

KANSAS FARMER

For the improvement



of the Farm and Home

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Established 1863. \$1 a Year

MOTHER'S milk is Nature's food for the baby—ten bottle-fed babies die, to one that is fed at the breast. Baby should have the proper things to eat, and his meals on time. A young colt is not given a work horse's ration. Why allow a little child to eat at a table prepared for grown-ups?

Comfort and simplicity should be the keynote of Baby's wardrobe. Plain clothes are better for the baby and for the mother, too. She needs to spend outdoors, the extra time required in making and caring for elaborate garments.

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—Dr. Lydia A. De Vilbiss





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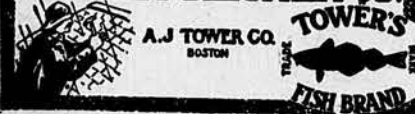
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Preparing Land For Plowing

PROPER plowing is essential to good farming. No farm tool is so generally used as the plow in seed bed preparation, "and yet," says an eminent authority, "plowing is the least understood and the most imperfectly performed operation in connection with the preparation of land for crops."

Tillage plays an important part in crop production. Without some sort of tillage profitable crops cannot be grown. Nature's tillage methods are slow, but none the less sure. During the winter season, the frost by its heaving action on the soil, is preparing it for the seed. Then there are the earth worms and the action of deep-rooted plants like alfalfa and clover. These tend to separate the soil particles and bring them into a state of cultivation more suitable for other plants. These methods are too slow, however, for man, and tools that will accomplish results quickly, must be used.

The effect of tillage on plant growth was appreciated in ancient times. In 1733 Jethro Tull, an Englishman, wrote a book called "New Horse-Hoeing Husbandry." This book was based on the theory that fine soil particles were actually taken up by plants and that tillage was necessary to make the particles fine enough. While this theory was incorrect, there was no getting around the fact that tillage was helpful in making plant food available through the encouragement or stimulation of the development of such conditions as made it easily soluble.

The plow and other tillage tools are used because they bring the soil into that condition which makes the plant food it contains available. They bring about a more favorable mechanical condition so that air can permeate the seed bed, and so that the roots of the plants can more easily distribute themselves uniformly about the soil particles. The water-absorbing capacity of the soil is also increased and weeds are destroyed.

A good seed bed can be much more easily prepared in a well plowed field than in one where the work is imperfectly done. The plow must first of all turn the soil and completely cover all manure and trash. It should also thoroughly pulverize the furrow slice. It is not enough to simply turn it over. A piece of plowing may look fine on top and still be a poor job from the standpoint of being in good seed bed condition.

No field can be well plowed unless it has had some previous preparation. The most carefully designed plow will not put the whole furrow slice in seed bed condition. It can be seen from what has been said that plowing of the right sort is not as simple a proposition as many might think. In the first place, the soil itself must be in the right condition—sufficiently moist but neither too wet nor too dry. Ground that is plowed too wet will dry in hard clods, and it may take several years to overcome the harmful results. When a furrow is turned over, the soil should all settle back into a fine, firm seed bed, free from trash or air spaces. Where this kind of plowing is done the upper two or three inches can easily be put into proper condition with a harrow. If the bottom of the furrow is full of large open spaces and the trash that has been turned under has not been mixed with the soil, no amount of surface preparation can make an ideal seed bed. In the course of time the settling effect of rains will overcome this condition, but it may be too late to give the plant the start it should have.

On most farms in Eastern Kansas, at least, fall plowing gives the best advance preparation for corn or other spring crops, but if the ground must be prepared in the spring for these crops, as will be the case on many of the farms, it will require some preparation work in advance of the plowing or listing, to secure this ideal seed bed condition. There will be a large amount of corn stalks and other rubbish on the surface of the ground. It will take very careful disking to cut this material up and mix it with the soil sufficiently to overcome the tendency to have air spaces at the bottom of the furrow slice.

No work can be done in the early spring that will pay better than a thorough lap-disking of all land that is to be put into corn. This work will put the surface three or four inches into good seed bed condition, providing it is done well. When the plowing is done later, the part of the furrow slice that is turned to the bottom will have already been pulverized and the work of the plow will pulverize the part that is brought to the surface. The harrow will continue this work, and the final result will be a deep, mellow seed bed having no large open air spaces.

Where the lister is to be used in putting in the crop, it is even more important that the surface be put in the best condition, than where the ground is to be plowed. The lister leaves a ridge between the rows that is not turned at all. This ridge is not worked until later in the season when the crop is being cultivated. The use of the disk pulverizes the surface, at least, of the part left unturned, and the breaking up of this space between the rows will be much more easily accomplished later by the cultivator.

The early disking of all land that has not been fall plowed, is the foundation to the preparation of a suitable seed bed for corn, kafir, or other similar crops. It should be the first field job of the spring. The ground will not only be in a more ideal condition for the seed when it is planted, but the work of plowing or listing will be much easier when preceded by a careful disking of the surface some weeks in advance. The work of plowing or listing is always hard on the teams, and this lightening of it is a matter of considerable importance. More ground can be covered and it will not be so hard on the horses.

This early preparation work is a most profitable practice, and the returns will almost invariably be more than enough to pay for the cost of the labor.

Use of Dynamite on Heavy Clay Soils.
In Bulletin 209 the Kansas Experiment Station gives the results of several years' tests that have been made to learn the effect of dynamite on the soil. The following summary gives the results briefly:

These experiments were planned to determine the effect of dynamiting on soil, the yield of crops, the moisture content of the soil, nitrate development, the bacterial flora, the physical condition of the soil, the leaching of salts in alkali soil, and the growth and vitality of fruit trees.

