned out on some alfalfa, clover or other pasture after the pigs are four or five weeks old. The pasture will not take the place of grain, but it will take less grain to keep them growing as they should. After the pigs are weaned and running on pasture, a good way to figure how much grain to feed them is to weigh them occasionally and then feed them each day about two per cent as much grain as they weigh. The fifty-pound pig would thus be allowed one pound of grain a day.

They should always have plenty of clean water, and both brood sow and pigs must have plenty of exercise. They will not do well if kept shut up in a small pen.

Summer Fallowing for Wheat

We have been asked by a Western Kansas reader for information relative to summer fallowing some land for wheat. This correspondent wishes to make some reasonable stipulations in a lease in which the tenant is to summer fallow some land that produced wheat in 1916.

W. A. Boys, agricultural agent, having headquarters at Hays, is thoroughly familiar with the most successful farming practices of Western Kansas, having farmed in that section himself and also having wide experience in traveling over the territory and observing the methods of the best farmers. He offers the following suggestions:

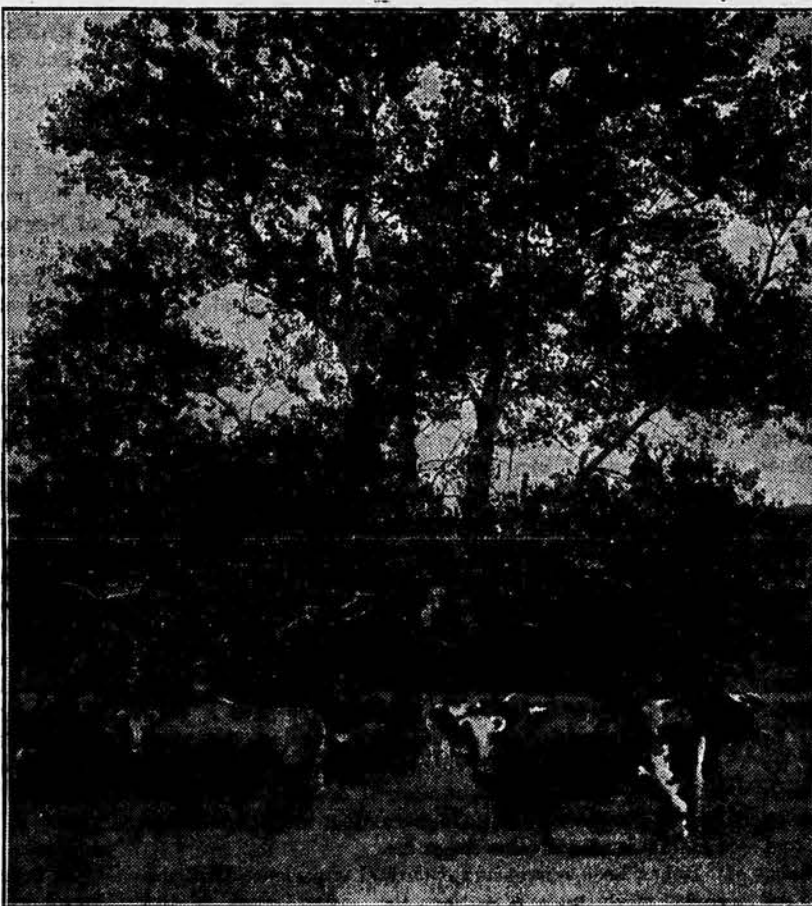
"One of the main things in fallowing is to keep down weed growth. Of the two methods of fallowing—plowing and listing—I prefer the latter, as the ground can be handled more economically and can be better handled to prevent soil drifting.

"Unless the soil is loose and free of weeds I would prefer to give the field a disking after the weeds start in the spring. It would ordinarily then be satisfactory to blank list the field after corn planting. Usually two cultivations—one before harvest and one after—will be sufficient to get the field in good condition for fall seeding. It is better to leave the field a little rough, as it will not blow so easily. If the tenant does not have enough interest to give a cultivation when needed to destroy weeds, I would state in the lease that there must be two cultivations as given above. If we should have a wet season and rank growth of weeds, this would probably not be sufficient, but is probably as much as one could expect the average tenant to do.

"One double disking, listing, one cultivation before harvest and one after harvest I think is not an unreasonable amount of work to be required of a tenant. If he wishes to do more, it might be to his interest to do so, depending upon seasonal conditions. Conditions might arise making it advisable to split the lister ridges to destroy weeds, but this is not liable to happen. Ordinarily single listing will give as good yields of wheat as double listing and necessitates less expense in preparing the ground."

Feeding Ewes for Milk

C. R. B., Anderson County, writes that he has one hundred ewes, twenty of which have lambed. The rest of the lambs are due in April. The ewes now having lambs are starving them. Their



TYPICAL PASTURE SCENE ON FARM OF W. A. FORSYTHE, GREENWOOD, MISSOURI

of pigs farrowed by sows fed all the alfalfa they will eat has been observed by all hog men who have handled hogs in this way.

Feeding Young Sow

A fourteen-year-old boy reader in Johnson County writes that he has a dandy little sow that will weigh about 125 pounds. He asks if corn chop is good feed for pigs.

Corn is the great fattening feed but it is not a good growing feed, and young animals must always be fed for growth. They need feeds containing plenty of protein, for this is the part of the feed that is used by the pig or other young animal in making bone and muscle.

There is a great difference between feeding fattening hogs for market and feeding the brood sow and little pigs. The young sow of 125 pounds weight is not full grown yet, so she should have all the alfalfa or clover hay and pasture she will eat, and in addition such feeds as shorts, bran, oil meal or tankage, because these feeds all contain more protein than does corn. They also contain more of the mineral elements which are needed in the bones. Hogs fed on corn only always have weak bones because there is not enough of the right kind of material in corn to make strong bones.

These feeds can all be mixed up and fed in a trough after wetting, or the crop can be fed separately and the rest of the mixture fed wet. Some feeders like to feed the tankage dry in a trough or on a clean feeding floor. If a number of hogs are fed in the same pen, it is important that the tankage be scattered out enough so that each one will get his share. If some one hog should get a chance to eat too much at one time it might be sick for a few days.

When the sow has little pigs she must be well fed so she can give enough milk for them. She should not be fed any feed at all, however, for the first twenty-four hours after the pigs are born. She should be given only plenty of water. Only a little feed should be given at first, gradually increasing it. Sometimes when the pigs are real young they get too much milk. As they get older they will require more and more and by the time they are a week or ten days old it is hardly possible to feed the sow too much, providing the feeds contain plenty of protein. The feeds suggested for the growing ration are also good for producing milk because they contain plenty of protein.

Even with the best of feeding the sow will probably lose weight while suckling the pigs, and since she is a young sow and has not had her full

udders seem large but they give little or no milk. He has no alfalfa or silage and is feeding the ewes fodder and clover hay. He asks how he can feed the rest of the ewes so as to be sure they will give milk for their lambs.

Knowing of the experience, A. M. Paterson, of the animal husbandry department of the agricultural college, has had with sheep, we asked him to give this reader the desired help by letter, as he needed advice at once. The reply is of interest to others who may be having their first experience with breeding ewes this spring:

"If you have been feeding your ewes nothing but the fodder, it has not been sufficient to stimulate a large flow of milk. I would suggest that you feed these ewes which have already lambed a ration composed of 60 per cent bran, 30 per cent ground corn, and 10 per cent oil meal. It may be well, also, to feed these ewes a gruel for a few days. This gruel could be made from bran and oil meal with a little ground oats added. This feed should be fed wet, rather thin and warm.

"In regard to the ewes which are to lamb in April, I would suggest feeding them a pound to one and one-half pounds of the ration mentioned, daily. If you have oats or barley, it may be substituted for the corn. Of course, the ration will depend largely upon the kind of feed you have on hand and the price you have to pay for these other feeds. I would also advise that if you could get a little alfalfa hay, it would be well to feed some each day. If this hay could be bought at the proper price it might pay to feed some of it regularly, then lessen the grain ration. This might prove more economical.

"You will doubtless have to feed the lambs which these ewes now have. It will be best to feed them warm cow's milk, giving them as much as they will take at a time and feeding them every two or three hours. I see no reason why these ewes will not give enough milk to feed their lambs after you have given them proper care and feed."

Cost of Formalin Treatment

The cost of treating seed for smut will depend upon the quantity of formalin purchased. A gallon of the solution will treat about one and one-third bushels of grain. In buying less than a gallon, the price per pint (a pint is equivalent, approximately, to one pound) is about 50 cents, but in purchasing large quantities it may be bought for about 15 cents a pint. Solutions which have been used for treating seed may be used several times, but if they have stood exposed to the air for longer than twelve hours they should not be used. It is better to mix fresh solutions, or keep the containers covered so as to prevent evaporation.

Formaldehyde (formalin is the commercial term for a 37 per cent solution) is a gas dissolved in water, and has a strong penetrating odor and biting taste. It may be bought from any wholesale drug company or chemical supply store.

In the treatment for covered smut of barley one pint of formaldehyde to forty gallons of water is used. The dipping process must be used if successful results are to be obtained. The seed must be soaked for two hours. If sacks are used one should allow more than sufficient room for the swelling of the seed. This treatment will also control to an appreciable extent the so-called loose smut of barley, which generally is difficult to combat.

In order to eliminate all possibilities of contamination, new sacks should be used for storing the seed, or the sacks should be soaked for a period of two hours in the solution employed for treating the seed for smut. It is advisable to sprinkle the floor with a strong solution of formaldehyde before spreading the seed to dry. Care should be taken that bins and drills are free from smut spores, by sterilizing them through washing with a strong solution of formaldehyde.

The germination of treated seed should be tested, and if it is low, the rate of planting should be proportionately increased. Precautions should be taken against freezing and sprouting after the treatments.

Date to Plant Corn

Corn will not grow during cold weather as wheat and oats. Corn-planting time is, therefore, a little later than the best time for sowing spring wheat or spring oats. However, according to Farmers' Bulletin 773, when seed of perfect vitality is used, it is remarkable how early in the spring corn can be

planted and result in good stands and good yields. Seed of perfect vitality will often remain in cold or dry soils for several weeks and afterwards germinate and yield well. Irregular stands are sometimes attributed to poor seed, when dry, poorly prepared spots are the cause. Fields are sometimes seen in which the seed germinated promptly in moist spots but did not germinate in dry spots until rains came.

Where the seasons are long and moisture plentiful, it is customary to wait until the soil is warm before planting. In semi-arid regions, however, corn should be planted early. With the soil in proper condition it is generally advisable in semi-arid regions, south as well as north, to plant corn before danger from frost is entirely past. Corn planted very early usually makes a slow, tough

growth and a month after planting may be smaller and look less promising than that planted later. The early planted corn ripens first, however, and usually produces the larger or the better crop. Because of its slow, tough growth, corn planted very early is not so susceptible to frost and dry weather as corn planted later and growing more rapidly. In a series of years the gain in mature corn secured from early planting will more than make up for any injury from spring frosts. Excellent corn crops have been produced from plantings frozen off or frozen back when the plants were from a few inches to a foot or more tall. Corn is not often entirely killed by spring frosts, and if some should be injured the loss is much less serious than that from the dry weather of mid-summer or from fall frost.

Early planted corn derives more benefit from the spring moisture supply, becomes well rooted and may even mature before the dry weather becomes severe. When the growing season is very long and warm, plantings made at about thirty-day intervals increase the chances of hitting the season right and raising some good corn.

It has just been announced that the required twenty herds have been nominated for the Poland China futurity hog show to be held at the Topeka fair next fall. The Duroc Jersey futurity is also assured for this same fair, and in order that breeders who did not make their nominations in time may have another chance, the association has decided to accept additional nominations up to April 1.

\$1150 F.o.b. Racine
Mitchell Junior—a 40 h. p. Six
120-inch Wheelbase

Mitchell
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\$1460 F.o.b. Racine
7-Passenger—48-Horsepower
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Mitchell Junior—\$1150 Now Added to Mitchell Line

Many buyers prefer a 5-passenger car. Such a car has ample room with a 120-inch wheelbase. Few such cars are that long. And a 40-horsepower motor gives them ample power.

To meet that demand we build Mitchell Junior, which sells for \$1150. It is our big, 7-passenger Mitchell in a little smaller size. So you now pay only for the room and power you need.

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Note how John W. Bate, our efficiency engineer, is saving every waste. These two Mitchell sizes form a new example.

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These savings show in Mitchell extras. There are hundreds in the car.

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lever springs. In two years of use, on many thousand cars, not a single leaf has broken.

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Before choosing a car for years to come, learn what these extras mean. See the 31 features—like a power tire pump—which hardly a car includes. See the beauties and luxuries which distinguish the Mitchell.

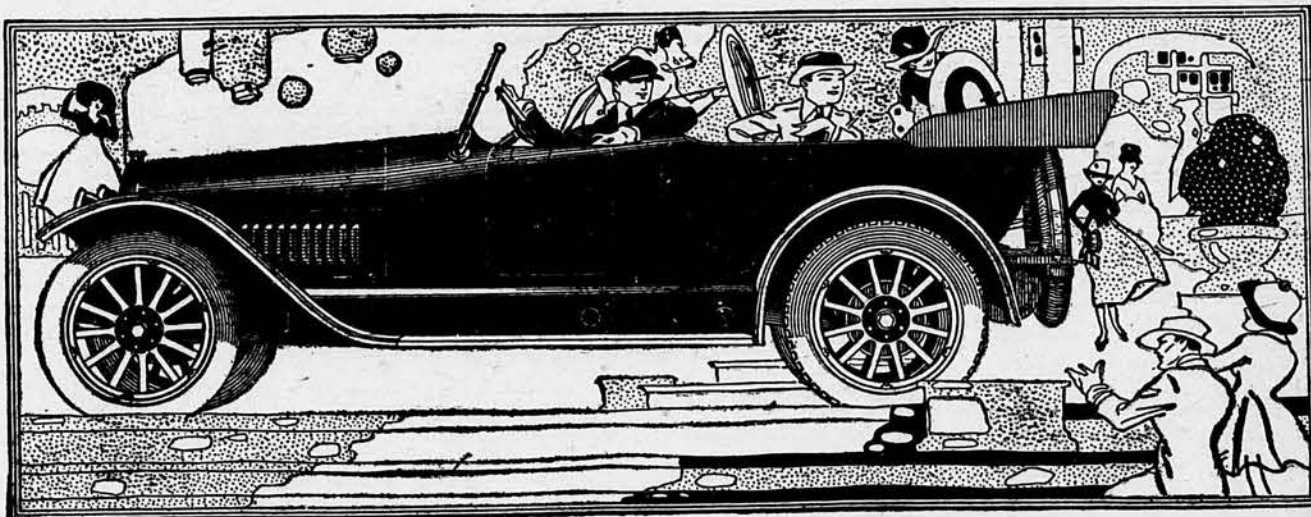
The vast over-strength, in all probability, means a lifetime car. It means safety, low upkeep, small repairs.

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If you don't know our nearest dealer, write us for his name.

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TWO SIZES
Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.
Price \$1460, f.o.b. Racine
Mitchell Junior—a 5-passenger Six on similar lines, with 120-inch wheelbase. A 40-horsepower motor— $\frac{1}{4}$ -inch smaller bore than larger Mitchell.
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Also all styles of enclosed and convertible bodies. Also demountable tops.



Kansas Farmer Dairy Club

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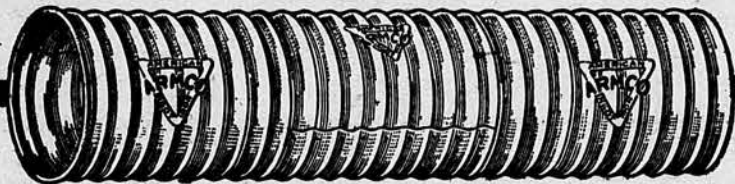
Following the example of the railroads, highway builders are abolishing bridges wherever possible and substituting the safety, economy and convenience that is possible with

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Never "closed to traffic", never put "out of commission" by floods or storms, never in danger of breaking down beneath heavy tractors or motor trucks, never requiring repairs, or painting, "Armco" Iron Culverts eliminate all the objectionable features of bridges and make travel safe and sure. "Armco" Iron's remarkable rust-resistance results from its purity and evenness. It endures for years and years without one cent of cost for maintenance. The "Armco" Trade-Mark on every section is evidence that your taxes are being wisely applied.

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Farm Hands Wanted

Western Canada Farmers Require 50,000 American Farm Laborers AT ONCE!

Urgent demand sent out for farm help by the Government of Canada. Good wages. Steady employment. Low railway fares. Pleasant surroundings. Comfortable homes. No Compulsory Military Service. Farm hands from the United States are absolutely guaranteed against Conscription. This advertisement is to secure farm help to replace Canadian farmers who have enlisted for the war.

A splendid opportunity for the young man to investigate Western Canada's agricultural offerings, and to do so at no expense. Only those accustomed to farming need apply.

For particulars as to railway rates and districts where labor is required, or other information regarding Western Canada, apply to

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Special Baseball Season Offer

The baseball season opens April 4. We make this exceptional offer at the beginning of the season for the benefit of all baseball lovers. BASEBALL MAGAZINE is the only national monthly devoted to baseball. It is the official organ of the baseball players' fraternity, which includes all players in the big leagues.

Special Bargain Offer to Kansas Farmer Readers Only		
Order Now	KANSAS FARMER	\$1.00
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Start the Baseball Season Right

WHO'S WHO IN BASEBALL is the greatest baseball record ever published. A regular one-dollar book that every man or boy should have. Gives all the information about players and the game that you want.

Order Now and Get the April Number

KANSAS FARMER, TOPEKA, KANSAS.

I accept your BASEBALL SEASON OFFER and enclose remittance of \$.....

NAME

ADDRESS

READ KANSAS FARMER'S CLASSIFIED
ADVERTISING PAGE FOR READY BARGAINS

MEMBERS of the Dairy Club who have not made their grade for quality of product, are to send a pint sample to Prof. L. D. Bushnell, Kansas Agricultural College, Manhattan, Kansas, this sample to be produced April 3. Send the sample by prepaid express as soon as it can be properly prepared for shipment. Take your sample from the morning's milk so you can ship it the same day.

Use a pint milk bottle, if possible, sealed with a sanitary cap such as is used by milk men in sealing bottles of milk for delivery. After the cap is in place seal with melted paraffin and tie a piece of clean muslin or cheesecloth over the top of the bottle. The bottle should be packed in a pail or box large enough so some cracked ice can be put around the bottle to keep it cold. Be sure the express agent knows what is in the package.

You should milk your cow as usual, being very careful to keep dirt of all kinds from getting into the pail. Be sure your cow is clean, washing her udder if it is dirty, and drying it with a clean cloth before starting to milk. It is not a good plan to curry the cow just before you sit down to milk, for the air will be full of dust. Do not handle hay or bedding in the barn just before you milk. If there is any dust in the air it will get into the milk and every particle will have on it a lot of germs that will develop and spoil its quality. Be sure also that your hands are clean and that all hairs and other forms of dirt are brushed from your clothes.

Be sure the bottle in which you place your sample is perfectly clean. It should be scalded with hot water and after scalding don't put cold water inside the bottle. It can be cooled by pouring cold water on the outside. After it is scalded keep a piece of cheesecloth over the mouth until you are ready to pour in your sample.

After milking your cow, stir the milk as you do in taking your sample for the butter fat test, and immediately fill the pint bottle you have prepared. It should be cooled at once by setting it in ice water, or if you do not have ice use cold water direct from the well. Do not seal the bottle until the milk is cool, but keep it covered with a piece of scalded cheesecloth. This will keep out dust, but will permit the odors from the milk, as it is cooling, to escape. The quicker you can get milk cooled after it is milked, the better it will keep. The bacteria that gets in cannot grow and increase in numbers unless the milk is warm. It is the growth and increase of the bacteria that cause milk to spoil.

The principles governing the production of good milk are to keep all the bacteria possible out of the milk and then to cool it as quickly as possible and keep it cool so that the bacteria that do get in—for it is impossible to keep them all out—will not be able to develop and increase in numbers. If all the methods you use in handling your milk are based on these principles, you are sure to have a good quality of product.

In the work of the Dairy Club twenty points are allowed on the quality of the product. Milk is a food product and should always be so handled as to keep it free from dirt and filth of all kinds. Milk that has not been kept clean is dangerous to those who use it. Handling milk so it will be safe to those who use it, is a duty every dairyman should be willing to assume, and we hope this will be one of the lessons the Dairy Club members will learn from their work.

If you sent a sample to the market milk contest at Manhattan Farm and Home Week and it scored 80 or more, you need not send a sample April 3. If you did not send a sample to the market milk contest or if you did and your score was less than 80, you are to send the pint sample, prepared according to the above directions, April 3. We are giving this second chance to those making poor scores because it is apparent from their score cards that they did not know how to prepare samples for shipping and as a result the milk was in bad condition when it reached the college.

Before preparing your sample, read the article in the Dairy Club Department of KANSAS FARMER for March 3 on "Care of Milk," also article in Dairy

Club Department in issue of March 10, "Did You Understand Your Score Card?" Also read the article on page 9, March 17 issue on "Flavors in Milk."

If your sample is good enough to score 80 or higher when it reaches Manhattan, you will be allowed the full twenty points on quality of product. It is not an easy matter to handle milk so that it will score 80 or higher several days after being produced. You will have to make considerable effort to handle your milk so carefully that you will be able to secure this score. We hope none will fail in making the full twenty points on quality of product.

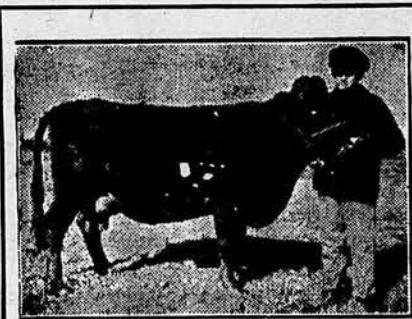
High Tribute to His Mother

I am sending you the picture of my cow and myself. My cow is doing fine. She has all the oat straw she can eat besides the other feed I give her, but as our silage is about all gone I am worrying about what to feed her instead of it, as she is a lover of silage.

I was surprised to see my milk score so low—only 67.75—and Harold Bentz's score so high. Did Harold put his milk through a clarifier? I did not, but bedded my cow with about two feet of straw and kept her well curried and cleaned. Also kept the barn clean. In fact was very careful about everything.

My calf is surely doing fine. A man offered me \$45 for her about a month ago.

I notice some of the club members are having trouble with their cows. I



JOE READICKER, FRANKLIN COUNTY,
AND HIS GRADE JERSEY

haven't had any trouble with mine only in finding enough for her to eat. My mother is our veterinary and we think what Mother can't do about a horse, cow, or pig, can't be done. My brother bought a young heifer. When she was fresh the calf could not take all the milk and it was not milked out. In a week there were big lumps in all four quarters of her udder. My mother used real hot water, plenty of salt and a cup of vinegar each treatment. She washed the cow's udder night and morning, and there is now no sign of a lump in her udder. The same treatment is fine for swollen udders.—JOE READICKER, Franklin County.

Your mother's treatment for the cow's lumpy udder is excellent. Other Dairy Club members whose cows have swollen or inflamed udders, will do well to use this same treatment.

It is unfortunate that you no longer have silage for your cow, as there is nothing that will take the place of it except pasture. You should see to it, however, that she has all the straw and alfalfa and clover she will eat.

Correction on Prize

In announcing the offer of a two-unit Hinman milking machine as one of the Dairy Club prizes, we stated that the two units would milk four cows at a time. This was an incorrect statement, as one unit will milk only one cow. The offer of the Hinman Company is two milking units with the necessary shafting, pulleys and hangers to operate them. Of course power must be provided.

Each year the state club work has grown and 1917 will be no exception to this rule. Hundreds of boys and girls all over the state are now enrolling in this year's clubs. There is no greater work than that which has to do with boys and girls.



Cost of Marketing Butter Fat

THE dairy industry in Kansas is only in its infancy. When it becomes better established the cost of marketing will be reduced materially because it will not be necessary to drive so far to dispose of the butter fat.

"For many years there has been a feeling that the prices paid for butter fat in Kansas were low as compared with those paid for this commodity in Wisconsin," said Theodore Macklin in an address given Farm and Home Week.

Comprehensive investigations of the methods of marketing butter fat were conducted by Mr. Macklin in Kansas and Wisconsin in 1914, 1915, and a part of 1916, and the results are now available for comparison. It is shown in a Wisconsin Experiment Station bulletin that farmers of that state receive an average of 23.33 cents for butter fat in one pound of butter, while Kansas farmers receive but 21.06 cents. This difference of 2.27 cents is explained by the difference in cost of getting butter fat from farm to creamery.

Because there are less than one-fourth as many cows in Kansas per square mile as in Wisconsin, there are less than 200 pounds of butter fat per square mile to be delivered to a creamery instead of more than 800 pounds as in Wisconsin. Since a farmer drives on the average only about five miles to deliver cream, there must be sufficient butter fat in a radius of five miles to warrant the economical making of butter in a creamery.

Mr. Macklin found that in Kansas there is not on the average enough butter fat within a similar radius to enable a small creamery to exist. Butter fat, consequently, must be assembled from wide areas in order to secure a sufficient amount at some central point for the economical manufacture of creamery butter. The average cost in Kansas of getting fifteen million pounds of butter to the creamery was 3.46 cents a pound. In Wisconsin it costs but 1.5 cents to get the butter fat in a pound of butter from the farm to the creamery. The central creamery, with its highly efficient selling facilities, can dispose of the product to much better advantage and must be given credit for the development of the dairy business as it is conducted in Kansas.

Unusual Butter Fat Production

Several years ago some tests were made at the Missouri Experiment Station which showed how abnormally high seven-day butter records could be made. The cow is fed heavily while dry for some time before calving and begins the milking period with a large amount of surplus fat on the body. If the cow is naturally a heavy milk producer these conditions invariably result in her being underfed for a period of time after calving. It is this underfeeding which causes the cow to take off her excess body fat laid on before calving and put it into the milk.

Recently published results of these experiments show that the butter fat produced during the high seven-day tests has a composition such that it appears to have been mixed with oleomargarine. The butter would not pass for pure butter, according to the government pure food standards.

The Missouri Station tests also indicate that underfeeding is probably involved in all manipulations which cause abnormally high fat production for short periods of time. The butter fat produced is also likely to be below the standards for pure butter of the United States pure food laws.

Breeders are more and more recognizing the value of longer production records.

Feed Cow Before Calving

In these days of high priced feeds we feel that we cannot call to mind too often the fact that the time to begin feeding a good dairy cow is six or eight weeks before she freshens. The dry cow should not be kept on a mere maintenance ration. It is not the profitable thing to do. Practical dairymen are agreed that the feeding during this period has perhaps as much to do with the amount of milk and butter fat the

cow gives during the lactation period as does the feeding while she is giving milk.

The milk cow should not be fed in such manner as to keep her lean and scrawny during this period just before freshening. Because the good producers always get thin as the milking period progresses, too many have the idea that a good milk cow should never be allowed to get fat. The big producer will not stay fat while giving milk, for the fat and other body tissue stored during the dry period will be converted into milk. It is not only fat that is so stored and used later in milk production, but mineral matter as well. A cow that comes to the calving period in a weak and run-down condition has no reserve and seldom gives a large flow of milk during that lactation period, no matter how well she may be fed.

Feed the dry cow the best of alfalfa and clover hay, silage if possible, and some grain also if the roughage is not good enough to enable her to accumulate some reserve of body fat during the dry period.

How Much Silage?

We have the following letter from R. A. G., Morris County: "What in your opinion would be a fair estimate of the number of tons of silage in a 20-foot silo, the silage being 21½ feet deep? This silo was re-filled, the fodder being cut in quarter-inch lengths and a 1½-inch stream of water run in continually during the process of filling. Four men were kept tramping inside. It was filled in fifteen hours."

According to the figures given on the capacity of silos, 21½ feet of settled silage in a 20-foot silo would amount to about 115 tons. This, however, is for well-matured corn placed in the silo in green condition. It is our judgment that this dry fodder, even though wet when run in, has not settled as solidly as green fodder would. It would be our guess that this silo does not contain to exceed 100 tons.

Mulvane Cow Testing Report

The Mulvane Cow Testing Association, which began work the first of January, is the second association of its kind in the state. Merrill R. Groton, the official tester, writes that the work is progressing nicely and the members are all well pleased. In January thirty cows produced over forty pounds of butter fat, and ten produced over fifty pounds. In February, thirty-two cows produced over forty pounds of butter fat and eleven over fifty.

We are glad to note that this association is calculating results in pounds of butter fat instead of pounds of butter. This gives an absolute measure of the production. Different breed associations have different rules as to the amount of fat contained in a pound of butter. For example, the Holstein association calculates butter to contain 80 per cent of fat, while the Jersey Cattle Club figures 85 per cent of butter fat in a pound of butter.

We give below the records of the cows in this association producing over fifty pounds of fat.

JANUARY RECORDS		
Owner's Name	Milk, Lbs.	Fat, Lbs.
N. W. Wheeler, Holstein	1,725	63.8
Appleman Bros., Holstein	1,566	61.1
Fred Lukamp, Holstein	1,491	58.1
E. T. Wagner, Holstein	1,065	55.4
M. L. Howard, Holstein	1,239	54.5
E. C. Howard, Holstein	1,500	54.0
B. R. Gosney, Holstein	1,296	53.1
B. R. Gosney, Holstein	1,386	52.8
Fred Lukamp, Holstein	1,482	51.9
Clarence Short, Holstein	1,260	50.4
FEBRUARY RECORDS		
B. R. Gosney, Holstein	2,121	89.1
B. R. Gosney, Holstein	2,538	73.7
B. R. Gosney, Holstein	1,929	73.8
W. R. Stubbs, Holstein	1,179	62.5
Fred Howard, Holstein	900	60.3
Fred Howard, Holstein	1,059	56.1
F. T. Wagner, Holstein	1,398	55.9
Clarence Short, Holstein	1,431	54.4
Fred Lukamp, Holstein	1,470	52.9
E. C. Howard, Holstein	1,461	52.6
George Appleman, Holstein	1,581	52.2

By burning the cornstalks where they are extra heavy a better crop may be produced that season, because of the better seedbed that may be prepared without the stalks in the way; but in the long run burning the stalks is sure to decrease crop yields.



DE LAVAL

The First, the Best Known
and the Greatest

CREAM SEPARATOR

Better Now Than Ever Before

THE first practical continuous cream separator, the De Laval has easily maintained its original success and leadership for nearly forty years. Step by step, year after year, by one improvement after another, the De Laval has led in every single step of cream separator development and improvement.

The first belt driven, the first steam turbine driven, the first of every kind of hand turnable, the first disc bowl, the first blade bowl, the first bottom or suction feed, the first split-wing feed, the first feed-through-the-discs, the first self-centering bowl, the first automatically oiled—all these and a hundred other features of separator development and improvement have been conceived by De Laval inventors and perfected by the De Laval Company, most of them to be cast aside for something still better in the ever onward advance of De Laval construction.

The New 1917 De Laval

And now, in the De Laval machines for 1917, a number of new and still further improvements have been made, which make the De Laval machines of today much better in many respects than they have ever been before.

Their capabilities are greater per dollar of cost; they skim cleaner under the more difficult conditions of separator use; they are equipped with the most improved speed regulator, thus insuring the proper speed necessary for complete separation; they are even better lubricated, and the bowl construction is even more sanitary than ever.

In other words, superior as the De Laval machines have always been to all would-be competitors and utilizers of abandoned De Laval features, the De Laval machines of 1917 are improved and superior in every way to all previous types and models of De Laval construction.

All these improvements and new features are described and explained in the new 1917 De Laval catalog now ready for mailing, but some of them are difficult to describe and make fully understood by words.

Be Sure to See a New De Laval

The new De Laval machines themselves best explain their new and superior features, and their use does this more completely and convincingly than even an examination of them. Every local agent is glad to afford opportunity for examination, and better still, for home test of a new De Laval machine.

But the demand for the new machines is a month ahead of the possible supply under the present difficult conditions of manufacture and freight distribution. More De Laval machines by half have been made in 1917 than ever before, but the De Laval Works is now ten thousand machines behind actual orders, and the demand is ever increasing.

Hence, the importance of securing a machine quickly if your local dealer happens to have one, and of ordering well ahead if he does not. And likewise, the importance of waiting patiently a little for a machine need be.

A new De Laval catalog will be gladly sent on request, and if you don't know your nearest local agent please simply address the nearest De Laval main office as below.

THE DE LAVAL SEPARATOR CO.

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

Will Your Subscription Expire In March?

We have several thousand subscriptions expiring in March. It would be a saving of much time to us and avoid missing copies by the subscriber if the renewal could reach us before the expiration. The best way to do is to send in \$2 when you renew and have your subscription paid three years in advance.

Get More EGGS

Special Low Prices This Month 6 Nest, 6ft.

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Customers report 10 to 100% egg increase. Sanitary & comfortable. Cheaper than wood (No. 1 Set).

Write Knudson Mfg. Co., Box 174, St. Joseph, Mo.

descriptive literature **FREE**

A Powerful Light Tractor for Only

\$585.00

Here's the little tractor with a big 1916 record. Its great performance in field and on belt has won hosts of friends—selling fast for 1917 use. Honestly built of high-grade materials—simple design and highest efficiency.

La Crosse Happy Farmer Tractor

Low in price—low in upkeep. Two models. Model "A" 8-16 h.p.—\$585. Gasoline or kerosene. Pulls for 8 plows. Model "B" 12-24 h.p.—\$725—our wonderful new kerosene burner. Same type tractor as Model "A," economizing weight for pull. Unbreakable cast steel frame. Twin cylinder motor—overhead valves—perfect combustion—mechanically oiled. Hyatt Roller Bearings throughout.

Write for catalog. Also ask about La Crosse Tractor-drawn implements. We have a distributor near you for prompt service.

La Crosse Tractor Co., Dept. 6, Minneapolis, Minn. Live Dealer Agents Wanted



E-B Cultivator

Foot lift; foot control. Quick adjustment of the wheels balances your weight whether heavy or light—easy control of gangs—easy on the horses' necks. Telescope axles, broad concave tires, long distance magazine wheel boxes. We make cultivators to suit all soil conditions. Send for cultivator catalog. Look for the E-B trade mark on the implements you buy. It's our pledge and your guide to quality.



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Stack Your Hay The Easiest Way—The Jayhawk

Stackers and Sweep Rakes

MAKE YOUR HAY-STACKING EASY—

with the Jayhawk. Time money and men saved. Lightest in weight—

easiest to operate—delivers hay in neat stacks. No ropes or pulleys—

tip fully guaranteed. Made of wood or steel. Sold direct.

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THE TUTTLE POWER PRESS

Capacity, two tons per hour.

Weight, complete, 3,500 lbs.

Guaranteed to do all standard baling work. Price, complete with engine, \$425.00. f. o. b. factory. Sold on ten days free trial, one-half time if desired.

TUTTLE MOTOR PRESS CO., Iola, Kansas

Overhauling Your Car

The automobile which has not been used much through the winter will give better service if overhauled carefully this spring.

In going over the car there are a num-

FARM POWER

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

ACCORDING to figures just given out by the Federal Department of Agriculture, there will be 2,287 tractors used in Kansas in actual farming operations this year. Illinois is the only state leading Kansas in the number of tractors used on farms.

To obtain this information, inquiries were sent to 32,000 selected correspondents. They were asked to report all tractors which were to be actually used in farm operations this season. Steam-driven tractors, tractors purchased but not delivered, tractors out of commission or not to be used this season, and tractors employed for road or work other than farming, were to be excluded.

Mere estimates as to the probable number of tractors in any county were disregarded. The figures, therefore, are offered not as an actual count of all tractors, but as indicating the relative employment of tractors in farming in the different sections. The total for all the states is given as 34,371.

The figures given have been compared with all available data. The numbers in the states east of the Mississippi agree reasonably well with other data and may be looked upon as fairly complete. In some of the western states, however, marked discrepancies exist between these figures and those of local or unofficial counts. Such discrepancies are explained in part by the fact that tractors have been used much longer in the West and a number of old tractors doubtless have been retired. It is likely, also, that the reporters in some of the more sparsely settled sections would have less intimate knowledge of tractors in their territories than would those in the more thickly populated and smaller counties of the East.

Automobile Trucks

The farm truck problem has been solved for the farmer by the invention of the truck attachment for the small automobile, according to E. V. Collins, instructor in steam and gas engineering in the Kansas Agricultural College.