The crop planted on dynamited soil produced a higher yield in seven instances, while the crop planted on undynamited soil produced a higher yield in four instances. The greatest increase in yield on dynamited soil was obtained at this station with corn in 1914, when the dynamited plots produced thirteen percent more grain than the undynamited plots. At Agra the dynamited plots produced seventeen percent less wheat than the undynamited. In most instances the difference in yield was no greater than would occur on two areas of soil similarly treated.

Moisture determinations on a series of nine dynamited and four undynamited plots on the Oswego Silt Loam at Manhattan, extending over a period of three years, showed no marked difference in moisture content of the soil. An average of all the determinations gave less than one-half of one percent more moisture in the dynamited than in the undynamited land.

Nitrate determinations on the same plots extending over the same length of time showed no greater formation of nitrates on dynamited than on undynamited soil.

A count of the number of bacteria at different distances from the center of a dynamited area two years after the dynamiting was done showed a small increase in bacterial content in both the surface and second foot of soil as the dynamited area was approached.

A study of the effect of dynamite on the physical condition of heavy, plastic clay soil showed that the explosion forced out the soil particles at the center of the dynamite charge into the pore spaces of the soil mass adjoining, thus producing a cavity surrounded by a hard, compact mass. The soil, instead of being shattered and cracked, was compacted and puddled, and left in poorer physical condition than before the dynamiting was done.

An alkali soil in the Arkansas River valley dynamited in the early spring of 1912, with half sticks of dynamite placed two and one-half feet deep at the corners of fifteen-foot squares, had not been noticeably improved by the fall of 1914. However, there had been some leaching of the salts from the surrounding soil.

Fruit trees planted on dynamited soil at this station in the spring of 1911 made a slower growth and survived in smaller numbers during the dry seasons following than did trees planted on similar adjoining soil that had not been dynamited.

In no instance was there improvement sufficient to pay the expense of dynamiting.

Much depends upon the early training of the colts. Teach them to walk rapidly as they are being put to work.

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DEATH CLAIMS HENRY WALLACE.

Henry Wallace, veteran editor of Wallace's Farmer, died February 22, at Des Moines, Iowa, without a moment's warning. He was approaching eighty years of age, but his intellect remained keen and active to the last. Mr. Wallace is best known through Wallace's Farmer, one of the leading agricultural papers of the country. In this he has had associated with him since its founding, his sons, H. C. and John P. Wallace, and in later years a grandson, Henry A. Wallace.

This agricultural leader's fame has been nation-wide. He was a member of Roosevelt's Country Life Commission, and later was sent, with James Wilson, on a special mission to the British Isles for the purpose of studying agricultural conditions, and especially tenantry systems. There have been few agricultural meetings of any consequence in this country where Mr. Wallace has not been asked to speak. He will be remembered by many Kansans by an address he gave some years ago before the State Board of Agriculture meeting, on the subject, "The Farmer and the Railroad."

He found time, in spite of his busy public life, to render invaluable service in church work. In the weeks before his death he had been busily engaged as chairman of the executive committee planning for the big laymen's missionary convention held in Des Moines, and it was at one of these sessions that he died.

"Good farming, clear thinking, and right living" is the motto Henry Wallace adopted in establishing his farm paper twenty-one years ago. In the issue of February 18, in commenting on its twenty-first anniversary, he wrote as follows: "As to the future we make no boasts or promises, save that we will in the future, as in the past, do our very best. When the present editor passes on, it will make no change in the policies or principles for which Wallace's Farmer stands. We ought to be like the young man coming of age—only in the beginning of our usefulness and power. We have grown steadily with the growth of agriculture in the Middle West. If adversity should fall on agriculture, we will share in that adversity. We will grow with the growth of good farming, clear thinking, right living."

"Uncle Henry," as he was familiarly and lovingly called by his friends, was a man of broad sympathies. His knowledge of the farm and his intimate acquaintance with the inner life of farm people was such as gave his writings peculiar charm. One of the most interesting and enjoyable features of Wallace's Farmer has been his series of "Letters to Farm Folk," one of which appeared the week of his death. His editorials have covered a wide range of subjects and have been a source of inspiration to many.

While there will be no change in the policies of Wallace's Farmer, his many friends will sadly miss these intimate, personal messages from the grand old man who has done so much to bring about a better agriculture and a fuller life for the people of the farm.

HELDER LEAVES HAYS.

We regret to learn that George K. Helder has resigned as superintendent of the Hays Branch Experiment Station. Mr. Helder has been connected with this station for the past twelve years, starting in as bookkeeper soon after the work at Hays was begun. For the past two years he has been superintendent and for several years previous was assistant superintendent.

The investigation work at Hays greatly increased during the past two years. The problems studied are those having the greatest practical value to the farmers of Western Kansas. During the past two years the live stock has increased on the station farm from 100 head to over 600. This increase in live stock is due to the policy of the station in demonstrating the possibilities of live stock for the western part of the state. Mr. Helder has taken a very keen interest in working out these live stock problems. Feeding trials have been conducted to determine the cost of wintering breeding cows, using the waste feeds

of the farm. A dairy farm of 320 acres has been set aside and is being conducted successfully as an independent enterprise. The station, with its 4,000 acres of land, has been most efficiently and economically farmed during the past few years, and we feel that much credit is due Mr. Helder for these satisfactory results. He has been on the job week in and week out, not having taken a real vacation in eight or ten years.