These attachments, pointed out Mr. Collins, can be placed upon the light automobile that has been used as the family touring car and will convert it into a serviceable one-ton truck. The attachments are so arranged that 90 per cent of the load is placed on the rear axle and, with the gearing furnished, the small twenty-two to twenty-five horsepower engine can handle 2,000 pounds at a speed of ten to fifteen miles an hour.

The farmer can place the body which best suits his purpose on the truck chassis, but care should be taken not to place a body on the truck that is out of proportion to the loads that the truck will be required to carry.

Size of Engine

There are many uses for a gasoline engine on the farm. As the uses to which an engine can be profitably put increase, the size of the engine becomes a matter of greater importance.

It has happened in countless instances that an engine has been purchased which in the end proved to be too small, either because the purchaser underrated the amount of power he would require, or through a mistaken notion that a small capacity engine is economical because it is lower in initial cost. Common experience has been that as the capabilities of an engine as a labor-saving factor on the farm come to be recognized, more and more strenuous demands are made upon it, these demands often being beyond its power capacity. Realization comes then that the really economical thing to have done would have been to buy a larger engine at the start. Almost always it happens that the second engine the farmer buys is one of greater power capacity than was his first, thus testifying to the soundness of the reasoning which would recommend a good sized engine as a first purchase.

Overhauling Your Car

The automobile which has not been used much through the winter will give better service if overhauled carefully this spring.

In going over the car there are a num-

ber of points to consider. The old oil should not be left in the motor. Drain the crank case and put in a gallon of kerosene. Run the motor for five minutes—not longer. Let it stand for an hour or so, then drain and fill to the high level with fresh gas engine oil of good quality.

This cleans out all the dirt and carbon accumulated last season and gives the motor a good start on clean oil.

Take the front wheels off and pack both bearings with a good grade of hard grease; cheap or common axle grease contains lye, which is detrimental to the high grade bearings used in an automobile.

If your car is equipped with a full or three-quarter floating rear axle, do the same with the rear wheels. When you put them back on, be sure that you adjust the bearings properly (see the instruction book furnished with the car) and that the nut locks are in place.

Read the instruction book again; possibly there is something you have forgotten that will help you get better service.

Tractors in Road Building

Another important use of the gas tractor is in road building. A tractor can easily pull two road graders. With the agitation for good roads in Kansas the system of using tractors in grading should appeal to every man. In cities the tractor is used in removing earth from the streets where paving is to be laid. By the use of a machine to elevate the dirt into wagons a section of earth one foot thick can be removed from the top of the roadbed. The tractor is used in cutting drainage ditches on flat land at a smaller cost than any other excavating machine.

The extensive use of the tractor is shown by the large number of tractor factories in the United States. At present there are perhaps more than 125 of these factories in this country. Enormous orders for tractors are being placed in our factories by European countries for the cultivation of this year's crops.

The gas tractor is being used more extensively in the wheat belt because it makes possible the cultivation of more than could be cultivated by horses. The gas tractor is rapidly replacing the steam engine in threshing because there is less danger from fire.

What Is a Day's Plowing?

Farmers frequently want to know how much land can be plowed in a day and how much work it requires to break an acre. Records at the Missouri College of Agriculture on 2,122 acres of land show that it required 3.4 hours of man labor and 9.3 hours of horse labor for each acre. Of course, the time required to plow an acre will depend on the size of the plow and the number of horses used. A four-horse gang plow with two 12-inch bottoms will average about 4.12 acres a day of 9.6 hours when it is running six inches deep. The same plow running eight inches deep will break a quarter of an acre less. A three-horse sulky with a 14- or 16-inch bottom will average about 2.5 acres at a six-inch depth and about 0.2 of an acre less for the eight-inch depth. A two-horse, 14-inch walking plow will break about 1.75 acres a day at a six-inch depth and about 0.2 acres less at the eight-inch depth.

Gravel for Surfacing Roads

Kansas now has an average of one automobile for every mile of road and if the state expects to keep pace with this increasing traffic the main traveled roads, sooner or later, must be surfaced with durable materials. Of all the different kinds of material available for road surfacing, gravel probably is the best for Kansas conditions so long as the traffic does not exceed 200 vehicles a day. When the traffic increases beyond this number, brick or cement is the best material.

W. S. Gearhart calls attention to the fact that gravel deposits are numerous throughout all of that part of Kansas east of a north and south line through Solomon. This fact makes gravel the cheapest surfacing material.

Kill Lice This Way

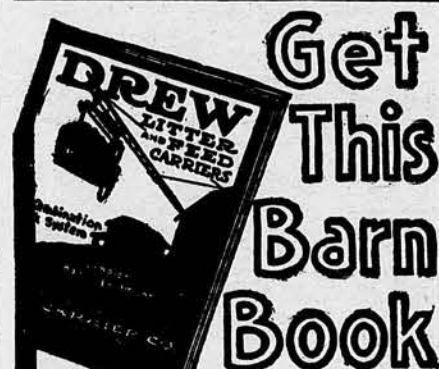
With one hand stroke the hair the wrong way, with the other sift in Dr. Hess Instant Louse Killer. Rub well into the skin. Try it and see how easily you can rid your horses, cattle and calves of lice. You'll find

Dr. Hess Instant Louse Killer

an excellent thing in the poultry yard. Sprinkle freely in nests, on roosts, about pens, yards, houses, run-ways. Don't fall to put it into the dust bath. That's the easy way. Fowls and chicks will work it all through their feathers—no guilty louse escapes. It comes in handy sifting-top cans.

1 lb. 25c; 3 lbs. 60c (except in Canada)

Dr. HESS & CLARK
Ashland, Ohio



Get This Barn Book

Before you place your order for stalls, stanchions, litter carrier or barn equipment of any kind send for the *Drew Barn Equipment Book*—which is free to you. It illustrates and describes all the superior features of Drew Stalls and Stanchions—tells why they are better—save more time—last longer and give better satisfaction in every way. This book also tells all about Drew Feed and Litter Carriers, Rod, Rigid Track and Swinging Boom Systems, Watering Bowls, Bull and Calf Pens, Mangers and other Sanitary Barn Equipment.

Write for this book today. It will show you how to get the barn equipment that means satisfaction and long service. It may save you money. Write for the *Drew Barn Book* now—a postal will do.

Drew Carrier Co. Dept. 123 WATERLOO, WIS.

Spring Cushion Bottom Keeps Cows Comfortable

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Ewes at Lambing Time

A. M. PATERSON, Kansas Agricultural College

MANY are having their first experience with sheep. The flock should have a little additional attention at this season of the year when the lambs are coming. Ewes that are in poor condition should be sorted out by themselves and given a little extra feed. This feed should be such as will stimulate the flow of milk. With alfalfa or clover hay for roughness, a pound or one and one-half pounds of grain daily should put the flock in excellent condition. A good mixture of grain at this time would be 60 per cent of corn chop, 30 per cent of bran, and 10 per cent of oil meal. If the flock is in good condition, the proportion of corn might be decreased or eliminated altogether. Oats and barley make an excellent substitute for corn, but are generally too expensive in Kansas.

When the lambs begin coming and especially if the weather is cold and disagreeable, as it often is in March and frequently in April, close attention must be given the flock if all the lambs are to be saved. Many new-born lambs are very delicate, and if the flock has not been properly fed and cared for during the winter season often the lambs are weak and have not strength enough to get up and nurse. If a lamb gets badly chilled before it gets up, it will be lost unless given prompt attention.

Many of the ewes will have twins, and some triplets. In cases of this kind one lamb may be weaker than the other and is frequently neglected by its mother. Pens about four feet square should be provided for the ewes to lamb in. This protects the young lambs from the rest of the flock and keeps them from getting separated from their mothers. A portable hurdle which may be placed around the ewe when lambing is inexpensive and serves the purpose. It sometimes happens where twins are born that the mother will refuse to own the weaker lamb. In a case of this kind take the stronger lamb away for an hour or two and the mother will usually turn her attention to the other lamb, and when the stronger lamb is put back with her she will own them both.

In case one ewe has lost her lamb and another has twins or triplets, one of them should be given to the ewe that has lost her lamb. Sometimes there is a little trouble in getting the foster mother to own such lambs, and it may be necessary to tie her up with a small rope halter or in a small stanchion for a day or two so that she cannot injure the lamb. Some shepherds advise taking the skin from the dead lamb and rubbing it thoroughly over the lamb that is to be changed. The reason for this is that ewes recognize their lambs largely by scent, and if the scent from the dead lamb is fastened on the lamb being changed the ewe will usually quickly claim it as her own. It is also sometimes helpful, where lambs are being changed from one ewe to another, to milk a little from the ewe that is to adopt the lamb over the lamb, but the halter or stanchion will usually be found sufficient and less bother.

Attendants should see that the young lamb gets up and nurses by the time it is fifteen or twenty minutes old. When it is once up and full of milk, there will be little need of giving it further attention. In case the lambs should have been dropped without the attendant being present and have become badly chilled before being found, they should be taken in by a fire. If this is not

convenient, a jug of hot water set in a covered box will aid greatly in reviving and drying off the young lambs. A little warm milk should also be given to supply internal heat.

When the lamb is warm and revived, it can be put back with its mother, and the chances are it will not need any further attention. The ewe should be allowed to remain in her small pen until the lambs are strong enough to follow her about. By the time the lambs are ten days or two weeks old they begin craving solid food and will be found nibbling bits of hay, and then grain should be provided for them. This can be easily arranged by making a slat hurdle or panel with the slats five or six inches apart. The size of such a pen will depend entirely upon the number of lambs, but should be large enough to accommodate them comfortably. Within this enclosure a shallow trough should be provided, in which there should always be found a little corn chop, bran and oil meal.

International Feeding Contest

The boys' live stock feeding contest which was inaugurated at the last International Live Stock Exposition proved very popular and aroused a great deal of interest, not only among the boys who entered the calves and fed them out, but among live stock men as well.

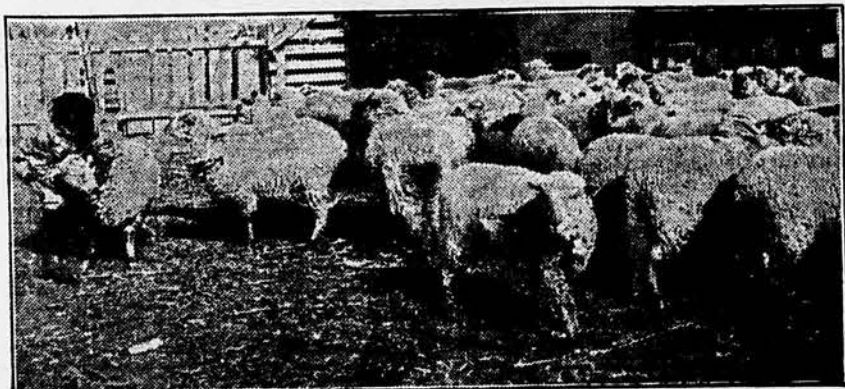
At the 1917 International there will be another feeding contest. The management has just made the preliminary announcements. With a view to enlarging the scope of the contest the feeding period has been changed to begin in April instead of August.

Any boy or girl over ten and under nineteen years of age January 1, 1917, can enter. The entries close April 1. Some time between April 1 and April 30 the calf selected by the contestant will be weighed and from that time on accurate record of its feeding will be kept. The calves selected may be purebred, grade or cross-bred steers, spayed or martin heifers, calved since January 1, 1916.

The following prizes are offered: First, \$50; second, \$40; third, \$30; fourth, \$20; fifth, \$10.

Entry cards and other information about the contest can be secured by addressing B. H. Heide, secretary International Live Stock Exposition, Union Stock Yards, Chicago.

Actual tests have shown that the animal with the best appetite is usually the most profitable. The greedy animal that always seems able to stow away a little more feed usually has a digestive and assimilative system in proportion to its appetite. It takes a fairly definite amount of feed to merely maintain the animal—keep the machinery running. The dainty feeder uses about as much of the feed it consumes for body maintenance as does the heavy feeder. It is the feed consumed over and above maintenance that brings the profit, whether it be milk production or the making of growth or fattening. The profitable animal is the one having the greatest capacity for turning feed into some animal product. It is not always the one that eats most greedily that gives the best results, for sometimes excessive greediness results in imperfect mastication and digestion. The profitable animal, however, must have a large capacity for feed.



FIRST CROP OF LAMBS FROM RANGE EWES ON FARM OF C. S. PERKINS, LABETTE COUNTY

Ideal heat keeps out spring rawness!



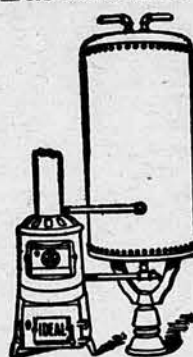
It is better for the family to keep a little heat going all through your home during these chill and damp spring days. Raw, wet weather is dangerous to health. **IDEAL heating keeps whole house warm and dry!** Only a small fire in the IDEAL Boiler is necessary to make every room as balmy as June.

AMERICAN & IDEAL RADIATORS & BOILERS

So don't delay finding out about IDEAL heating by writing to us or asking friends who have IDEAL-AMERICAN radiator

heated homes. Thousands of farm families in every state say that IDEAL heating is the one best feature in their homes for economy, labor saving, cleanliness, durability, and complete comfort satisfaction. The comfort of the home makes the success of the farm!

Basement or water pressure not necessary—don't wait!

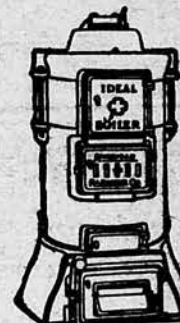


Our IDEAL Hot Water Supply Boilers will supply plenty of warm water for home and stock at small cost of few dollars for fuel for season.

IDEAL Boiler is set in cellar, side-room or "lean-to," and same water is used for years. Put an IDEAL Boiler and AMERICAN Radiators in your house this year. Call up the nearest heating contractor and ask him to give you an estimate. Don't put off any longer, suffering the chills and ills of old-fashioned heating methods during these raw springs and severe winters.



A No. 4-22-W IDEAL Boiler and 420 ft. of 35-in. AMERICAN Radiators, costing the owner \$990, were used to heat this farm house. At this price the goods can be bought of any reputable, competent fitter. This did not include cost of labor, pipe, valves, freight, etc., which vary according to climatic and other conditions.



IDEAL Boiler fuel pots mix the air and coal gases as in a modern gas mantle, extracting ALL the heat from the fuel.

Let us send you valuable book (free)

Write today for copy of "Ideal heating." Fully illustrated and gives valuable heating information which we want you to read carefully. Puts you under no obligation.

Sold by all dealers. N. exclusive agents.

AMERICAN RADIATOR COMPANY

Write to Department F-14 Chicago

The New Hired Hand!

—the farmer needs good help in the fields. His wife needs good help in the kitchen. Her important duty is to make the best bakings. Her most important helper is Baking Powder.

If she tries Calumet she'll stick to it. Its dependability and uniform quality means good-bye to bake-day failures.

The farmer's wife wants the most of the best for her money. That's why most of them use Calumet. It's pure in the can and pure in the baking.

Received Highest Awards
New Cook Book Free — See Slip in Pound Can.

MENTION KANSAS FARMER WHEN YOU WRITE.

Canada Offers 160 Acres Land Free to Farm Hands

**Bonus of Western Canada
Land to Men Who Assist
in Maintaining Needed
Grain Production.**

The Demand for Farm Labor in Canada is Great. As an inducement to secure the necessary help at once, Canada will give one hundred and sixty acres of land free as a homestead and allow the time of the farm laborer, who has filed on the land, to apply as residence duties, the same as if he actually had lived on it. Another special concession is the reduction of one year in the time to complete duties. Two years instead of three as heretofore but only to men working on the farms for at least six months in 1917. This appeal for farm help is in no way connected with enlistment for military service but solely to increase agricultural output. A wonderful opportunity to secure a farm and draw good wages at the same time. Canadian Government will pay all fare over one cent per mile from St. Paul and Duluth to Canadian destinations. Information as to low railway rates may be had on application to

GEO. A. COOK

Canadian Government Agent

2012 Main St., Kansas City, Mo.

FARM SEEDS

Better than any you ever bought. Guaranteed absolutely highest germination and purity. Subject to test—money back if not satisfied.

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We desire to make this department just as helpful as possible, and believing that an exchange of experiences will add to its value, we hereby extend an invitation to our readers to use it in passing on to others experiences or suggestions by which you have profited. Any questions submitted will receive our careful attention and if we are unable to make satisfactory answer, we will endeavor to direct inquirer to reliable source of help. Address Editor of Home Department, Kansas Farmer, Topeka, Kansas.

Just to be good, to keep life pure from degrading elements, to make it constantly helpful in little ways to those who are touched by it, to keep one's spirit always sweet and avoid all manner of petty anger and irritability—that is an idea as noble as it is difficult.—**EDWARD HOWARD GRIGGS.**

Graham and whole wheat breads are very good foods for people troubled with constipation, but are undesirable for those having weakened digestive systems.

Graham Bread

2 cupsful white bread sponge
2 tablespoonfuls brown sugar
Enough graham flour to make stiff batter

Let this mixture rise, then add enough graham flour to knead, but do not make very stiff. Put in pan, let rise, and bake. This amount will make one loaf.

Start Cannas Indoors

Cannas should be started indoors the first or second week in April and transplanted the second week in May. This plan has numerous advantages over the old method of planting the bulbs directly in the beds in which they are to grow.

By the new method it is possible for the grower to select plants of uniform size and color. There is less danger from frost when the plants are not set out until May.

The indoor plan is simple. The bulbs are cut in lengths varying from two to four inches. Individual specimens are placed in pots or several may be planted in a shallow box. The pots or boxes should be put in sunny basement windows, under greenhouse benches, in hotbeds, or in cold frames. Strong, well developed plants are produced that will stand the strain of transplanting.—**M. F. AHEARN, Professor of Landscape Gardening, K. S. A. C.**

Setting Tomato Plants

A very good practice in setting out a limited number of tomato plants is to plant three or four seeds in a small pasteboard box. When the plants have come, pull out the weaker ones and leave only the most vigorous one. When transplanting to the garden, put the box right in the ground.

In this way the plant will go right on growing without suffering the setback so often the result of transplanting.

If you do not have enough pasteboard boxes to do this, tin cans may be used, but instead of burying the can a knife should be run around the edges, which will allow the dirt to be removed without disturbing the young plant. This dirt as it comes from the can around the plant, should be placed in the tomato patch with the plant.

Home-Made Canning Device

In the course of a recent visit, one of our readers who is a homemaker in the Ozark Mountain region, told of the methods used for saving fruits and vegetables for the winter and spring use of a large family.

A canner was made of an old iron kettle with a capacity of twenty gallons. For this a false bottom of slats was made and a cover of heavy galvanized sheet iron. This kettle hangs on a chain supported by three posts fastened together at the top and spread at the bottom. This canning outfit stands in the back yard.

When it is time to do the canning work, some of the women from near-by cabins are hired by the day. These women are accustomed to the hardships and privations of unproductive hillside farms and at first knew practically nothing about canning the products of the garden.

They pick the peas, beans and asparagus and under careful instruction prepare them and pack them in sterilized jars. One teaspoonful of salt is placed in the top of each quart jar and the jar is then filled with water that has been

boiled and cooled. The rubbers are then put on and the sterilized covers screwed only loosely to permit the escape of steam. The kettle accommodates sixteen jars at a time and enough water is put in the kettle to furnish the required steam. The galvanized cover is then placed over the kettle and held in place by two sticks of wood.

When the vegetables have been cooked sufficiently the kettle cover is removed, the jar covers are tightened and the jars removed to a table away from a draft so the cold air will not break them. When thoroughly cooled the jars are wrapped in dark paper and placed in the fruit and vegetable closet.

Many vegetables, fruits, meat and wild game are canned in this manner.

The canning work of this Ozark homemaker serves two good purposes, namely, supplying the family with healthful food throughout the year at a minimum cost, and also teaching these neighbor women how to supply their families with home-canned products in addition to giving them an opportunity to earn a day's wages now and then.

At the time of the visit this homemaker stated the high cost of living had not yet been felt because of this adequate home provisioning.

Understanding Mothers

Isn't it a pleasure to visit with a mother who understands her children? Is it possible that there is a mother who doesn't understand her own children? We think it is, and this conclusion has been reached after having made mental note of the actions of many. The mother who never reasons with the child who is dependent upon her for so much of his knowledge and so many of his life impressions, does not study that child life to the point of understanding, and there are many other ways in which some mothers evince a lack of understanding.

But what an inspiration is the mother whose handling of her children leaves no doubt in the mind as to her understanding. We visited with one of these mothers last week. Much of this mother's knowledge has been gained the hardest way—in the school of life, without educational training—but to this knowledge is ever added her memory of her own childhood of very limited advantages and she is earnestly trying to do for her children everything that will bring them to young manhood and young womanhood equipped for useful lives. She sees to it that their bodies are nourished and clothed as they should be to promote development and health, and she is never too busy to help them with their school work, nor too old to enjoy their sports. When she told how many times she had been skating this winter, her daughter, who is in the eighth grade at school, proudly said the boys skated with Mother more than they did with the girls. These children are having their fun and their mother is supervising it in a way that adds to the pleasure.

All mothers are not physically able to enter into the life of the child to this extent, but an understanding interest will accomplish practically the same results.

This mother's ambition is to make it possible for her three children to complete at least high school work and then be able to help or interest them in working their way through vocational colleges.

As we thought over our visit and the financial means at this mother's disposal, her ambitions and her vision of possibilities grew larger and larger to our mind and we realized what a tremendous power for good and for the advancement of humanity she is wielding in just being an understanding mother.

A root or two of mint set out this spring will supply enough leaves to use for flavoring many times during the year.

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MOISTURE IN INCUBATION

WHILE lack of moisture is not alone responsible for the great mortality in incubator chicks, it undoubtedly causes a large percentage of losses at hatching time. The following discussion of the moisture question is from a recent bulletin of the West Virginia Experiment Station:

In common practice the air surrounding incubators is usually considerably colder than that in the incubating chamber. In fact this difference in temperature is usually the chief factor in bringing about the circulation of air in the machine, for if the temperature were the same inside and outside special equipment would be necessary to bring about the circulation. Hence, it is generally understood that in warm weather the ventilators should be opened much wider than in cold weather.

When air is warmed it becomes relatively dryer, and so it happens that under ordinary conditions the air that is used for ventilating the machine becomes dryer than the outside air, and tends to take too much moisture away from the eggs, the effect of which, if carried to extremes, would be to reduce or entirely destroy the hatch. From this it can be understood that in practical incubation ventilation and moisture are closely related factors. The greater the ventilation and the colder and dryer the outside air, the greater is the general tendency to rob the eggs of an excessive amount of moisture.

When eggs are incubated they decrease in weight. This decrease consists of moisture which escapes through the shells and carbon dioxide that is produced as a result of the vital processes. If it be assumed that the carbon dioxide given off is uniform in amount for all fertile eggs, then the loss in weight of eggs incubated under hens may be used as a guide to indicate whether eggs are being dried sufficiently in artificial incubation. The author studied this problem and found that during the first nineteen days of incubation eggs which hatched, when incubated under hens, lost 16.54 per cent of their original weight, fertile eggs which did not hatch, 15.83 per cent, and infertile eggs, 14.15 per cent.

The following directions for the practical use of these results in artificial incubation are offered:

After placing the eggs upon the trays ready for the incubator, set the trays upon a pair of scales reading to ounces and note the total weight of the eggs and trays. The trays should be thoroughly dry. After a few days weigh again. Subtract this from the first weight. This will give the actual loss in weight of the eggs.

Suppose that you have 208 eggs on the trays; that the first weight with trays is 24 pounds, 2 ounces; and that on the sixth day the weight is 23 pounds, 6 ounces. Then the loss in weight is 12 ounces. Now look in the table for the loss in weight of 100 eggs for six days. This is 10 ounces. Ten ounces multiplied by 2.08 gives 20.8 ounces, which is the calculated loss for 208 eggs for six days. Therefore, the eggs have not been losing weight as rapidly as they should, and the eggs should be given more ventilation or the incubator should be removed to a drier location. (It is assumed that the eggs are kept uniformly at the proper temperature.) After the eggs have been tested for the infertile ones, weigh again and proceed as before.

If the eggs have not lost enough weight, open the ventilators or place the incubator in a drier place.

Table showing normal loss in weight of 100 eggs in ounces for the first nineteen days of incubation follows:

Day	Ounces	Day	Ounces
1.....	1.65	11.....	18.60
2.....	3.31	12.....	20.33
3.....	4.96	13.....	22.10
4.....	6.62	14.....	23.88
5.....	8.28	15.....	25.66
6.....	10.00	16.....	27.44
7.....	11.72	17.....	29.21
8.....	13.44	18.....	30.99
9.....	15.16	19.....	32.77
10.....	16.88		

If the eggs have lost too much weight,

give more moisture or less ventilation, but in reducing ventilation great care should be used, as pure air in the egg chamber is absolutely necessary.

Artificial Brooding

In brooding chicks by artificial methods, care should be taken to keep them quiet and warm during the first days of their lives.

The heat from the brooder should be radiated downward onto the chicks' backs. Heat rays are reflected like light rays.

The heat should be so applied that the chicks can select exactly the desired temperature. The better class of mammoth brooder heaters fulfills this condition, as it is hottest nearest the base of the heaters and colder farther away.

An abundance of fresh air is necessary.

The chicks should have opportunity to exercise where it is relatively cool and yet have immediate access to the source of heat. They should be gotten outside on the ground as soon as possible.

In any brooding system the chicks should not be overcrowded. A small indoor brooder may be overcrowded relatively more with seventy-five chicks than will a mammoth brooder with a thousand chicks. With the right kind of a heater and proper supervision and attention one thousand chicks may be satisfactorily handled in one flock.

Successful results should not be expected in hatching by either hens or incubators if the breeding stock has not been properly mated. Birds of poor vitality produce chicks similar in nature, and many of the chicks that die in the shell are not the fault of the incubator but of poor stock improperly cared for. Birds of low vitality are also more apt to transmit the white diarrhea germ to the little chick, and chicks of low vitality do not possess great resisting power toward the disease.

Eggs for hatching, either by natural or artificial methods, should be uniform in size, with smooth shells of good texture.

As a rule it is not wise to place both white and brown eggs in the same incubator, as the white eggs have a tendency to hatch one or two days sooner than those with brown shells. There is nothing in the color of the shell which affects the time of hatching, but the small, quick maturing birds nearly all lay white shelled eggs. The embryo chicks of these breeds will develop more rapidly than those of the heavier breeds.

Eggs that vary greatly in size should never be set in an incubator, as the large eggs seem to receive more heat due to projecting higher in the machine than the smaller ones. Eggs with shells of poor texture, which appear porous, allow the moisture to evaporate too readily, and seldom, if ever, hatch.

Leg Weakness in Chicks

Brooder chicks that are closely housed and fed too heavily are very likely to develop weight too fast in proportion to their strength. Unsteadiness in the walk is first visible, followed by, frequent resting and sitting, particularly while eating.

A change from a forcing ration to a non-forcing ration, as well as a change from a heavy feed to a light one, is essential. The substitution of bran, wheat, and oat meal for corn meal and corn, and the addition of bone-strengthening materials, such as skim milk, green feed, and commercial dried bone, remedy the ration. Outdoor exercise and more room must also be given.

Tells Why Chicks Die

E. J. Reefer, poultry expert, of 463 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent of all chicks hatched and cures white diarrhea over night. All poultry raisers should write for this valuable free book.—[Adv.]

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NEW FARM OPPORTUNITY IN ONE OF the greatest states in the Union. A new line of the Santa Fe is tapping a rich and fertile prairie section of Northwest Texas, where already many farmers have made good in a big way with wheat, hogs and live stock. Here, if you act now, you can get first choice—get in on the ground floor of a great opportunity. You can get in ahead of the railway—ahead of the people whom the railway will bring—ahead of those who act more slowly than you do. This is the chance of a lifetime for a man of moderate means. A certain number of thrifty, far-seeing farmers can acquire good land at an astonishingly low figure and on long, easy terms. If you have confidence that a great railroad, like the Santa Fe, would only recommend what it considers a good thing, and because it wants to see new territory developed and wants newcomers to prosper and produce—then write me today for particulars about this district. Mild climate, social advantages, schools, churches, telephones, good roads. Everything there but enough men with their families. Will you be one of the fortunate first comers to reap the advantages of a section that has been minutely inspected by a Santa Fe agricultural agent and pronounced right? Write me now and let me send you a copy of the special illustrated circular we are getting out. C. L. Seagraves, Industrial Commissioner, A. T. & S. F. Ry., 931 Railway Exchange, Chicago.

WISCONSIN LAND FOR SALE

LANDOLOGY, A MAGAZINE GIVING the facts in regard to the land situation. Three months' subscription free. If for a home or as an investment you are thinking of buying good farm lands, simply write me a letter and say "Mail me Landology and all particulars free." Address Editor Landology, Skidmore Land Co., 301 Skidmore Bldg., Marinette, Wis.

HEDGE POSTS.

FOR SALE—FIFTY THOUSAND OSAGE hedge posts. H. W. Porth, Winfield, Kan.

SITUATION WANTED.

WANTED—A POSITION ON RANCH OR farm as foreman. Address Box 64, Concordia, Kansas.

MARRIED MAN WANTS WORK ON farm by month or on shares. H. W. Hall, 1321 Logan St., North Topeka, Kansas.

HORSES AND MULES.

SHEPHERD PONIES, FIFTY HEAD, moderate prices. Charles Clemmons, Coffeyville, Kansas.

FOR SALE OR TRADE—PRINCE VICTOR, the best grade Percheron stallion in Harvey County. Weight 2,000 pounds; age 9 years. G. W. Perkins, Newton, Kansas.

JACK FOR SALE OR TRADE—FIVE years old, gray, 14 hands jack measure; excellent breeder. Sacrifice price. Harry Bilsen, Eureka, Kansas.

TREES, SEEDS AND PLANTS.

BEST PROGRESSIVE EVERBEARING strawberry plants cheap. For particulars write R. N. Thomas, Shenandoah, Iowa.

640-ACRE MONTANA HOMESTEADS—new law. Circular free. Bureau 63, Boulder, Montana.

SEED CORN—BOONE COUNTY WHITE, carefully selected, \$2.50 per bushel shelled. J. W. Taylor, Edwardsville, Kansas.

SEED SWEET POTATOES—PUMPKIN yams, 3c a pound or \$1.50 shipped in bushel boxes. J. Medford, Wheatland, Okla.

EVERBEARING STRAWBERRIES—Piedmont, Progressive, Superb varieties, \$1 per hundred. J. A. Dowden, North Bend, Neb.

ALFALFA SEED—NEW, RECLEANED, \$8 per bushel. Bags, 25 cents. Sample on request. W. M. Hixon, Berryton, Kansas.

ENGLISH BLUEGRASS—NEW, RE-cleaned seed, \$10 per 100 pounds. Henry Mosher, Shell City, Mo.

ALFALFA SEED FROM NORTHWEST Kansas, 95 per cent pure. Good germination. \$5.50 per bushel. Geo. Bowman, Logan, Kansas.

SEED CORN—DIAMOND JOE WHITE, excellent drouth resister, and Reid's Yellow Dent Graded, \$2.50 bushel. D. D. Denver, Milford, Kansas.

SWEET CLOVER SEED, HULLED WHITE, 15 cents per pound. Alfalfa, \$5 to \$7.50 per bushel. Sacks, 25c. R. L. Snodgrass, Route 4, Augusta, Kansas.

PURE GOLD MINE AND BOONE COUNTY White seed corn, selected, graded, \$2 per bushel. Alfalfa seed, \$7.50 per bushel. J. F. Feigley, Enterprise, Kansas.

FOR SALE—BOONE COUNTY WHITE seed corn, made over 30 bushels this year. Hand picked. \$1.75 per bushel. W. C. Baumgartner, Halstead, Kansas.

ALFALFA SEED FROM HIGH PRODUCING fields. 370 bu. from 40 acres. 99.74% pure; 95% germination. \$8.00 per bu. Sample free. Stockwell Farms, Larned, Kansas.

COMMERCIAL WHITE SEED CORN, \$2.50 bushel. "Meadow fequie," 7c pound. White clover, 35c pound. Alfalfa, \$8. E. D. King, Burlington, Kansas.

REID'S YELLOW DENT, BOONE COUNTY White seed corn. Genuine Red Texas seed oats, clover, timothy and alfalfa seed. S. G. Trent, Hiawatha, Kansas.

SEEDS—WHITE SOURLEES, ORANGE and Red Amber cane seed at \$2.20 per bushel. Siberian and German millet at \$2 per bushel. Barley at \$1.25 per bushel. Sacks free. J. S. Friesen, Hillsboro, Kansas.

SEED CORN—1916 CROP, SATISFACTORY germination guaranteed. (Test it yourself before payment.) Write for particulars. Northern grown Sudan seed. Willis Conable, Grower, Axtell, Marshall County, Kansas.

SEED CORN, YELLOW DENT, ST. Charles White, carefully selected. Shelled, bushel, \$2. Bags free. Orders filled with care at once. Frank Crosby, Route 2, Belvue, Kansas.

BEAUTIFUL FLOWERS—BIG STOCK, canna, gladiola, woodflower, salvia, tomato, cabbage, pepper, sage, and other flowering and vegetable plants. Seeds and bulbs. Write for descriptive price list. Henry S. Jefferies, Ottawa, Kansas.

TREES, SHRUBS, PLANTS, VINES, seeds. Everything at lowest prices direct to you. All tree peddlers' commissions cut out. Free book. Wichita Nurseries & Seed House, 105 Shell Bldg., Wichita, Kansas.

BOONE COUNTY WHITE SEED CORN a specialty for eight years. First and sweepstakes, Marshall County Fair. \$2.50 bushel, graded. Ernest Schubert, Route 1, Vilets, Kansas.

GERMAN MILLET, FINE GERMINATION, 100 pounds, \$3.75. Tested white black-hull kafir, \$1.85 bushel in two-bushel sacks. All sacks free. Brooks Wholesale Co., Ft. Scott, Kansas.

BERMUDA GRASS—HARDY, RANK-growing variety. Stands drouths, floods, hot winds and severe freezing. Best and hardest pasture grass. Great milk producer. Write for leaflet today telling how to get started. Henry Jefferies, Ottawa, Kansas.

EVERBLOOMING STRAWBERRY plants—Americus, 100 strong healthy plants true to name, only 90 cents; 500, \$4. Have tried Americus, Progressive and Superb. Americus proved the best bearer. Big stock flowering and vegetable plants. Write for descriptive price list. Henry Jefferies, Ottawa, Kansas.

ALFALFA AND KAFIR SEED—RE-cleaned, home-grown, non-irrigated. Alfalfa seed, \$5, \$6, \$7, \$8 and \$9. White Flower sweet clover, hulled, \$12; unhulled, \$7.50. Pure white kafir, \$2; good growing kafir, 1% cane seed, \$1.75 per bushel, our track. Seamless bags, 30c each. Samples on request. The L. C. Adam Mercantile Co., Cedar Vale, Kansas.

FROST-PROOF CABBAGE PLANTS—Offer our thousands of customers in the Southwest same high class plants as in the past. Jersey, Charleston, Wakefield, Succession, Flat Dutch. One hundred, postpaid, 40c; 200, postpaid, 75c; 500, postpaid, \$1.25; 1,000, postpaid, \$1.75; over 5,000, cheaper. You know us. Largest plant shippers in the Southwest. Ozark Seed & Plant Co., Nashville, Ark.

TREES, SEEDS AND PLANTS.

SEED CORN—LAPTAD STOCK FARM, Lawrence, Kansas.

WHITE BLOSSOM SWEET CLOVER seed reasonable. John Lewis, Hamilton, Kansas.

TEN ELBERTA AND FIVE CHAMPION peach trees, postpaid, \$1. Send now. Wellington Nurseries, Dept. C, Wellington, Kan.

FOR SALE—KAFIR CORN, AFRICAN Pink, per 100 pounds, \$5. Hayes Seed House, 524-526 North Kansas Ave., Topeka, Kan.

BLACK HULLED WHITE KAFIR SEED, re-cleaned, tested and sacked, \$2 per bushel. Grover Lee, Pratt, Kansas.

ALFALFA AND MILLET SEED—RE-cleaned, home grown, non-irrigated alfalfa seed, \$7, \$8.50, \$9. German millet at \$1.50 per bushel. Sacks extra. Karl Ehrlich Grain Co., Marion, Kansas.

CATTLE.