MARKETING ORGANIZATION.

A new farmers' organization was launched in Kansas City recently as a result of a meeting at which fourteen states were represented by farmer delegates. This new organization is to be known as the National Farmers' Association. Its purpose as set forth in the first resolution passed, is: "The National Farmers' Association has been organized for the purpose of perfecting a marketing system which will bring about an equitable sharing of profits arising from trading in agricultural products."

In other resolutions passed it appears that the mutual benefits of the producer and consumer are to be sought, and that

all associations, granges, unions, and other bodies of organized agriculturists are urged to co-operate in the effort to develop a practical marketing system. The co-operation of the federal and state governments through the postoffice and their respective departments of labor, commerce, agriculture, and others, is solicited.

Active membership in this organization has been restricted to those actually making a living on the farm. C. D. Resler of Chanute, Kansas, was elected president; L. L. Vrooman, Topeka, vice-president; I. M. Wright, Waukesha, Wisconsin, secretary; A. W. Nelson, Bunce-ton, Missouri, treasurer.

Now is the time to select the stallion to use the coming season. Visit your neighbors and learn which horse in the community is siring the best colts. Five dollars added to a service fee often adds a hundred dollars to the worth of a colt.

Be careful not to overfeed brood sows at farrowing time.

Under no circumstances should spoiled or moldy silage be fed to horses or mules.

Banks Strongly Support Kansas Farmer Dairy Club

OVER twenty-five banks have already sent letters or messages endorsing the idea of the Kansas Farmer Dairy Club and are willing to co-operate by loaning money to boys and girls to buy cows. The Wulfekuhler State Bank, Leavenworth, offers to loan the necessary money to at least one boy or girl in each township in the county, and others are offering to take care of a number.

These banks are for the dairy club because it fosters an enterprise that will greatly increase the earning capacity of many a Kansas farm. Here is what some of them say:

The Bank of Horton says: "Regard the idea as a splendid thing for the state."

Exchange State Bank, Kanopolis: "We assure you of our hearty co-operation. You can count on us for anything that will tend to make Kansas the foremost dairy state of the Union."

The Home State Bank, Goffs: "Will be glad to loan money to one, two, three, or possibly more boys, to buy cows and get into the Kansas Farmer Dairy Club."

The Beattie State Bank: "We are for it."

Farmers & Merchants State Bank, Morganville: "Believe you are pushing a proposition that will be a big factor in increasing the earning capacity of the farms of this as well as other communities. Willing to furnish money to buy one or more cows for boys and girls of this community."

The Farmers State Bank, Whiting: "Consider this bank in."

The Home National Bank, Arkansas City: "It is our intention at all times to help the farmers in this community as much as possible and especially the younger generation."

The Farmers State Bank, Wellington: "Glad to co-operate with you in the interest of the young farmers."

The Linscott State Bank, Holton: "Believe dairying is the coming business for this country. Will be glad to loan money to a dozen good boys and girls to buy a good dairy cow apiece."

The complete list of banks enrolled at date of this writing is as follows: The Wulfekuhler State Bank, Leavenworth; First National Bank, Pittsburg; Bank of Topeka, Topeka; Citizens State Bank, El Dorado; The Peoples Bank, Pratt; First National Bank, Norton; Bank of Horton, Horton; Citizens State Bank, Marysville; Miller State Bank, Miller; Exchange State Bank, Kanopolis; State Savings Bank, Leavenworth; Home State Bank, Goffs; Beattie State Bank, Beattie; Farmers & Merchants State Bank, Morganville; Farmers State Bank, Whiting; Home National Bank, Arkansas City; Emporia State Bank, Emporia; First National Bank, Washington; Farmers State Bank, Wellington; Linscott State Bank, Holton; National State Bank of Stockton, Stockton; Farmers State Bank, Glasco; The Farmers & Merchants Bank, Hill City; German-American State Bank, Topeka.

FUTURITY HOG SHOWS.

The American Poland China Record Association has put up \$600 to be competed for at the Topeka State Fair next fall. The National Duroc Jersey Association is offering \$400. These offers are for futurity shows, and require that nominations be made and the entry fees be paid at a stated time in advance. In addition to the money guaranteed by these record associations, the fair adds \$150 to the futurity prizes on Poland Chinas and \$100 to the Duroc Jerseys. The hogs competing in the futurity show can also enter and compete in the regular classes.

These shows are big opportunities for Kansas hog breeders. Past experience has proven that futurity shows are potent factors in bringing a breed into prominence. The only thing to prevent the holding of the biggest and best show ever held in Kansas will be the indifference of breeders.

All nominations for the Duroc Jersey futurity must be made to the National Duroc Jersey Association, Peoria, Ill., by March 15. Unless twenty herds are nominated by that time, the show will not be held. The Poland China nominations must be made by March 20 to insure the Poland China futurity for Kansas. The secretary, W. M. McFadden, Union Stock Yards, Chicago, will send the complete rules on application. The rules for the Duroc Jersey futurity were printed in KANSAS FARMER in our issue of January 29.

The time is limited. If we are to have these futurity shows, breeders must get busy. There surely are enough men in Kansas breeding Poland Chinas and Duroc Jerseys to insure the holding of these futurity shows. All that is necessary to get in is to send the \$5 fee to the secretary of the association and state that you wish your herd nominated for the futurity show to be held at Topeka the fall of 1916. In case the futurity does not fill, the fees will be refunded.

COUNTY AGENT REAL HELP.

Being spoken of as the "county expert" or "county adviser" is a most serious handicap to the work of the county agricultural agent. It seems necessary again and again to correct the impression that the county agent is some young fellow who is being sent around to give experienced farmers advice on how to run their business. The real facts are that nothing exists that cannot be improved. Every community has its problems. There is a best way and a best time to do things on the farm, and the combined experience of all the farmers in a neighborhood is far superior to the knowledge of any one man—no matter how much he may know or profess to know. Usually the best men in the community—those who have succeeded, made money and improved their living conditions—are those most interested in their own business and who have always been eager to learn how to do things better. These are the people we find organizing county farm bureaus and hiring good live men to help them in co-ordinating the experience of all and getting into practice the best things in farming. There must be a desire for information and those who are opposing the idea and arguing against it are shutting themselves off from a real opportunity.

The county agent plan is business-like in its operation, and it has been our observation that here in Kansas the good coming from the county farm bureau with its agent has more than paid for all it has cost.

N. L. Harris, superintendent of the agricultural college poultry plant, give little chicks water and hard-boiled eggs the first day they are fed. The next day they are started on a ration of cracked corn, cracked wheat, bran, shorts, and bone meal, fed dry. When they are two weeks old, beef scrap is added to this mixture. This is a safe method of feeding and will push the chicks to early maturity.

Scatter the wood ashes in the garden and orchard. The potash in them will be beneficial to the plants and trees.

GENERAL FARM INQUIRIES

Something For Every Farm—Overflow Items From Other Departments

In a recent issue we stated that a four-year-old Percheron mare that had not been registered was barred from the books of the Percheron Society of America.

While probably 90 per cent of the Percherons are registered in this association, the American Breeders' and Importers' Percheron Registry Company, the secretary of which is John A. Forney, Plainfield, Ohio, is a recognized association, and Dr. C. W. McCampbell, secretary of the State Live Stock Registry Board, states that this association is doing business absolutely on the square as far as his observations have extended. This association has not put an age limit as yet, and the pure-bred mare to which we referred can be registered in this company.

The National French Draft Association, of which the secretary is C. E. Stubbs of Fairfield, Iowa, is another recognized association that will accept pure-bred Percherons for registry without reference to age.

It is to be regretted that there are several associations registering the same breed, but these are the conditions and as long as the records are kept honestly breeders will continue to patronize them.

Riding on Work Train.

A. A. M., Jefferson County, asks if railroads in Kansas are required to carry passengers on a work train. He was compelled to wait twenty-four hours for a train to his home town because denied this privilege.

Railroads in Kansas are compelled to carry passengers on freight trains with the exception of those devoted exclusively to live stock. In our judgment there is nothing in the law that would compel them to carry passengers on a work train. Such train can hardly be considered a public utility.

Such questions should be taken up with the Public Utilities Commission at the State House, Topeka.

Duroc Jersey Hog Record.

J. E. S., Ellsworth County, asks where he can obtain a book having the pedigree records of Duroc Jersey hogs.

This correspondent is evidently a beginner in the breeding of pure-bred Duroc Jerseys, and we would refer him and other beginners to the National Duroc Jersey Record Association. The secretary's office is at Peoria, Illinois. Forty-nine volumes of the records have been published.

Alfalfa Feeding Rack for Hogs.

J. E. S., Ellsworth County, also asks for instructions on building a satisfactory rack for feeding alfalfa hay to hogs.

Alfalfa is very commonly fed to hogs by scattering it on the ground, but this is a wasteful method, especially in muddy weather. The finest quality alfalfa hay should always be saved for the hogs and it is much more economical to build a rack for feeding it.

The bottom of the rack for hogs should consist of a flat trough about two feet wide, having 6-inch sides. Slatted sides about 3 feet high should be used to hold the hay. These slats should slope inward, being as wide at the top as the trough but about a foot closer together at the bottom. This gives a 6-inch trough along each side to catch and hold the leaves that shatter as the hay is being eaten. Four-inch boards can be used for the slats and the openings between them should be four or five inches wide.

Such rack can be made six or eight feet long or even longer if desired.

Service Fee for Boar.

An Ellsworth County hog grower asks what is the customary charge for services of a boar.

There is no customary charge because the value of the male used would influence the size of the fee. For ordinary pork production, a fair fee to allow would be from \$1 to \$2, but this would be entirely too small for valuable breeding animals such as are quite often owned by breeders of pure-bred hogs.

Spring Seeding of Alfalfa.

T. L., Morris County, asks if it is advisable to try to seed some alfalfa this spring. He is very anxious to get a field started to be used in pasturing hogs.

In this section of the state fall seeding usually gives the best results, but spring seeding is practiced by many with some degree of success. Weeds and grass are the greatest drawback to



EXHIBIT OF FARM PRODUCTS AT LEAVENWORTH COUNTY FALL FESTIVAL, 1915.—SEEDTIME IS AT HAND AND IF MAN DOES HIS PART THE EARTH WILL AGAIN BRING FORTH ITS INCREASE IN DUE SEASON

spring seeding. They frequently become so thick before the alfalfa is well established that they smother out the young plants.

If the ground to be seeded has been well cultivated and is not too foul, we believe under the circumstances our correspondent is justified in attempting to seed in the spring. Since the weeds are the greatest disadvantage to spring seeding, we would advise preparing the seed bed and sowing as soon as danger from heavy frost is past. It would be safer, however, to risk the chance of some light frosts rather than to delay the seeding until past the last possible date for a frost to occur. The alfalfa plant will stand a light frost after it has gotten the first two or three leaves started. Just as it is germinating frost might destroy many plants.