FOR SALE—ONE PURE-BRED JERSEY bull calf, born January 24, 1917. Write H. H. Starr, Cladlin, Kansas.

HIGH GRADE HOLSTEIN HEIFER calves, \$17 each, crated. Edw. Yohn, Watertown, Wisconsin.

REGISTERED HOLSTEIN BULLS TWO to seven months old, very reasonable. Wm. Mielenz, 97 Wisconsin, Milwaukee.

120 HEAD OF HIGH GRADE HOLSTEIN cows and heifers, priced for quick sale. H. F. McNutt, Oxford, Wisconsin.

FOR SALE—A RED POLLED BULL, calving November 19, 1914. Will make a show bull. Geo. Haas, Lyons, Kansas.

HIGH GRADE HOLSTEIN CALVES, males and females, ten days to two weeks old, at \$12.50 to \$15. Crated, f. o. b. West Concord, Minn. Chas. Jones & Son.

CHOICE CALVES—HOLSTEINS, GUERNSEYS, Shorthorns, high grades, \$15 to \$35 according to age. Expressed to you at little cost. Write Paul Johnson Company, South St. Paul, Minn.

HIGHLY BRED HOLSTEIN CALVES, either sex, 15-18ths pure, crated and delivered to any station by express, charges all paid for \$23 apiece. Frank M. Hawes, Whitewater, Wis.

MISCELLANEOUS.

FOR SALE—16-HORSEPOWER GASOLINE engine on steel trucks; good as new. Double seated carriage, rubber tires, good as new, cost \$480, or will trade either of the above. Make me an offer. H. W. McAfee, Route 8, Topeka, Kansas.

THE STRAY LIST.

TAKEN UP—BY W. M. EDDINGTON, Moscow, Grant County, Kansas, on February 1, 1917, one bay mare, two years old, 14½ hands high, star in forehead; left hind foot white, no brands; appraised at \$60. J. E. Corley, County Clerk.

TAKEN UP—BY B. F. FORD, OF Seneca, Adams Township, Nemaha County, Kansas, February 21, 1917, one red cow four or five years old. Tip of tail white, white streak under belly. No marks or brands. Appraised at \$45. W. L. Kaufman, County Clerk.

WHEN WRITING TO ADVERTISERS PLEASE MENTION KANSAS FARMER

BUSINESS CHANCES

offer to introduce my magazine, "Investing for Profit." It is worth \$10 a copy to any one who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal in America. It shows how \$100 grows to \$2,200. Write now and I'll send it six months free. H. L. Barber, 431.28 W. Jackson Boulevard, Chicago.

DOGS.

COLLIE PUPPIES, \$5. FRANK BARRINGTON, Sedan, Kansas.

FOR SALE—PAIR OF RUSSIAN WOLF hounds, guaranteed to catch and kill coyotes. Lora Farr, Route 10, Emporia, Kan.

REGISTERED SCOTCH COLLIES AND fox terriers. Western Home Kennels, St. John, Kansas.

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.

FOR SALE QUICK—BEAUTIFUL FOX Terrier bitch, four years old, U. K. C. registered (No. 79145), bred, \$35. Splendid ratter and watch dog. Year old males, all registered, \$10 each. Frances E. Rowe Kennels, Seymour, Missouri.

KODAK FINISHING.

LET EXPERTS FINISH WHAT YOUR kodak began. Our liberal offer good until June 1, 1917. We finish one roll (only) six-exposure film, any size, furnish six select prints, for 25c with order. Better pictures from each exposure. Fewer failures from each roll or money cheerfully refunded. T. V. Moreau Co., 618 Nicollet Ave., Minneapolis, Minn.

HOGS.

BIG-TYPE POLAND BOARS. U. A. Gore, Seward, Kansas.

At this time when so much is being said and written about excessive living costs, much might be done toward controlling the situation by just being thoughtful about the many ways in which each family can save something that has heretofore been wasted.

Real Estate For Sale

For Sale

EIGHT-ROOM HOUSE, MODERN, in Kenwood Addition. The best residence district of Topeka. Good terms. Write

KANSAS FARMER, BOX 3 TOPEKA, - - - KANSAS

480 ACRES, this county. Near oil development. Can lease for oil. \$1.50 per acre. Good pasture. \$4.50 per acre. Terms. SOUTHERN REALTY CO., McAlester, Okla.

EXCHANGES.

I have good farms to trade for smaller farms and city property. Write me.

W. M. GARRISON - SALINA, KANSAS

640-Acre Homestead waiting for you. Good grass, water, plenty timber. Don't miss opportunity. Best ever. For particulars write J. C. Wynn, LOCATOR, GRANTS, N. MEX.

NESS COUNTY LAND

We have some good farm land in Ness and Trego counties, Kansas, from \$15 to \$40 per acre. Write us for list.

FOUQUET BROTHERS LAND CO. Ransom - - - Kansas

160 Acres, slightly rolling, highly improved, 2½ miles of town, on mail route and telephone line. A good sandy loam. A bargain at \$60.00 an acre.

190 Acres, 1 mile small town, most tillable, grain and stock farm. Only \$45.00 an acre. Come at once. MARTIN STEAFUSS, OTTAWA, KANSAS

Farm Items

Most of the orchard insect pests can be controlled by simply applying good orchard management. One of the most pathetic sights about a farm is a neglected home orchard which often becomes so overgrown with weeds, sprouts, and briars, and so clogged with brush and other rubbish, that it may resemble second growth timber more than a real orchard. In such a case the orchardist's first job is to clean up the orchard, which will also eliminate many of the insect foes of the orchard.

Japan Clover for Pasture

Lepedeza, or Japan clover, which is proving its value in Kansas for pasture purposes—particularly in the southeastern section of the state—is being tried out by county agents in the various counties. Some farmers have already reported excellent results.

This clover is commonly grown in the lower Mississippi Valley and to some extent throughout the Southern States. It is a summer annual and like other legumes adds nitrogen to the soil.

Starting Plants from Seeds

There are many flowering plants ordinarily purchased that we can grow ourselves from seeds if we do not have access to the greenhouses or prefer to save the expense. Most of the plants used for bedding and sold by the florists are grown from cuttings, even of such plants as verbenas, salvias, sweet alysum, mignonette, ageratum, and petunias. Others are grown from divisions and rooted runners, as Shasta daisies, pansies, violets, dahlias, cannas, and a few others that cannot be grown from seeds outside a greenhouse. Some of those I have mentioned are rather difficult to grow from seeds, but most of them will grow readily, and some of them are grown mostly from seeds by the florists.

Corn in Wide Rows

The statement is made in a recent bulletin from the Federal Department of Agriculture that in certain sections of light rainfall, where the seasons are comparatively long, increasing the width of row to seven feet and doubling the stand in the row has been found to be an advantage. On account of being close together within the rows the young plants compete for the near-by moisture and are prevented from making too rapid and too tender a growth. The roots do not meet between the rows until the plants have reached their full growth, and the moisture in the soil between the wide rows benefits the plants at the time they are forming ears. The blank rows receive the same amount of cultivation they would if planted.

Many who have tried this method have found it satisfactory.

The following bulletins on corn are available: Bulletin No. 205, State Experiment Station, Manhattan, "Growing Corn in Kansas," and Farmers' Bulletin No. 773, U. S. Department of Agriculture, Washington, D. C., "Corn Growing Under Droughty Conditions."

RELIABLE POULTRY BREEDERS

PLYMOUTH ROCKS.

WHITE ROCK EGGS, \$4 PER HUNDRED. Nora Lamaster, Hallowell, Kansas.

BARRED PLYMOUTH ROCKS—FARM-bred beauties. Eggs for hatching, 50 each. Mrs. W. C. Bocker, Solomon, Kan.

BARRED ROCK EGGS, \$1 PER SETTING, \$4 per hundred. Mrs. Lillie Hirt, Parkerville, Kansas.

HIGH QUALITY BARRED "RINGLETS," 100 chicks, \$15. Eggs, \$5. Edward Hall, Junction City, Kansas.

BARRED PLYMOUTH ROCK EGGS, \$4 hundred. Valley View Poultry Farm, Concordia, Kansas.

FINE BARRED ROCK EGGS FROM farm raised stock, \$1.50 per fifteen. Mrs. J. A. Grimes, Milo, Kansas.

BARRED ROCK EGGS, FANCY STOCK, heavy laying strain, \$4.25 per hundred. Earl Summa, Dept. G, Gentry, Missouri.

WHITE ROCK EGGS, HOLBACH strain, \$1.25 per fifteen; \$6 per hundred. Mrs. E. E. Merten, Clay Center, Kansas.

WHITE ROCKS, SIZE AND QUALITY, good egg strain. Eggs—fifteen, \$1; fifty, \$3; hundred, \$5. G. M. Kretz, Clifton, Kansas.

WHITE ROCK EGGS, \$1 PER FIFTEEN. Quality guaranteed. W. G. Allison, Sterling, Kansas.

PURE WHITE ROCK EGGS—FIFTEEN, \$1; fifty, \$2.25; hundred, \$4. Mrs. Van Inskip, Route 7, Manhattan, Kan.

WHITE PLYMOUTH ROCKS ARE PRIZE winners. Send for catalog. W. K. Trumbo, Box 66-C, Roseland, Kansas.

BUFF ROCK EGGS FOR HATCHING—Thirty eggs, \$2; fifty eggs, \$3; hundred, \$5. Joe Carson, Bliss, Oklahoma.

PURE BARRED ROCK PEN AND RANGE eggs at let live prices. Write E. Hawley, Route 7, Garnett, Kansas.

BUFF AND WHITE ROCK EGGS, \$2.50 per fifty, \$5 per hundred. Excellent show record. W. H. Beaver, St. John, Kansas.

HIGH QUALITY PURE-BRED WHITE Rock eggs, \$3, fifty; \$5.50 hundred, prepaid. Mrs. John Ramsey, Route 5, Ft. Scott, Kan.

WHITE ROCK EGGS FOR HATCHING, 50c per setting, \$3 per hundred. Arthur Alpers, St. John, Kansas.

WHITE ROCKS, FARM RAISED, PRIZE winners. Eggs \$1.25 setting; \$3, fifty; \$5, hundred. Mrs. Ben Miller, Newton, Kansas.

WEIGHER-LAYER BARRED ROCKS—Pens, \$3 to \$5 setting; stock, \$5 hundred. C. F. Fickel, Earlton, Kansas.

BARRED ROCK EGGS FOR HATCHING. Eighty-seven premiums. A. G. Hammond, Vinland, Kansas.

BEAUTIFUL IMPERIAL "RINGLETS," \$35 cockerel heading Pen No. 1. Eggs, \$4 per fifteen. Mrs. Iver Christenson, Jamestown, Kansas.

PURE-BRED BARRED ROCKS EXCLUSIVELY. Choice stock. 100 eggs, \$5; 50, \$3. Safe delivery and satisfaction guaranteed. Adam A. Weil, Clay Center, Neb.

BARRED ROCKS—FIRST COCKEREL, Manhattan, \$3.50. Fifteen eggs, \$3; hundred, \$5. Duroc boars, gilts. F. F. Wood, Wamego, Kansas.

BARRED ROCKS, HENS AVERAGED 175 eggs, 1916. Trap-nest males and their pullets mated with fine cockerels. Eggs, 10c; fifty, \$4. Farnsworth, 224 Tyler St., Topeka.

WHITE ROCKS—SEVENTEEN RIBBONS this season. Eggs, one and two dollars per fifteen. Mating list. Ed Fehr, Marquette, Kansas.

PRIZE WINNING BARRED ROCKS—Four entries, five prizes, State Show 1917. Eggs, special mating, \$3 to \$5; farm stock, \$1. C. D. Swaim, Geuda Springs, Kansas.

BARRED PLYMOUTH ROCKS, E. B. Thompson strain. Eggs, \$1.50 per fifteen; \$3.50 per fifty; \$6 per hundred. C. J. Rivir, Lafontaine, Ind.

BARRED ROCKS, EXCELLENT IN SIZE and quality. Eggs, first pen, \$3 per fifteen; range stock, \$6 per hundred. Mrs. Myrtle Henry, Route 1, Lecompton, Kansas.

PURE BARRED ROCK EGGS FROM large well-marked range birds, \$1.25 setting, \$6 hundred. Choice Thompson strain pen eggs, \$3 setting. S. R. Blackwelder, Isabel, Kansas.

LINDAMOOD'S BARRED ROCKS, BOTH dark and light matings. Prices for eggs from special matings, \$5 per fifteen. Utility eggs, \$6 per hundred. Send for circular. C. C. Lindamood, Walton, Kansas.

EGGS FOR HATCHING—FROM BEST laying strains of Barred Plymouth Rocks. Bradley Bros. and Parks 200-egg strains, \$3, fifteen; \$5, thirty. Catalog. Gem Poultry Farm, Haven, Kansas.

BARRED ROCK EGGS FROM RIBBON winners. Utility, \$4 per hundred; fifty for \$2.50. Pen eggs, \$5 per fifteen. Have always won wherever shown. R. D. Ames, Walton, Kansas.

BARRED PLYMOUTH ROCKS—GENUINE Thompson Ringlet prize winning strains. Pen eggs, either cockerel or pullet mating, also utility flock eggs. Circulars free. A. F. Siefker, Defiance, Missouri.

WHITE PLYMOUTH ROCKS, BEST ALL-purpose fowl. Bred them twenty-four years. No better anywhere. Eggs, \$2 per fifteen, \$5 per forty-five delivered. Thomas Owen, Poultry Editor, Topeka, Kansas.

BARRED ROCK SPECIALIST—PRIZE winners: Hobart, 1st, 2d, 3d, 4th cockerel; 1st, 3d pullet; 1st pen, 2d, 3d cock, silver cup. Gold special, Oklahoma City, 1st pullet, bred pen, first cock. Eggs, fifteen, \$2.33; hundred, \$6. Fred Hall, Lone Wolf, Okla.

PLYMOUTH ROCKS.

PARTRIDGE ROCK COCKERELS AND buff drakes. Mrs. Frank Neel, Beverly, Kan.

BUFF ROCK EGGS, ONE DOLLAR PER setting; choice stock. Mrs. E. C. Hicks, Columbus, Kansas.

EGGS—CHOICE BARRED ROCKS, thirty, \$1.50; hundred, \$4.50. Catharine Beightel, Holton, Kansas.

GUARANTEED EGGS FROM PURE-bred Barred Rocks and Rhode Island Reds, \$1.50 to \$3 for fifteen. Send for booklet. Tom Lettwich, Winfield, Kansas.

"REALIZATION STRAIN" BUFF ROCKS lay in coldest weather, also win at best shows. Ask W. M. Godsey, 1253 College Avenue, Topeka, Kansas, for mating list.

BARRED AND WHITE ROCKS—BEST blood lines in America. Forty premiums, 1916-1917. Write for mating list. A few fine cockerels and cocks for sale. H. F. Hicks, Cambridge, Kansas.

BARRED ROCKS—73 PREMIUMS, TOPEKA, Manhattan, Clay Center, Denver. Eggs—Fifteen, \$5; thirty, \$9; fifty, \$13; thirty, \$5. Chicks, 50c and \$1. Italian bees. Mattie A. Gillespie, Clay Center, Kansas.

RHODE ISLAND REDS.

SINGLE COMB RED EGGS—GOOD FARM range, \$4 per hundred, \$1.50 per thirty. Mrs. Rosa Janzen, Box 242, Geneseo, Kan.

PURE-BRED ROSE COMB RED EGGS, \$1 per fifteen, \$5 per hundred. Fine laying strain. Oliver Spencer, Hesston, Kansas.

ROSE COMB RHODE ISLAND REDS—Utility stock. Winter layers. Eggs, \$2, 15; \$5, 45; \$9, 100. Louise Krigbaum, Route 1, Topeka.

ROSE COMB RED EGGS FROM BLUE ribbon winners, \$3, \$5, \$7.50 per fifteen. Best of guarantee. Fred Keim, Seneca, Kan.

ROSE COMB RED EGGS—RICH, RED, fine undercolor, winter layers. Mrs. Alice Dolson, Neal, Kansas.

HIGH SCORING R. C. R. I. REDS—EGGS, \$1.50 per setting. Fertility guaranteed. Chas. Wodke, Council Grove, Kansas.

MACK'S SINGLE COMB REDS—FINEST quality. Best layers. Dark red. Large size. Eggs, chicks. Write H. H. McLellan, Kearney, Nebraska.

ROSE COMB RHODE ISLAND REDS—Eggs, \$2 per setting. Kansas state show winners. Baby chicks. Mating list. L. E. Castle, Wichita, Kansas.

NEEF'S FAMOUS BRED-TO-LAY S. C. R. I. Reds, prize winners, \$1.25 per setting, \$5 per hundred. Jno. H. Neef, Boonville, Missouri.

DARK R. C. REDS, PURE-BRED, EXTRA fine. Eggs, \$3 and \$2 per fifteen; \$5 per hundred. W. J. Honeyman & Sons, Hillside farm, Madison, Kansas.

PURE-BRED ROSE COMB RHODE Island Reds. Eggs for hatching, \$1 per fifteen, \$5 per hundred. Mrs. L. F. Hinson, Stockdale, Kan.

R. C. REDS—EGGS FOR HATCHING. Laying strain headed by prize winning cockerel. Fifteen, \$3. Mrs. Mira Lambert, Anderson, Missouri.

LARGE, DARK, RICH EVEN RED R. C. Reds—Eggs, fifteen, \$1; fifty, \$3. Dark colored range flock, \$5 hundred. Nora Luthye, Route 6, North Topeka, Kansas.

SINGLE COMB RHODE ISLAND RED eggs, hundred, \$4. Winter layers, large kind, guaranteed fertile. Mrs. Frank B. Smith, Route 2, Lawrence, Kansas.

EGGS FOR SALE—S. C. R. I. REDS—Breeder for twelve years. \$1.50 per setting of fifteen; \$5 a hundred. Mrs. Jno. G. Schmidt, Route 1, Box 135, Edgewood, Lexington, Mo.

FERTILITY AND SAFE ARRIVAL guaranteed on low priced eggs for hatching, from high quality, both combs, Rhode Island Reds. Fourteen years breeding. Mating list free. H. A. Sibley, Lawrence, Kansas.

SIX GRAND PENS, ROSE COMB RHODE Island Reds that have shape, size and color. Mated to roosters costing \$15 to \$50. Fifteen eggs, \$2.50; thirty eggs, \$4; fifty eggs, \$6. Fine pure-bred range flock, \$5 per hundred. Baby chicks. Send for catalog. W. R. Huston, Red Specialist, Americus, Kan.

WYANDOTTES.

R. C. BUFF WYANDOTTE EGGS, \$1.50 for fifteen. G. G. Wright, Langdon, Kan.

WHITE WYANDOTTE EGGS, \$1, FIFTEEN; \$5 hundred. Mrs. Geo. Downie, Lyndon, Kansas.

WHITE WYANDOTTES—EGGS FROM choice stock, \$1.80, thirty; \$5, hundred. Mrs. Will Beightel, Holton, Kansas.

SILVER-LACED WYANDOTTE EGGS, \$1.25 per fifteen; \$3 per fifty; \$5 per hundred. Mrs. H. R. Young, Stella, Neb.

ROSE COMB WHITE WYANDOTTE eggs, per fifteen, \$1; one hundred, \$4. H. A. Ritter, Route 2, Kiowa, Kansas.

WHITE WYANDOTTES—EGGS, SETTING, \$1; 100, \$4. Mrs. J. W. Johnson, Cedarvale, Kansas.

EGGS FOR SALE FROM PURE WHITE Wyandottes, \$6 per hundred. Mrs. D. J. White, Clements, Kansas.

ROSE COMB BUFF WYANDOTTE EGGS, fifteen, \$1; hundred, \$4. Mrs. Ida Alexander, Hilltop, Kansas.

WHITE WYANDOTTE EGGS, ONE DOLLAR for fifteen. Four-fifty per hundred. Geo. Tufts, Fredonia, Kansas.

CHOICE ROSE COMB SILVER WYANDOTTE eggs, \$1 for 15; \$5 for 100. Mrs. Phillip Schuppert, Arrington, Kansas.

WYANDOTTES.

WHITE WYANDOTTE EGGS FROM farm range stock, \$4 per hundred. Vida Hume, Tecumseh, Kansas.

ROSE COMB WHITE WYANDOTTES—Eggs from pen, setting, \$2; from flock, setting, \$1; hundred, \$4.75. Mrs. Eme Acheson, Palco, Kansas.

SHUFF'S "BEAUTIFUL" SILVER WYANDOTTES. Eggs—Fifteen, \$1.50; fifty, \$3.50; hundred, \$8. Baby chicks. Mrs. Edwin Shuff, Plevna, Kansas.

COLUMBIAN WYANDOTTE EGGS, \$1.50 setting. Special mating of blue ribbon winners, \$3. J. J. Pauls, Hillsboro, Kansas.

SILVER WYANDOTTES—BEST ALL round breed, vigorous grand laced flock. Eggs, fifteen, \$1; hundred, \$5. Mrs. Ed Bergman, Paola, Kansas.

EGGS—SILVER LACED WYANDOTTES, fifteen, \$1.25; fifty, \$3.50. Rouen and Buff Orpington duck eggs, twelve, \$1.50. Fred Kucera, Clarkson, Neb.

WHITE WYANDOTTE EGGS—REGAL strain, prize winners. Farm range, \$5 hundred. Pen 1, Martin male direct, fifteen, \$5. Pen 2, high scoring male, fifteen, \$3. Prepaid. Frances Fleury, Concordia, Kansas.

PARTRIDGE WYANDOTTE EGGS, MAHOGANY strain, \$1.50 per fifteen. Good cockerels, \$3 to \$5 each. Canaries, fine singers. Baby chicks. Mrs. Edith B. Taylor, Marion, Kansas.

EGGS—WHITE WYANDOTTES FOR quality. Good layers. Utility, \$1.25 fifteen, \$3 fifty, \$5 hundred. Pen headed by 10 cockerel direct from Finkel, \$2 fifteen. M. M. Weaver, Newton, Kansas.

SILVER WYANDOTTES. YES, I AM still selling Silvers. Have some good cockerels left. Eggs in season. Prices reasonable. Write me. M. B. Caldwell, Broughton, Kansas.

CAREFULLY SELECTED EGGS FOR hatching from pure-bred Partridge Wyandotte stock. Doolittle-Wolverine strain, \$1.50 for fifteen, \$2 for twenty-four. Golden rule strictly observed. R. F. Ayers, Route 5, Box 196, Independence, Mo.

LEGHORNS.

WHITE LEGHORN EGGS (FROM Young's best). G. D. Willems, Inman, Kan.

S. C. W. LEGHORN EGGS. STATE WINNER. Mrs. W. R. Hildreth, Oswego, Kansas.

PURE-BRED SINGLE COMB BROWN Leghorns. Choice farm flock. Eggs, 100, \$4. Mrs. D. A. Wohler, Hillsboro, Kansas.

PURE-BRED S. C. BROWN LEGHORN eggs, \$1 per fifteen, \$5 per hundred. Mrs. L. H. Hastings, Thayer, Kansas.

"BARRON'S" 268-EGG LEGHORNS—Eggs, \$5 hundred. Sunlight Poultry Farm, Mt. Moriah, Mo.

EGGS, EGGS FROM KEEP-LAYING strain Single Comb White Leghorns. Thol. R. Wolfe, Conway Springs, Kansas.

SINGLE COMB BUFF LEGHORN COCKERELS. Eggs. White Holland turkey toms. Eggs. Mrs. S. F. Crites, Florence, Kansas.

SINGLE COMB WHITE LEGHORN EGGS—English Barron strain. Baby chicks. F. B. Morger, Fowler, Colo.

ROSE COMB WHITE LEGHORNS—Eggs for hatching, \$5 per hundred. Mrs. Joe Streeter, Route 5, Hamilton, Mo.

BUFF LEGHORNS, CHOICELY BRED. Eggs, \$5 per hundred. J. A. Reed, Route 2, Lyons, Kansas.

BROWN LEGHORN HATCHING EGGS, \$1 per fifteen, \$3 per fifty, \$5.50 per hundred. R. W. Getty, Downs, Kansas.

SINGLE COMB BUFF LEGHORN EGGS, \$5 hundred. Satisfaction guaranteed. Alf Johnson, Leonardville, Kansas.

PURE-BRED ROSE COMB BROWN Leghorns, \$1 per fifteen, \$5 per hundred. Mrs. Daisy Denlinger, Frankfort, Kansas.

R. C. B. LEGHORNS, WINTER LAYERS, vigorous stock. Eggs, \$5 per hundred. The Blue Grass Stock Farm, Onelda, Kansas.

GOLDEN BUFF LEGHORNS—GREAT layers, silver cup winners. 100 eggs, \$6. Agnes Smiley, Braddyville, Iowa.

EUREKA FARM SINGLE COMB WHITE Leghorns, bred to lay. Farm range eggs, \$4 per hundred. Henry Richter, Hillsboro, Kansas.

EGGS FOR HATCHING FROM HOGAN'S laying strain of Single Comb White Leghorns, \$5 per hundred. Roy Rhodes, Maize, Kansas.

BROWN LEGHORNS—ROSE, SINGLE comb. Egg production scoring 200 to 280 eggs, \$2 fifteen, \$6 hundred, prepaid. Plainview Poultry Farm, Lebo, Kansas.

SINGLE COMB BROWN LEGHORNS—Thirty-one prizes at Kansas State Show, 1917, including eight firsts. W. J. Roof, Maize, Kansas.

PURE YESTERLAY 200 EGG LAYING strain Leghorns mated to 240 egg Barron stock. If you want winter layers write Shady Pine Leghorn Farm, Rossville, Kan.

FOR SALE—THIRTY SINGLE COMB White Leghorn hens and pullets, extra good laying strain, \$1 each. Blue Grass Stock Farm, Onelda, Kansas.

PURE-BRED ROSE COMB WHITE Leghorns. Eggs for hatching; forty-five, \$3; one hundred, \$4. Prepaid in Kansas. G. Schmidt, Route 1, Goessel, Kansas.

S. C. WHITE LEGHORNS EXCLUSIVELY. Decker's laying strain. Many winners. Eggs for hatching, \$6 per hundred. Write for 1917 price list. Yours for quality (Nuf sed) Decker's White Poultry Farm, Route 1, Des Moines, Iowa.

LEGHORNS.

TIP TOP ROSE COMB BROWN LEGhorn eggs, J. E. Wright, Wilmore, Kan.

ROSE COMB BROWN LEGHORNS—WON five prizes. Eggs, fifteen, 90c; fifty, \$2.20; hundred, \$4.25. Rufus Standiford, Reading, Kansas.

FOR SALE—SINGLE COMB BROWN Leghorn eggs from good stock, \$4 per hundred; \$2.50 per fifty. Cornelius Phillips, Route 9, Emporia, Kansas.

EGGS FOR SALE FROM PURE-BRED heavy winter laying Single Comb White Leghorns, \$2 fifteen, \$10 hundred; 100% fertility guaranteed on seventh day of incubation. H. M. Blaine, Sylvia, Kansas.

S. C. BROWN LEGHORNS—OH! YES, we have been raising them \$1 years; the 223 to 266 trap nest egg record kind. Eggs, 15, \$1.25; 100, \$5.00. Gorsuch, Stillwell, Kansas.

EGGS—FROM BELMONT'S UTILITY strain Single Comb White Leghorns, bred to lay kind, that pays the grocery bill. Flock headed by White King, the largest and whitest bird we have ever owned. Setting fifteen, \$1; fifty, \$3; hundred, \$5. Belmont Farm, Trenton, Mo.

S. C. BROWN LEGHORNS—WINTER layers and beauty strain. Booking orders for chicks to be delivered April 1, any quantity, at \$12.50 per hundred. Eggs at \$5.00 per hundred, trap-nested stock. Pullets in laying contest. Paradise Poultry Farm, Carona, Kansas.

WHITE LEGHORNS

WHITE LEGHORN EGGS (YOUNG'S \$20 stock). Elsie Thompson, Mankato, Kansas.

YOUNG'S STRAIN WHITE LEGHORNS—Eggs, \$5 hundred. Folder free. Reed Poultry Circle, Box H, Reed, Oklahoma.

HEAVY LAYING STRAIN S. C. WHITE Leghorns. 100 eggs, \$4; 15 eggs, \$1.50 prepaid. Mrs. W. E. McElvain, Denver, Mo.

ONE HUNDRED FERTILE SINGLE Comb White Leghorn eggs, \$4.50 and \$5. Quality guaranteed. Dave Baker, Conway Springs, Kansas.

SINGLE COMB WHITE LEGHORN EGGS from extra good layers and prize winners. Fifteen, \$1; hundred, \$5. I. H. Gnagy, Hutchinson, Kansas.

SINGLE COMB WHITE LEGHORN EGGS extra heavy winter layers. Pure-breds, \$4 hundred. Mrs. Wm. Dugan, Appleton City, Missouri.

ENGLISH WHITE LEGHORNS, BRED for laying. Free booklet of practical experience, tells how I cleared \$2,400 last year. Write for it. Eggs and baby chicks. Sunny Slope Farm, Morrison, Okla.

SINGLE COMB WHITE LEGHORNS—Farm range. Heavy laying strain. Hens, \$1.50 each. Eggs, \$1, fifteen; \$5 per hundred. Mrs. Lloyd Kifer, Route 2, Bolivar, Missouri.

BRED TO LAY S. C. W. LEGHORN eggs—fifteen, \$1; hundred, \$6. Exhibition pens, \$2 and \$3, fifteen. First prize winners fifteen shows in strong competition. Thirty silver cups and specials. Hyperion White Leghorn Farm, Route 1, Des Moines, Iowa.

UTILITY S. C. WHITE LEGHORNS—Ferris, Young, Frantz and Yesterlay strains. Eggs, \$1 per fifteen; \$4 per hundred. Sold 8,000 eggs for hatching last season, no complaint. L. O. Wiemeyer, Route 1, Anthony, Kansas.

PHEASANTS.

PHEASANTS—DEMAND UNLIMITED for Ringnecks this spring at \$6 to \$8 pair. Booking orders. Eggs of these, \$4 dozen; Golden, \$5 dozen. Harper Lake Poultry Farm, Jamestown, Kansas.

ANCONAS.

SINGLE COMB ANCONAS—EGGS, FIFTEEN for \$1.25 or \$6 per hundred delivered. Write for printed matter. C. K. Whitney, Route 9, Wichita, Kan.

SINGLE COMB ANCONA AND SILVER Laced Wyandotte eggs, \$1.25 per sixteen by post prepaid. Mrs. Cecile McGuire, Pratt, Kansas.

ANCONAS—BLUE RIBBON WINNERS. Eggs, \$1.50 per fifteen, \$6 per hundred. Pens two and three, \$1.25 per fifteen, \$5 per hundred. Frank Glenn, Newton, Kansas.

SEND FOR MY "ANCONA DOPE" AT once. Tells why I quit all other breeds. It's free and worth reading. Fill orders for eggs promptly. Page's Ancona Farm, Salina, Kansas.

RHODE ISLAND WHITES.

RHODE ISLAND WHITES—EGGS, \$2.00 for fifteen. Shetland Pony Farm, Coffeyville, Kansas. Mrs. C. R. Clemmons.

POULTRY WANTED.

1,200 PRODUCERS HAVE RESPONDED with shipments poultry and eggs to our classified advertisements. We can satisfy you too. Paying: Eggs, 25c; hens, 18c. Coops and cases loaned free. The Copes, Topeka.

DUCKS AND GEESE.

BUFF ORPINGTON DUCKS—PURE white eggs, 10c each. Forest A. Thurmon, Jonesburg, Mo.

FAWN RUNNER DUCKS—WHITE EGGS, prize winners. Eggs, \$1 setting, \$5 hundred. Mrs. Ben Miller, Newton, Kansas.

FAWN WHITE INDIAN RUNNER DUCKS from best laying strains in the country. Fifteen eggs, \$1; fifty, \$2.50. Nora Luthye, Route 6, North Topeka, Kansas.

(Continued on Next Page.)

PURE BRED POULTRY

LANGSHANS.

BLACK LANGSHAN EGGS FOR HATCHING. C. E. Dralle, Seward, Kansas.

GET MY FREE MATING LIST OF MADISON Square and Chicago prize winning Langshans. John Lovette, Mullinville, Kan.

GOOD BLACK LANGSHANS—EGGS, 7c; over 100, 6c. Baby chicks, 15c. Mrs. Geo. W. King, Solomon, Kansas.

BLACK LANGSHAN EGGS, \$3 FOR 15, from my San Francisco and Kansas State Show winners, 1917. H. M. Palmer, Florence, Kansas.

BLACK LANGSHANS—EGGS, FIFTEEN, \$1.25, \$1.50 mated; 100 \$5, \$6 mated. Baby chicks, 15 cents. Mrs. J. B. Stein, Smith Center, Kansas.

EGGS—PURE-BRED BLACK LANGSHANS exclusively from free range fowls, \$1 for 15, \$5 for 100. Mrs. John A. Roberts, Route 5, Stanberry, Mo.

PURE-BRED BLACK LANGSHANS—Excellent stock, farm range. \$1 for fifteen eggs, \$2 for fifty eggs. Mrs. Eli Williams, Route 3, Riverton, Neb.

BUCKNELL'S BIG BLACK LANGSHANS—Bigger and better than ever. Eggs at the same old price, \$1 for fifteen, \$5 for 100. Postage or express prepaid. R. E. Bucknell, Hardy, Nebraska.

ORPINGTONS.

S. C. BUFF ORPINGTON EGGS, \$4 PER hundred. J. W. Falkner, Belvue, Kansas.

PURE-BRED WHITE ORPINGTONS—Eggs for hatching, \$1 per fifteen, \$5 per hundred. Frank Hinson, Stockdale, Kansas.

BUFF ORPINGTONS EXCLUSIVELY—Even buff, large type, prize winners. Eggs, \$3 and \$2 setting. John Shaffer, Alma, Neb.

EGGS FROM PRIZE WINNING BUFF Orpingtons, \$2 per 15; fine Barred Rock, \$1 per 15, \$5 100. Mrs. M. Ditto, Newton, Kan.

FINE GOLDDUST BUFF ORPINGTONS—Eggs, \$1.50 setting; \$8 hundred. Prepaid. Mary E. Price, Route 7, Manhattan, Kansas.

BUFF ORPINGTONS, BRED TO LAY. Eggs—fifteen, \$1.50, prepaid. Chicks, 15c. John Oiler, Adrian, Missouri.

BUFF ORPINGTON EGGS FROM MY Des Moines, Kansas City, Topeka, St. Joseph and Omaha winners. H. T. Farrar, Axtell, Kansas.

EGGS—BUFF ORPINGTONS, PART-ridge Rocks, Bourbon turkeys, Toulouse geese and Buff ducks. Mrs. Frank Neel, Beverly, Kansas.

"PAYWELL" BUFF ORPINGTON EGGS from heavy winter layers and blue ribbon stock, \$2 per fifteen. L. S. Weller, Salina, Kansas.

WHITE ORPINGTON COCKERELS, A few pullets. Eggs reasonable. Also Indian Runner duck eggs. James Kennicott, Bunker Hill, Kansas.

EGGS FROM CRYSTAL WHITE PRIZE winning stock, White Orpingtons. Great winter layers. Fifty-five eggs January 20 from sixty-five hens, at live and let live prices. Send for list. John Vanamburg, Marysville, Kansas.

BUFF ORPINGTONS—FIFTEEN EGGS, \$1. Chicks, 15c. Spooner, Wakefield, Kan. BARRED AND BUFF ROCKS—SINGLE Comb White Leghorns, Fawn and Penciled Runner Ducks. Eggs—Fifteen, \$1; hundred, \$5, from range flocks. J. T. Rickman, Kiowa, Kansas.

SEVERAL BREEDS.

TWENTY VARIETIES POULTRY, EGGS, \$1.50 setting. Royal Poultry Yards, Coffeyville, Kansas.

EGGS—BARRED ROCKS, BRONZE TURkeys and Pekin ducks. Grace Aspedon, Faragut, Iowa.

TURKEYS, GEESSE, WHITE RUNNERS, Buff Drakes, Single Comb White Orpingtons, Buff and Brown Leghorn cockerels. Emma Ahlstedt, Roxbury, Kansas.

EGGS—S. C. BLUE ANDALUSIANS, BLUE Orpingtons, Buff Leghorns, Buff Orpington ducks, Bourbon Red turkeys. Circular. John A. Huber, La Crosse, Kansas.