In spring seeding in Eastern Kansas, a nurse crop is sometimes used, although many consider the nurse crop undesirable under any circumstances. If such crop is used it should be a light seeding of either oats or barley and should be harvested as a hay crop early in the season.

Early Pasture for Hogs.

L. L. R., Allen County, asks for suggestions for early forage for hogs.

This is a most timely question. Grain is high in price and to produce pork profitably the greatest possible use must be made of forage crops. Where there is no alfalfa to be used, dependence must be placed upon such crops as Dwarf Essex rape, oats, or barley. It is important to have pasture as early as possible and provision should be made to sow a patch of either rape or oats as soon as possible in the spring.

Rape is a very quick growing plant and will furnish a large amount of forage. It is a cool weather plant and can be sown very early in the spring. In sowing rape alone, the seed bed should be well prepared and the seed sown in drills two to two and a half feet wide if the largest amount of forage is desired. Ordinarily, however, it will be sown broadcast and either harrowed or disked into the ground. When sown in drills it will not require more than two or three pounds of seed to the acre. When sown broadcast at least double this amount of seed should be used.

Hogs should not be permitted to graze

on the rape until it is ten or twelve inches high. If they are turned on when it is smaller than this they are apt to destroy many of the plants and it will not produce as much pasture as it should. If the hogs are taken off rape pasture when they have eaten it to the ground, it will produce a new growth and can be pastured off again.

A combination of rape and oats is an excellent early spring pasture. They can either be sown at the same time or the rape can be harrowed in after the oats are up. This is probably the more desirable method as the oats can be seeded with safety even earlier than the rape. Where rye has been sown for pasture, it is a good plan to harrow in some rape in the spring. This will come on and make feed after the rye has browned up and become so rank that the hogs will not eat it. In getting rape seed, be sure to get the Dwarf Essex variety.

Vacant feed lots make an excellent place to sow rape. It does its best in a good rich soil, and where such lots are to be vacated in the spring they can be put to no better use than to the growing of rape for hog pasture.

Rolling Wheat.

R. W., Dickinson County, asks if rolling wheat after the frost has left the ground, is any advantage.

In seasons when the ground is left very much cracked as a result of the winter freezing, the winter wheat may be seriously injured. The plants will be heaved out and the roots will be partially exposed. This is perhaps more apt to occur where the wheat did not make a good strong growth in the fall and early winter.

Under such conditions rolling, if done early in the spring as soon as the frost is out of the ground, may be of considerable advantage. It presses the earth firmly about the roots of the plants, closing up the cracks that have been produced by the heaving action of the frost. Ground should never be rolled, however, when it is wet.

Rolling winter wheat in the spring at the Nebraska Experiment Station, produced an average increase of 5.1 bushels an acre over a period of four years.

A careful study of the condition of the wheat field at the time the frost goes out, should determine whether it is desirable or advisable to roll it or not.

If this examination shows many plants heaved up and a large number of roots exposed, it will in most cases pay to use the roller.

Cultivating Alfalfa.

R. T. L., Nemaha County, asks if it will pay to cultivate alfalfa and how best to do it.

We believe it will pay as well to cultivate alfalfa as it does to cultivate corn or other crops. The next season after alfalfa has been seeded it may be given a harrowing with an ordinary straight-tooth harrow. After a field has become well established it may be cultivated with a disk, providing care is exercised in so setting the disk that it does not cut off too many of the crowns of the alfalfa plants. There are tools now made specially adapted to the cultivation of alfalfa. These tear up the soil between the plants without cutting off the crowns. A spring-tooth harrow is a good tool to use, although it will not go in as deep as the regular alfalfa cultivator.

There are a good many advantages to be gained by the cultivation of this crop. The surface soil is certain to become hard and compact from the trampling of stock, the machinery that is used in harvesting the crop, and from the beating of the rain. By cultivating the surface, this compact crust is broken up, thus permitting the surface soil to become aerated. The roots of plants require oxygen, and alfalfa cannot do its best unless the surface is kept open enough so that the oxygen can get into the soil. There are also numerous insects that deposit their eggs in the surface layers of the soil. Where grasshoppers are abundant, their numbers can be greatly reduced by giving the alfalfa field a good cultivation early in the spring. If manure has been scattered on the field, the cultivation breaks it up and works it into the soil so that its effects will be more quickly apparent on the crop.

It is questionable whether it pays to cultivate alfalfa during the summer season, but there is little doubt as to the value of at least the early spring cultivation.

New Crop for Western Kansas.

H. Willis Smith, of Finney County, writes us regarding his experience the past two years with some beans he received from the Arizona Experiment Station the spring of 1914. He also obtained some seed of a variety of sweet corn known as Papigo. He says:

"That spring I planted 1/20 acre to the beans and 1/20 acre to the Papigo sweet corn. We harvested four large shocks of forage from the sweet corn and 85 pounds of threshed beans. This sweet corn comes from the Papigo Indians. It is a wrinkled variety, and stools very heavily. There were three to fifteen stalks from each seed. We have gathered as many as seven good ears and six nibbins from one stalk. The stalks of this corn in 1915 grew 10 to 12 feet high. That year we gathered a little over four tons of dry fodder, including the ears, from an acre grown without irrigation. In the spring the crop was thinned down to a single plant every 30 inches in the row.