EGGS FROM EXTRA GOOD BOURBON Reds, \$3 for eleven. Silver Laced Wyandotte eggs, \$1 for fifteen. Julia Haynes, McDonald, Kansas.

ALL VARIETIES LAND AND WATER fowls, imported stock. Winners of thousands of prizes. List free. Rose Lawn Poultry Farm, Beaver Crossing, Nebraska.

PURE-BRED BOURBON RED TURKEY eggs, \$3 per eleven. Pure-bred Rhode Island Red eggs from open range herd, \$1 per fifteen, \$4.75 per hundred. J. W. Harshbarger, Milo, Kansas.

EGGS FROM PURE-BRED PRIZE WINNING Bourbon Red turkeys, both combs. S. C. R. I. Reds, White and Black Langshans, Anconas and Light Brahmas. Write for mating list. Mr. Henry Gillen, Route No. 1, Osborne, Kansas.

EGGS—M. B. TURKEY, NEW YORK prize winning blood in stock, \$3 per eleven; geese eggs, African, Embden, Toulouse, \$1.75 per seven; White Muscovy ducks, \$1.75 per eleven; White African guinea, \$1.50 per seventeen; White Rock, Fishel strain, \$5 per hundred. W. L. Bell, Funk, Neb. Dry Creek Poultry Farm.

FOR SALE, EGGS—EGGS FROM PURE-breds, and cockerels, turkeys, geese, eight kinds of ducks, pearl and white guineas, bantams, Barred, White and Buff Rocks, Rhode Island Reds, Houdans, Hamburgs, Games, Langshans, Minorcas, Brahmas, Cochins, Buff and White Orpingtons, Buff and Silver Laced Wyandottes, Leghorns, Hares, Rabbits, Guinea Pigs, Dogs, Fancy Pigeons. Write wants. Free circular. D. L. Bruen, Platte Center, Neb.

PURE BRED POULTRY

MINORCAS.

S. C. BLACK MINORCA EGGS, FIFTEEN, \$1; 100, \$5. Frank Scherman, Route 8, Topeka, Kansas.

S. C. WHITE MINORCAS—EGGS FROM pure-bred birds, \$3 and \$2 per setting. Correspondence solicited. A. Goodwyn, Minneapolis, Kansas.

S. C. BLACK MINORCA EGGS FOR hatching. Pen No. 1, \$2; pen No. 2, \$1.50 for fifteen eggs, \$6 per hundred. W. F. Fulton, Waterville, Kansas.

BRAHMAS.

EGGS FOR HATCHING FROM PRIZE-winning Light Brahmas. Write for prices. R. W. Getty, Downs, Kansas.

HIGH SCORING LIGHT BRAHMA EGGS \$1.50 per fifteen, parcel post prepaid. Geo. Pratt, Route 2, Topeka, Kansas.

LIGHT BRAHMAS—EGGS, \$1.50 SETTING, \$6 per hundred. Georgia Squires, Bosworth, Mo.

EGGS FROM FELTON'S STRAIN OF mammoth Light Brahmas, \$1.50 per fifteen, postage paid. Mrs. Mark Johnson, Waldron, Kansas.

LIGHT BRAHMA EGGS FROM PRIZE winners at Wichita, Kansas, January, 1917. Geo. W. Craig, 2031 N. Water St., Wichita, Kansas.

TURKEYS.

BOURBON RED TURKEY EGGS, \$2.50 per eleven. Fred Watts, Havensville, Kan.

FOR SALE—WHITE HOLLAND TOMS, \$5. S. A. Spitz, Exeter, Nebraska.

PURE-BRED WHITE HOLLAND TURKEY eggs. Winnie Litton, Peabody, Kansas.

BOURBON RED TURKEYS—EGGS, \$3.50, eleven. Mrs. J. E. Bundy, Goodrich, Kansas.

WHITE HOLLAND TURKEYS, SINGLE Comb White Leghorns, Single Comb Buff Orpington eggs. Baby chicks. Mrs. S. A. Warren, Reger, Mo.

FEATURING THE MUCH WANTED "Goldbank" Mammoth Bronze turkeys. Eggs, \$1 each after April 1. Will book orders. Mrs. Iver Christenson, Jamestown, Kansas.

MAMMOTH BRONZE TURKEYS—NO more toms for sale. Pullets, \$5, \$10; hens, \$10, \$15. Eggs—Yard, 1, \$1 each; second, 50 cents. Black Langshan, Barred Plymouth Rock cockerels for sale, \$2, \$5. Eggs, \$2-\$5 per setting. Show record. Jas. W. Anders, Unionville, Mo.

Water for the Hens

FEW people realize the importance of plenty of clean, fresh water for the hens. It is not often that the chickens go all day without something to eat, but it is a fact that many flocks are woefully neglected when it comes to water—clean water.

To emphasize the need of water, consider the amount of water in an egg. Sixty-five per cent of the whole egg is water. In every dozen eggs gathered there is about sixteen ounces of water. In a recent experiment it was found that a six-pound hen consumed about five ounces of water in a day.

Aside from the real necessity of water for egg production, the body of the hen needs water. Approximately 60 to 65 per cent of the body weight of the hen is water. Experimentally it has been determined that when a hen loses 10 per cent of her body weight from thirst she cannot survive. However, the hen will lose all of the fat and nearly 50 per cent of the protein before death occurs from starvation. This indicates that for body maintenance, as well as for egg production, water is one of the most important adjuncts to successful poultry keeping.

If the fact is remembered that each dozen of eggs sold at 40 cents means that the water in those eggs is sold for 25 cents per pound, it may be an incentive to give the hens all the clean, fresh water they need. It should be made a rule to keep available at least one quart of water for every three hens every day. —R. B. THOMPSON, Poultryman, New Mexico Experiment Station.

New Bulletins

The Use of a Diary for Farm Accounts. (Farmers' Bulletin No. 782.) Contagious Abortion of Cattle. (Farmers' Bulletin No. 790.)

How the Federal Farm Loan Act Benefits the Farmer. (Farmers' Bulletin No. 792.)

Home-Made Fireless Cookers and Their Use. (Farmers' Bulletin No. 771.)

Corn Growing Under Droughty Conditions. (Farmers' Bulletin No. 773.)

Growing Cherries East of the Rocky Mountains. (Farmers' Bulletin No. 776.)

Castration of Young Pigs. (Farmers' Bulletin No. 780.)

To secure copies of these bulletins, address Department of Agriculture, Division of Publications, Washington, D. C.

Registered Kentucky Jacks



10 - JACKS - 10

To sell, and I want to sell them quick. Will cut the price for ten days to close them out. Ages from two to eight years; height from 14 1/2 hands to 16 hands standard, and good performers.

I have shipped jacks to Kansas since 1879 and I do not believe I ever shipped a better load.

Any one wanting a good jack, call and see me at Welsh's Transfer Barn, two blocks from Santa Fe Depot, one block from Interurban. Come and see me.

E. P. MAGGARD

Successor to Saunders & Maggard

NEWTON, KAN.

HORSES AND MULES.

HORSES AND MULES.

30 JACKS AND JENNETS

A few good jacks suitable for herd jacks and good mule jacks from fifteen to sixteen hands standard. Prompt workers and sure breeders. Guaranteed absolutely right in every way. Priced to sell. We mean business. Come and see us.

LOUIS MILLS & SON - - - ALDEN, RICE COUNTY, KANSAS

German Coach Stallions and Mares THE FARMER'S GENERAL PURPOSE HORSE

Twenty-three stallions from weanlings to 5-year-olds. Handsome, stylish, gentle, but powerful young stallions, 1,500 to 1,600-pound fellows, the right kind to produce durable, active farm horses and command attention in any stud. Priced where you will buy. Satisfaction guaranteed. Come or write at once.

ROUTE 4, PRATT, KANSAS

Waldock Lake Ranch

BERGNER BROS.,

JACKS AND JENNETS

15 Large Mammoth Black Jacks for sale, ages from 2 to 6 years; large, heavy-boned. Special prices for fall and winter sales. Fifteen good jennets for sale. Come and see me.

PHIL WALKER, Moline, Elk County, Kansas

Imported and Home-Bred

PERCHERONS AND BELGIANS

A gilt edge guarantee of 60 per cent, good for two years, given with each horse sold.

W. H. RICHARDS

Emporia - - Kansas

Barns four blocks from

A. T. & S. F. depot.

PRAIRIE VIEW STOCK FARM

Has 40 big, black Mammoth jacks and jennets. Every jack my own raising; two to six years old, 15 to 16 hands high, extra heavy bone, big bodies. I can sell you a better jack for \$500 to \$800 than most speculators can for a thousand. Come and see for yourself. They must sell.

ED BOEN, LAWSON, MO.

38 MI. E. of K. C. on C. M. & St. P.

40 MI. S. W. of St. Joe, on Santa Fe

SHORTHORN CATTLE.

Sycamore Springs Shorthorns

Master of Dale by the great Avondale heads herd. A few young Scotch bulls and bred heifers for sale.

H. M. HILL - LAFONTAINE, KANSAS

Doyle Spring Shorthorns

Scotch-topped Shorthorns. Ten bulls, age 9 to 11 months, sired by the famous Star Goods, Orange Marshall. Write your wants.

F. P. WILSON - PEABODY, KANSAS

Shorthorn Bull For Sale

A strictly first class finely bred registered bull twenty-three months old. Used on a few heifers. Price, \$200.

HERBERT LAUDE - ROSE, KANSAS

ALYSDALE HERD OF SCOTCH SHORT-HORNS

Prince Valentin, 4th and Clipper Brawith in service. Orange Blossoms, Butterflies, Queen of Beautys and Violets. Choice young stock for sale.

H. H. HOLMES, Route 28, Topeka, Kansas

Breeder's Directory

ANGUS CATTLE.

Geo. M. McAdam, Holton, Kan.

Geo. A. Deltrich, Carbondale, Kan.

D. J. White, Clements, Kan.

RED POLLED CATTLE.

Mahlon Groenmiller, Pomona, Kansas.

JERSEY CATTLE.

J. B. Porter & Son, Mayetta, Kan.

DORSET HORN SHEEP

H. C. LaTourette, Route 2, Oberlin, Kan.

PERCHERONS—BELGIANS Imported and home-grown 4 and 5 yr. old stallions, ton and heavier, 3 yr. olds, 3 yr. olds, yearlings. Produce of 25 imported mares and noted prize winning imported sires. Farmers' prices. Fred Chandler, R. 7, Chariton, Iowa. (Above Kansas City.)

Home-Bred Draft Stallions, your choice \$500 with the exception of two. Also mares for sale. A. Latimer Wilson, Creston, Iowa

40 Head Percheron Stallions 40 - Jacks and Jennets - 40

Two to six years old, heavy bone, right in every way. Imported Spanish jack, weight 1,200 pounds, at head of jennet herd. Come and see us. We mean business. Prices reasonable.

J. P. & M. H. MALONE

CHASE - - - KANSAS

Barn Full of Percheron Stallions and Mares. Twenty-five mature and aged jacks. Priced to sell. AL. E. SMITH, Lawrence, Kansas.

REGISTERED PERCHERONS

Yearling and two-year-olds, both sexes. Good breeding and individuals grown in a way to make useful animals. Would trade filley for Shorthorn bull good enough to head herd of registered cows.

GEO. S. APP, Route 2, ARCHIE, MISSOURI

POLAND CHINAS

FOR SALE Good Stretchy Poland China Fall Boars. Ed Beavers, Junction City, Kansas.

DEMING RANCH POLANDS

Twenty strictly high class boars, bred the same as our grand champion sow and other prize winners. They are herd headers. Also gilts and bred sows and 150 fall pigs. All immune.

H. O. Shelden, Herdsman - Oswego, Kansas

TOWNVIEW FARM

Big-Type Poland Chinas.

For Sale—25 summer and fall gilts, sired by Miller's Sioux Chief and out of Lady Longfellow. Bred for late spring litters. Also 25 summer boars. Come and see my herd.

C. E. GREENE - PEABODY, KANSAS

ARKELL'S BIG POLANDS

Fall boars sired by Longfellow Again and Chief Big Bone, out of choice big-type sows. Choice individuals. Some herd header prospects.

JAS. ARKELL, JUNCTION CITY, KANSAS

OLD ORIGINAL SPOTTED POLANDS

Have only a few of last fall's litters left. Write your wants to

THE CEDAR ROW STOCK FARM

A. S. Alexander, Prop. R. 2, Burlington, Kan.

PROFITABLE TYPE POLANDS

Big-type Poland Chinas, as good as grows. You prove it at my expense. Breeding stock for sale at all times.

L. C. WALBRIDGE - RUSSELL, KANSAS

LANGFORD'S SPOTTED POLANDS

Boars—Serviceable age, guaranteed to please. Breeding stock, both sexes.

T. T. LANGFORD & SONS, Jamesport, Mo.

WHEN WRITING TO ADVERTISERS

WHEN WRITING TO ADVERTISERS

FARM AND HERD NEWS NOTES

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

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CLAIM SALE DATES.

Holsteins.
April 7—Breeders' consignment sale, Newton, Kan. W. H. Mott, Herington, Kan., sale manager.
April 10-11—F. J. Searle, Oskaloosa, Kan.
March 20—Oakland Stock Farm, Chillicothe, Missouri.
April 18—Iowa Holstein Breeders, Waterloo, Iowa. Under management Liverpool Sale & Pedigree Company.

Holsteins and Jerseys.
April 9—M. E. Peck & Son, Salina, Kansas.

Shorthorn Cattle.
April 4-5—Central Shorthorn Association at Stock Yards Pavilion, Kansas City, Mo. W. A. Forsythe, Sale Manager, Greenwood, Missouri.

Jerseys.
May 31—R. J. Linscott, Holton, Kansas.

Double Standard Polled Durhams.
June 8—Ed Stegell, Straight Creek, Kan.

Poland Chinas.
April 12—W. B. Wallace, Bunceton, Mo.

Durocs and Polands.
April 25—Fred G. Laptad, Lawrence, Kan.

W. H. Richards, of Emporia, Kansas, reports his fine lot of imported and home-bred Percheron and Belgian horses doing well. Mr. Richards is one of the successful draft horsemen and for years his barns have been recognized as the headquarters for high class draft horses. Breeding stock from his herd is making good in many of the best herds and breeding barns in the country.

Phil Walker, of Moline, Kansas, owner of one of the great herds of jacks and jennets in Kansas, reports his herd doing well. He also reports that buyers this year want the high quality jacks. Mr. Walker has one of the big herds in the state and his herd is noted for its great number of big high-quality jacks and jennets. Many of the best jacks now in service are from his herd.

C. D. Wood & Sons, of Elmdale, Kansas, owners of a good herd of pure-bred Duroc hogs, report their herd doing well. This firm has succeeded in building up a richly-bred herd of Durocs of the right type. A feature of their herd at this time is the large number of choice sows and gilts bred for spring farrow.

Olivier & Sons, of Danville, Kansas, owners of one of the great prize winning herds of Poland Chinas, report their herd doing fine. Olivier & Sons' show herd has been a consistent winner at all the principal fairs for years. Their February bred sow sale was one of the good sales of this season. They have a large number of extra fine sows bred for spring farrow.

Spring Lake Dairy Farm is consigning to the F. J. Searle sale, to be held at Oskaloosa, Kansas, on April 10 and 11, thirty-five head of very choice Holsteins, including their herd sire, King Frontier Pontiac, a beautiful 26-pound son of King of the Pontiacs, and ten of his daughters running in ages from six months to two years, and a dozen cows and heifers bred to this bull; three daughters of Johanna McKinley Segis, the 25,000 son of King Segis, out of a 40-pound dam. One of these is bred to King Frontier Pontiac and one to King Segis Pontiac, the noted sire at the head of Haeger's famous herd. These are all out of A. R. O. dams. Three daughters of King Segis Pontiac out of daughters of King Frontier Pontiac, Johanna McKinley Segis, and one out of a 26-pound dam. Riverside Stock Farm consigns five two-year-old daughters of King Segis Pontiac. Included in the lot is the first prize two-year-old heifer at the Iowa Dairy Show, 1916. These are bred to the herd sire and show bull, Joe Calamo Hengerveld. They also consign five heifer calves by King Segis Pontiac, Rock Brook Farm consigns thirty head, including King of the Pontiacs Johanna Lyons, his dam, Lady Hengerveld Johanna Lyons, and fifteen cows and heifers in calf to him, also four young daughters of Sir Pontiac Rag Apple Korndyke, a 31-pound double grandson of Pontiac Korndyke. The balance consists of young, well bred, useful cattle.

About thirty Hampshire swine breeders met in Topeka, March 3, and organized the Kansas Hampshire Swine Breeders' Association. George W. Reeves, Peoria, Illinois, was present and assisted in perfecting the organization. The following officers of the association were elected: F. M. Watkins, Cherryvale, Kansas, president; F. B. Wempe, Frankfort, Kansas, first vice president; Walter Shaw, Wichita, Kansas, second vice president; L. B. Mettlen, Brownell, Kansas; H. L. Peppmeyer, Topeka, Kansas, and George W. Ela, Valley Falls, Kansas, constitute the board of directors. George W. Ela was elected secretary and treasurer. The annual meetings of the association will be held at Manhattan, Kansas, during Farmers' Week each year.

The Iowa Holstein Breeders' Sale Company has announced a sale of ninety head of choice Holsteins to be held at Waterloo, Iowa, April 18. The sale will be under the management of the Liverpool Sale & Pedigree Company, of Liverpool, N. Y. The offering will include sixteen daughters of King Segis Pontiac, a son of King Segis Pontiac; also heifers from daughters of such bulls as King of the Pontiacs, Homestead, Jr. De Kol, also daughters of Hengerveld King, a noted show bull and one of the best sons of King Walker.

WHEN WRITING TO ADVERTISERS
PLEASE MENTION KANSAS FARMER

The annual jack and jennet sale held by Monsees & Sons, of Limestone Valley Stock Farm, March 15, was largely attended by buyers from a number of states. Twenty-five jacks sold for \$12,190, making an average of \$487.60. A number of these jacks were yearlings. The top jack, Limestone Good Boy, went to G. T. Flora, of Sweet Water, Tennessee, for \$1,450. The second highest priced jack, Grand Jumbo, went to John Marr, of Marshall, Missouri, for \$1,250. Twenty jennets brought \$4,560, an average of \$228.25. It was the universal opinion of the jack men present that it was a great jennet sale. The top price paid for a jennet was \$450, paid by George Worley, of Dongola, Illinois.

J. R. Smith, of Newton, Kansas, is one of the progressive breeders of pure-bred stock. He has herds of Holstein cattle and Duroc Jersey hogs. In his Holstein herd he has record breeding and as a result has a herd of producers. The blood lines of his Duroc Jersey herd include the best of the breed and he has the profitable type. He makes a specialty of developing foundation stock and his herd is drawn upon heavily for herd material. He has a choice lot of young stock, including some outstanding fall boars.

Louis Mills & Son, of Alden, Kansas, are among the breeders in Kansas that have succeeded in building up a choice herd of jacks and jennets. They have at the head of their herd a half brother to Kansas Chief, the world's champion jack. At this time their herd consists of thirty head of very high class jacks and jennets, among them some very promising young jacks.

Herbert Laude, of Rose, Kansas, is the owner of one of the good herds of Shorthorn cattle in this state. The bulls that have been used in his herd have all been choice individuals and of the best blood lines. The cows in his herd are the good beef type and Mr. Laude has succeeded in developing a number of cows with choice milking qualities. The young stock in the herd is a choice lot, including an outstanding two-year-old bull.

New Seed Corn Book of Interest to Farmers.

Farmers who do not have a sufficient supply of seed corn on hand, or who are not satisfied with the quality of what they have, will be interested in the recent announcement of the Zeller Seed Corn Company in regard to their new 1917 Seed Corn Book. This book is just off the press and ready for distribution. It is the most complete and informative corn book ever issued by this company—cramped full of valuable information about seed corn. It gives the facts about the popular Zeller Prize Seed Corn—how this seed is produced and why it is of exceptional value to the corn grower. Explains scientific methods of producing seed corn. The president of the Zeller Seed Corn Company—Willard Zeller—is well qualified to write authoritatively about seed corn. He is a seed corn specialist, known to his thousands of friends and customers as the "Master Corn Grower." He devotes practically all his time to study and experiments with corn and has a notable record of prize winnings. Zeller corn received the award for world's champion bushel at the Panama-Pacific Exposition and has won prizes at every corn show and fair where shown. The information contained in the new Zeller book is of value to any farmer who wants to increase his yield of corn. The selection of the right seed corn is a matter of large importance—success depends very largely upon the seed. The labor and time to produce half a crop costs as much as that to produce a big yield and poor seed is a handicap that no sort of corn can overcome. The Zeller Prize Seed Corn Book will be sent free if you want it. Address your card to the Zeller Seed Company, 420 McKinley St., Jefferson, Iowa.—(Adv.)

Findlay Bros., of Whitewater, Wis., owners of Cold Springs Farm and one of Wisconsin's great herds of Holsteins, reports their herd doing well. They also report a very heavy demand for high class Holsteins and they are shipping a lot of stock from their herd to Kansas and the Southwest.

T. R. Maurer, of Maurer's Holstein Farm, Emporia, Kansas, reports their excellent herd of Holsteins doing well. This is one of the record bred herds in the state and they have at this time a very fine lot of young stock, including young cows with A. R. O. records, also yearling calves of both sexes with world's record breeding.

H. C. LaTourette, of Oberlin, Kansas, is one of the successful breeders of pure-bred sheep in Kansas. Mr. LaTourette has a choice flock of Horn Dorsets and they are proving the most profitable stock on his farm. Last year he purchased a very fine ram from the Tranquility Farm Flock, New Jersey. This ram is of choice breeding and a very fine individual, and the great lot of spring lambs in Mr. LaTourette's flock show him to be a fine breeder. A feature of the flock at this time is the choice lot of young rams.

Inquiries for catalogs indicate that the two days Holstein sale to be held April 10 and 11 by F. J. Searle, at Oskaloosa, Kansas, will be one of the great sale events in Holstein circles. One hundred and sixty head of Holsteins from Mr. Searle's famous Sunflower Herd and other noted herds have been catalogued for this sale, and a glance through the catalogue shows an offering that is bred right for production.

Methods of planting corn by which one or two rows of an early-maturing variety alternate with one or two rows of a later-maturing variety have given higher yields than either variety planted alone, according to the annual report of the Bureau of Plant Industry. Where there is likely to be a shortage of moisture during certain periods of the growing season, dependence should not be placed in a single variety; under such conditions two or three varieties which differ considerably in length of growing season should be grown.

Irregular shaped eggs will hatch nearly as well as smooth shelled eggs, but it is not considered good practice to set the irregularly shaped eggs, as there is a possibility that pullets hatched from them will inherit the undesirable characteristic of producing poorly shaped eggs.

HOLSTEIN CATTLE.

HOLSTEIN CATTLE.

Iowa Holstein-Breeders Sale Waterloo, Iowa, April 18



Six daughters of Hengerveld King, a noted show bull and one of the best sons of King Walker.

A couple of 31-pound bulls. Send for catalog for the rest.

Sale Managed by the
LIVERPOOL SALE AND PEDIGREE CO.
of Liverpool, N. Y.
IOWA HOLSTEIN BREEDERS' SALE COMPANY

CLYDE GIROD, At the Farm

F. W. ROBISON, Cashier Towanda State Bank

HOLSTEIN-FRIESIAN FARM, TOWANDA, KANSAS

Breeders of pure-bred Holsteins. Special attractions in choice young bulls ready for service, with fashionable breeding. Write for pedigrees and prices. We maintain a breeding herd of pure-bred females and offer a grand lot of young springing heifers and cows, a number with A. R. O. records at prices within reason.

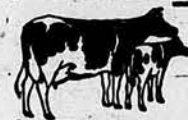
IT WILL PAY YOU TO SEE OUR OFFERING

Of choice extra high grade young cows and heifers, all springers in calf to pure-bred sires; large developed females, good udders, well marked and the right dairy type at prices that will challenge comparison for Holsteins of their breeding and quality. A visit to our farm will convince you. Keep us in mind before purchasing. Wire, write or phone.

GIROD & ROBISON

MAURER'S HOLSTEIN FARM

Is offering a number of choice young pure-bred cows with good A. R. O. records; also yearlings and heifer calves and a select lot of young bull calves with world's record backing. Write for pedigrees and bargain prices. Also grade cows, heifers and heifer calves.
T. R. MAURER & CO. EMPORIA, KANSAS



Purebred Registered HOLSTEIN CATTLE

Tilly Alcarra, a pure-bred Holstein-Friesian, is the most wonderful cow in the world. In 165 consecutive days she produced 30,451.4 pounds of milk or about 15 tons. In two years she produced 60,728 pounds of milk. She holds the world's milk record for one, two, three and four years. Holstein cows hold all world's records for milk and butterfat production, but the claim of the Holstein breed to the title of the "most profitable dairy breed" is not based on individual tests. It is the great uniformity of high productiveness of Holstein cows everywhere that makes them the greatest money makers for dairymen, the world over. There's big money in the big "Black and White" Holsteins.
Send for FREE Illustrated Descriptive Booklets.
The Holstein-Friesian Association of America
F. L. Houghton, Sec'y. Box 114, Brattleboro, Vt.

Pure-Bred Holstein Calves

Ten heifer calves from one to four months old. Also a few bull calves for sale. All these are nicely marked, good individuals, and from a 31-pound sire. Write for prices.
E. J. STEARNS, Route 1, ELKHORN, WIS.

CORYDALE FARM HERD

Offers for sale four bull calves two to four months, sired by Jewel Paul Butter Boy 94245. These calves are all nicely marked and from good milkers.
L. F. CORY & SON, BELLEVILLE, KAN.

Butter Bred Holsteins

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

J. P. MAST - SCRANTON, KANSAS

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.

25 - HOLSTEINS - 25

Fresh and heavy springing. Young grade cows extra well bred, also heifer calves.
GLEN C. SMITH - SEDGWICK, KAN.

Braeburn Holsteins

A. R. O. BULL
With De Kol-Netherland-Korndyke main blood lines, and Johanna, Walker, King Segis out-crosses. H. B. Cowles, Topeka, Kan.

NEMANA VALLEY HOLSTEIN FARM

Choice yearling bulls and bull calves. World's record blood lines. Price reasonable. We invite inspection of our herd.
H. D. BURGER, Route 2, SENECA, 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.

GOLDEN BELT HOLSTEIN HERD
Herd headed by Sir Korndyke Bess Hello No. 165946, the long distance sire. His dam, grand dam and dam's two sisters average better than 1,200 pounds butter in one year. Young bulls of serviceable age for sale.
W. E. BENTLEY, MANHATTAN, KANSAS

Look to the future.
Tredloe Bulls
(Holsteins)
Kingman, Kansas

CEDAR LAWN FARMS

C. A. Schroeder & Sons, Props.
Forty years of registered Holstein breeding, not dealing. Birthplace of 40-pound cow, Johanna DeKol Van Beers. State wants and get delivered prices on young bulls.
W. C. SCHROEDER - WEST BEND, WIS.

CEDAR LAKE HOLSTEIN HERD

We are making very low prices on a few young bull calves. It will pay you to buy them of us while young. Sired by our 29.4-pound grandson of Pontiac Korndyke.
T. M. EWING, INDEPENDENCE, KANSAS

CHOICELY BRED HOLSTEINS

Bull calves from A. R. O. dams, sired by Beauty Pieterle Pontiac a 32.52-pound bull. Good individuals, splendidly marked. Priced right.
M. E. GUNDERSON & SONS, Route 25, Oconomowoc, Wisconsin.

HIGH GRADE HOLSTEIN CALVES

Five to six weeks old, nearly pure, well marked, \$20 express paid.
COLD SPRINGS FARM, Whitewater, Wis.

MULEFOOT HOGS.

Bargain in BIG TYPE fall boars for the next forty days.
Sinn's Mulefoot Ranch, Alexandria, Neb.

AUCTIONEERS.

Live Stock and Farm Auctioneer

Write or wire for date. I can please you.
LAFE BURGER, WELLINGTON, KANSAS

Jas. T. McCulloch Live Stock Auctioneer. I make sales anywhere.
Write for date. CLAY CENTER, KANSAS

LESTER R. HAMILTON
Live Stock Auctioneer
Write for terms and date. Clarksdale, Mo.

P. M. GROSS

LIVE STOCK AUCTIONEER

Pure Bred Sales a Specialty

MACON, MISSOURI

"Twelve Years on the Block"

Sales Made Anywhere

WHEN WRITING TO ADVERTISERS
PLEASE MENTION KANSAS FARMER

WALLACE'S MAMMOTH POLAND CHINA SALE

At Farm, Bunceton, Missouri, Thursday, April 12, 1917

50 - Head of Bred Sows and Gilts - 50

Forty gilts by Big Bone Model, A Monarch, and Grand Mammoth, and most all bred to the great King Joe for April and May litters.

Ten tried brood sows bred to Big Bone Model, A Monarch, and Grand Mammoth, for April and May litters.

This is a splendid offering and should attract breeders and farmers.

I will also sell a few fall boars and gilts sired by King Joe. Some choice herd header prospects.

Please send for nicely illustrated catalog and arrange to attend my sale. O. W. Devine will represent Kansas Farmer at sale. Farmers and breeders are especially invited to attend. For catalog write to

W. B. WALLACE,



A GROUP OF THE SALE OFFERING

BUNCETON, MISSOURI

PUBLIC SALE OF HOLSTEIN AND JERSEY SPRINGERS AND HEIFERS

At Oakwood Stock Farm, Salina, Kan., April 9

Two Hundred Head of Carefully Selected High Grade Holstein Springers and Heifers.

We will sell on the above date 200 head of Holstein cows and heifers, consisting of forty head of high grade springer cows of excellent type and conformation. If you want good producers, these cows will suit you.

One hundred head of three-year-old springer heifers, large and good type. These heifers are excellent quality and will make splendid cows.

Sixty head of coming two-year-old heifers of excellent type and quality.

Six head of registered Holstein bulls.

Twenty head of high grade two-year-old Jersey heifers, due to freshen April 1 to 15. These Jerseys are extra good quality. They will make good cows and will suit anyone wanting Jerseys.

All cattle offered for sale have been tuberculin tested. Salina is on the Union Pacific, Rock Island, Santa Fe and Missouri Pacific railroads, which offer excellent shipping facilities to any part of the state. If you want dairy stock, you cannot afford to miss this sale. Free transportation from Salina to Oakwood Stock Farm, four miles north.

M. E. PECK & SON, SALINA, KANS. W. H. MOTT, SALES MANAGER



Public Sale of Registered Holsteins at Newton, Kansas SATURDAY, APRIL 7, 1917

The day following the meeting of the State Holstein Friesian Association
FANCHER FARM MAXIE

SIXTY CHOICE HOLSTEINS

This offering selected at a sacrifice from the herds of Dr. Axtell, of Newton, Kansas; Dr. Schuyler Nichols, of Herington, Kansas, and W. H. Mott, Herington, Kansas. The offering will consist of

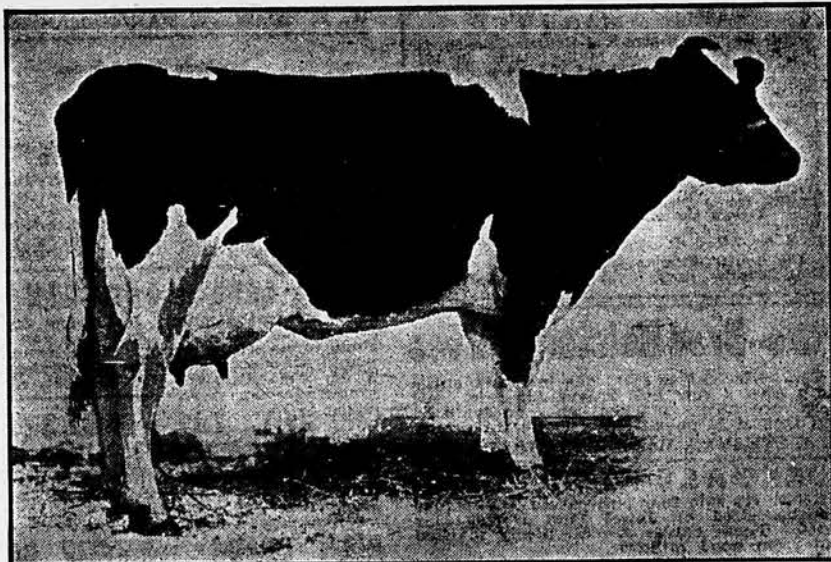
30 COWS, MOST OF THEM NEAR TO FRESHENING
12 HEAD OF TWO-YEAR-OLDS TO FRESHEN SOON
12 HEAD OF YEARLINGS AND COMING TWO-YEAR-OLD HEIFERS
6 BULLS OF SERVICEABLE AGE, EXCELLENT BREEDING AND INDIVIDUALITY

SEVERAL CALVES, BOTH MALE AND FEMALE, Sired BY CANARY BUTTER BOY KING.

This offering consists of good individuals of the large square kind. All over six months of age, tuberculin tested. This sale will be held in the pavilion at the Dr. Axtell Dairy Farm, adjoining the City of Newton, on April 7, the day following the meeting of the State Holstein-Friesian Association. For catalog or information address

W. H. Mott, Sales Manager, Herington, Kan.

AUCTIONEERS: McCULLOCH, NEWCOM, OLIVER.



HEREFORD CATTLE.

Walnut Breeding Farms



Where real Anxiety 4th blood is found in abundance. The home of Concentrate 289644, a double Beau Brummel. Young stock always on hand for sale from this noted sire. Five extra herd headers on hand at reasonable price, blood lines considered. Twenty choice young bulls for sale. Come and see my herd. Satisfaction guaranteed. Also a few Berkshire pigs.

LEON A. WAITE, R. F. D. 8, WINFIELD, KAN.

RED POLLED CATTLE.

Red Polled Cattle

A few 1916 fall bull calves for sale. Also a few cows and heifers.

AULD BROS. - FRANKFORT, KANSAS

FOR SALE

Red Polled Cattle

Three cows. Nine yearling heifers. Two yearling bulls. One two-year-old bull.

A. E. WHITZEL - STERLING, KANSAS

WHEN WRITING ADVERTISERS, MENTION KANSAS FARMER

HEREFORD CATTLE.

HEREFORDS AND PERCHERONS
Choice 2-year-old bull, weight 1,600 lbs.; extra good bull calves. One May calf, weight 600 lbs., outstanding herd header prospect. Two choice yearling Percheron stallions. Priced to sell.

M. E. GIDEON - EMMETT, KANSAS

WHEN WRITING TO ADVERTISERS PLEASE MENTION KANSAS FARMER

ANGUS CATTLE

EDGEWOOD FARM
ABERDEEN-ANGUS CATTLE
Twenty-five young bulls, also some good cows and heifers for sale. All registered.

D. J. WHITE, CLEMENTS, KANSAS

Main line of A. T. & S. F. Ry., 145 Miles West of Kansas City.

DUROC JERSEYS.

DUROC JERSEY GILTS

We have fifteen well bred Duroc gilts, priced for immediate sale.

C. D. WOOD & SONS, ELMDALE, KANSAS

JERSEY CATTLE.

DORNWOOD FARM JERSEYS

Some richly bred young Jersey bulls. Pedigrees and prices on request.

DORNWOOD FARM - TOPEKA, KANSAS

Registered Jersey Bulls, butter-bred, from high producing cows. Photo furnished. Maxwell's Jersey Dairy, Route 2, Topeka, Kan.

YOUNG'S REGISTERED JERSEYS

Won 150 prizes at six leading state fairs in 1916. Am offering cows, heifers and bulls, over 100 head of the best milk and butter strains. Write at once to

HAL C. YOUNG - LINCOLN, NEB.

120 Jersey Cows and Heifers

Pure-bred and high grade. Forty bred yearlings, superior individuals, all from profitable dams, now for sale.

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

LINSCOTT JERSEYS

Dispersal Sale, May 31

R. J. LINSCOTT - HOLTON, KAN.

Sweet Spring Stock Ranch and Jersey Cream Dairy

The homes of High Class Registered Jersey Cattle Stock for sale at all times of very best blood lines.

D. S. MAYHEW, Prop. - MONETT, MO.

REDHURST JERSEYS

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

BEDMAN & SON - TIPTON, MISSOURI

GALLOWAY CATTLE.

GALLOWAY BULLS

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

E. E. FRIZZELL, Frizzell, Pawnee Co., Kansas

WHEN WRITING TO ADVERTISERS PLEASE MENTION KANSAS FARMER