"The tepary beans made 85 pounds of seed, Lady peas 15 pounds, and the Mexican beans made no mature seed. These were all grown on 1/20 acre plots side by side, and had exactly the same care. We got but 5 1/2 inches of rain during the entire growing season of 1914. The tepary beans are good soup beans. They will germinate in three days if planted in warm, moist ground, and will germinate with less moisture than any other seed I have ever planted, with the possible exception of the Papigo sweet corn and Sudan grass."

Sowing Clover in Wheat.

R. W., Johnson County, asks if red clover can be sown in wheat in the spring.

In that section of the state very good catches of clover can be made by this method. The seed can either be sown while the ground is still freezing or a little later and covered by a light harrowing. A good time to sow clover, if it is expected to cover itself, is to pick out some frosty morning when the surface of the ground is honey-combed with the frost. The seed will lodge in these small cracks and crevices and will be covered when the ground thaws. This is a good method of sowing clover and grass seed on meadows or pastures that need thickening.

GOOD SEED WILL GROW

A SINGLE good ear of corn is capable of producing ten bushels of crop. Why plant seed from an inferior ear? A good stand is the first essential in producing a profitable crop of any kind. Two good ears in each hill of corn will make over eighty bushels to the acre.

Many conditions in crop production are beyond man's control, but he can be sure he is planting good, clean, germinable seed.

It requires as much plowing, harrowing, and cultivating to grow a poor crop as a good one. Why not do our part and plant only seed of known quality and vitality?

LIVE STOCK ON TENANT FARMS

By Edw. C. Johnson
Kansas State Agricultural College Before
Live Stock Conference
Parsons, Kansas



SILOS; SHED 46x190 FEET, OPEN ON THE SOUTH, CONCRETE CARTWAY ON NORTH SIDE
LAMBS BEING FED ON HEDGE GROVE FARM, OSWEGO, KANSAS.—THIS FARM HAS TWO
EXTENDING FROM SILO.—FEED RACKS ARE 32 FEET LONG, RUNNING NORTH AND SOUTH

THERE are two ways in which live stock farming may be promoted and encouraged on tenant farms. The first is to offer special inducements to tenants who are willing to handle live stock of one kind or another. One means of doing this is to rent the land for a term of four or five years at a slightly lower rental than could be secured from a crop farming tenant. At the end of the five years the farm would be worth so much more because its fertility had not been depleted that this would be worth while.

The second method is more practical and has been tried by farm owners with good results. It consists in providing in the lease for a farming system whereby a certain per cent of the land each year is to be in hay or pasture. This of itself might not increase the live stock on a farm, because the tenant might wish to sell the hay produced. If the further provision is made, however, that the hay or pasture will all belong to the tenant if used for the maintenance of live stock on the farm, but if any hay is sold off the farm the proceeds will be divided equally between the tenant and landlord, then there will be an inducement to the tenant to feed the roughage grown. Such a system has been employed very effectively for many years by an owner of some fifty farms in Maryland, and there are several instances in Missouri and Kansas where similar systems are being used with good results. Where the tenant has capital sufficient to buy live stock, this system is a good one. But the majority of tenants when they start farming for themselves do not have sufficient capital to buy adequate live stock. For them, some other system is necessary, and the best one known at the present time is the so-called stock share system. By the stock share plan the landlord furnishes the land and the tenant furnishes the labor of both man and horses just as he does under any other system, but the productive live stock on the place is owned in common and the receipts are divided equally. In other words, if there are a few beef cows on the place, they are owned in common by the tenant and the landlord. If the tenant does not have sufficient money to buy a half interest in the stock, the landlord often supplies the cows, taking the tenant's note for his share. The animals are fed from the feed grown on the place. If any feed is bought, the tenant and the landlord pay one-half each, and all profits from stock sold are divided equally.

Some tenants and some landlords immediately will object to this share method of leasing because they are unable to co-operate. They are so individualistic that they cannot accommodate themselves to the wishes or ideas of anyone else. Such men are constitutionally unfit for this type of farming and cannot enter into agreements of this kind. A great many tenants and landlords, however, can get together, as is shown by the fact that in many sections in this state such agreements already are in existence, and in Iowa, where a careful survey has been made, a third to a half of the tenants in one section of the state are farming on the stock share plan.

STOCK SHARE PLAN INCREASES PROFITS. There are many things that contribute to the success of the stock share plan of renting. A much larger capital is necessary to farm profitably, and as the average tenant does not have sufficient capital to furnish equipment and at the same time to stock the farm as heavily as it should be, this extra capital is supplied when the landlord furnishes half the stock or where he furnishes all of the stock and takes the tenant's note for his share. It has been demonstrated that it is more profitable to handle a diversified farming system where stock is a major enterprise than it is to do exclusive crop farming, not only because of increased crop yields, but because much roughage which would otherwise go to waste can be used profitably by feeding it to productive live stock.

Under the stock share system the farm owner takes a much greater interest in the farm business and in the upkeep of the farm than when he rents for cash. The tenant with small capital is usually a young man who does not have the experience necessary to make the farm business pay as well as if he had more experience behind him, but with the landlord's help and suggestions as needed, he can handle the farm to better advantage than if trying to do it alone. The average farm owner is at the most productive period of his life between 50 and 60 years of age. This is the age at which many well to do farmers retire. Their business experience is very valuable and should be used.

Where the landlord and tenant own the stock in common, both are interested in the business management of the farm. The landlord renting under this plan usually retires on his own farm or near at hand and is capable of furnishing much assistance when needed. Co-operation between tenant and landlord is thus made possible and it is to the advantage of both parties.

Where the stock share method is practiced, the farm business will usually become more profitable from year to year, and this is an inducement to both landlord and tenant to continue the relation. Under this system the same tenant will remain much longer in one place. He will not suffer the losses due to many moves and will identify himself with community life. It is the surest method yet devised to do away with the evils of the short-lease system.

EVILS OF SHORT-TIME LEASE.

That the short lease system of renting has many evils, all must admit. A farmer in the Kansas River valley not forty miles from Topeka, having 200 acres of good bottom land valued at about \$100 per acre, recently gave up farming because a survey of his business showed he was barely making 3 per cent on his investment and was getting nothing for his work. He has rented his good farm for \$5 an acre and has moved to town, where he is working for wages by the month, and with the rent from his farm and his wages is making an easier living than on the farm.

But what is to happen to the renter who is now farming land? As the owner could make it pay only 3 per cent on the valuation of \$100 per acre and the renter has obligated himself to pay 5 per cent on the same valuation, how is he to come out at the end of the year? He has no capital on the interest of which he may live, so he must make a living for himself and his family from this land. It would seem to be a difficult situation, but this 200-acre farm can be made to yield a very much greater income than 3 per cent, or even 5 per cent, on its present valuation.

RENTERS MAKE GOOD LABOR INCOME.

This incident gives emphasis to the fact that in almost every place where a careful survey is made of the business of farming, it is found that the renters make larger labor incomes than the owner operators. This has been found true in Kansas in the last two years. It has been found true not only in Kansas, but in the adjoining state of Missouri, where in 1912 a careful business survey was made of several townships in Jackson County. Here the average labor income for the tenants was \$501 per year, whereas the average labor income of the owner was only \$314. Investigations by the Federal Department of Agriculture in Indiana, Illinois, and Iowa, in 1912, showed that tenants averaged \$870 labor income and owners only \$408. Apparently then the tenants must know how to farm fairly well, as

they surpass farm owners in the amount which they receive for their labor and managerial ability. What is the explanation of these facts?

In some cases the tenants pay a rent equivalent to 5 per cent interest on the investment, as in the particular instance cited, but usually the amount which the landlord receives as rent is less than 5 per cent. In Iowa, for instance, the cash rent rate in 1912 was only 2.2 per cent on the valuation. In certain sections of Missouri in the same year it was only 3.6 per cent on the valuation, and in Kansas, as far as the figures show now, it ranges between 3 and 4 per cent on the valuation. The tenant, as a rule, therefore pays a smaller interest as rent than the 5 per cent which capital ought to bring and which is allowed in figuring the labor income when the owner manages his own farm. This is one of the fundamental reasons why the tenant's labor income is greater than that of the owner.

Oftentimes the land is overcapitalized, in other words its valuation is too high for the present system of farming. To realize 5 per cent interest on "watered stock" and to make dividends in addition is no easy matter, and when 5 per cent interest on this capitalization is deducted, what remains as labor income is small indeed. Necessarily, therefore, the amount paid as rent by the tenants is less than 5 per cent interest on the valuation and probably the rate already mentioned is as fair a rate as can be made at the present time.

The owner operator usually spends a good deal of time in keeping up the repairs of the place, and this does not show at the end of the year in the labor income. The tenant operator cannot afford to spend much time in this way. He devotes practically all of his hours of labor to productive work. He often works longer days and more days than an owner, and his family also often works harder at productive labor than the owner's family.

The tenant spends a little less time on each acre than the owner and also as a general rule works his horses a little harder and a little more efficiently than the owner. All of these things contribute to making the tenant's labor income larger than that of the owner.

EFFECTS OF TENANT SYSTEM ON FARM.

As far as the tenant himself is concerned, therefore, tenancy is not an unmitigated evil. In Kansas, as a rule, he makes a better income as a tenant than he would as a hired man. He is his own manager. He has a home and usually is able to support a family, whereas as a hired hand there is little or no opportunity to have a family and he shifts from place to place even more than he does as a tenant. It is recognized, of course, that there are exceptions, and that many tenants in this state get along only with extreme difficulty. Farther south the conditions of the tenants become even more severe because they work under more difficult regulations.

The evils of tenancy in this state which have been mentioned so often, therefore are not so much of the present as they are of the future, if the tenant systems most common are continued. It is not so much the effect of the present tenancy system upon the individual tenant as it is the effect upon the land itself and the conditions that this will bring about in the years to come.

COMPARATIVE YIELDS OF OWNERS AND TENANTS.

It is true that the labor income of the average tenant is greater than that of the average landlord, but it is also true that wherever conditions have been carefully studied, total crop yield of the

farms run by tenants is smaller than the total crop yield of farms run by owners. The acre yields are usually considerably less. On this point the researches made by the University of Missouri are particularly illuminating, as the conditions which they describe are very similar to those in Eastern and Southeastern Kansas. The yields of various crops on owner and tenant farms as shown by the survey made in Jackson County, Missouri, appear in the table below:

Crop.	Owner's Yield.	Tenant's Yield.
Corn.	38.3	32.9
Wheat.	18.8	17.4
Oats.	33.2	23.4
Cane.	2.5	2.6
Cowpea hay	1.15	.88

The acre yields of all crops but cane on land farmed by owners are larger than on land farmed by tenants. The effect of this lower yield of tenant farms will have on the general economic conditions of a community where tenants farm from 50 to 60 per cent of the land as they do in many communities in this part of the state, is difficult to estimate. In communities where the soil is naturally rich and where it takes years and years for it to become exhausted, the difference between land farmed by tenants and land farmed by owners is not so great and in some communities the difference is so small as to be negligible. In fact, in the survey made in Indiana, Illinois and Iowa by the Federal Department of Agriculture in 1912, it was found that while the yield was slightly in favor of the owner, the difference was very slight. But why should the yields on land farmed by owners be greater than on land farmed by tenants? The following are some of the reasons:

The equipment used by the tenants usually is not adequate for handling the crops so as to bring the largest yields. In other words, the tenants lack of capital makes it impossible for him to run the farm at its maximum producing capacity.

The tenant usually spends a minimum amount of work to raise an average crop rather than the amount of work necessary to raise a maximum crop. As his time usually is very limited, this often is a wise procedure as far as he himself is concerned.

The pasture land on an owner's farm is usually considerably greater than that on a tenant's farm. In other words, the tenant is more of a crop farmer than the owner. That there is considerably less live stock on the average tenant farm in this state than on farms run by owners demonstrates a lack of capital on the part of the tenant. In the county in Missouri to which reference already has been made, there is one animal unit—the equivalent of one mature horse or cow—to every 3.3 crop acres on farms operated by owners and only one to every 5.5 crop acres on the farms run by tenants. More of the crops grown on the owner farms, therefore, are fed to live stock, and hence more manure produced to haul out on the land. It is estimated that 16 cents' worth of soil fertility is sold with each bushel of corn, while if this is fed to live stock and the manure is used, only 5 cents' worth is lost. The greater number of animals usually found on the owner's farm accounts in large measure for the larger yields. When we are able to compare stock farming tenants with stock farm owners, as has been done in Iowa, Indiana and Illinois, it will be found that the difference in acre yields on the land run by tenants and that run by owners is very slight indeed, in fact it is so

(Continued on Page Thirteen)

GARDEN ON EVERY FARM

Grow Vegetables For Table and Buy Fewer Cans at the Store

EVERY farm should have a garden. This garden may vary in size and in the variety and quality of the products produced in accordance with the tastes and ability of the owners, but no farm is complete without some sort of a garden. An ideal kitchen garden, whether it be on a farm or on a city lot, is one that furnishes a desirable variety of high quality products continuously through the season.

On the farm the need of this kitchen garden is most urgent. The farm housewife does not have a handy grocery store to which she can phone or run and so secure on short notice vegetables, fruit or such products as she may need in the preparation of suitable meals for the family. If the housewife is to supply the table with these necessities of a proper diet for the people of her household, she must have close at hand the garden which will afford a seasonable selection of the necessary vegetables.

A well planned, well cared for garden not only permits the housewife to furnish a pleasing variety of food, but the cost of feeding the family will be materially reduced. This in itself is a factor that may well be considered in these days when the cost of living seems so excessively high. This garden, with its succession of fresh fruit and vegetables and the carefully stored reserve which may be canned on every farm, easily makes the area devoted to the growing of these products the most profitable patch of ground on the farm.

SOIL PREPARATION FOR GARDEN.

If the ground intended for early garden was plowed last fall, all that will be necessary to do will be to work it sufficiently to make it fine and firm before planting the seeds. If not sufficiently rich, and most ground is not, an application of well rotted barnyard manure is recommended. When manure fresh from the stables or barn lots must be used, it should be thoroughly shaken out and piled for a time in a heap and handled over in order to make it as fine as possible so that it may be thoroughly incorporated with the soil. It should be handled as soon as the heat begins to be noticeable and after one or two handlings and repilings it may be satisfactorily worked into the soil. Coarse manure does not decompose readily, and is likely to make the soil too open and porous for the best success with garden crops. The gardener can afford to be extravagant with manures because the soil must be in good condition if any degree of success is to be attained. Ground that is well manured in the fall and well plowed may receive another application of manure in the spring. Many gardens fail because sufficient time has not been given to the preparation of the soil. The soil should never be worked when wet. An experienced gardener knows that ground plowed in the fall may be worked much more quickly and easily in the spring than ground that has not been so handled. If the plowing must be done in the spring it should be done as early as possible to get the ground in good condition. It must be made firm and fine before planting.

CROPS FOR GARDEN.

Crops like lettuce, spinach and pepper grass that are grown for their leaves and stems will do best in soil that is very rich, but for peas, beans and tomatoes, and crops that are grown for their seed or fruit, there is some danger of an excess of nitrogen if fresh manures have been heavily applied. If sufficient manure cannot be secured and commercial fertilizer must be used, a complete fertilizer is usually preferable and may be used with a lavish hand—1,000 pounds to the acre composed of 200 pounds of nitrate of soda, 200 pounds acid phosphate, 200 pounds ground bone and 400 pounds muriate of potash, or a special complete fertilizer manufactured by the packing houses composed largely of blood, bone and other animal tissues may be used. Most of these have a composition of approximately one to four per cent nitrogen, five to ten per cent phosphorus and five to ten per cent potash. One thousand pounds to the acre of such fertilizer is frequently a very good investment.

Lettuce, radishes, pepper grass, turnips, beets, onions and smooth seeded peas may be sown as early as the ground may be worked. The loose leaf varieties of lettuce are the most grown in Western gardens, but the superior quality of the head lettuce should prompt many growers to make a trial of one or more varieties. The old standard Boston Market is

a good head lettuce as is Tennis Ball. Of the loose leaf varieties, Hanson and Black Seeded Simpson are standard sorts, and of the radishes the little round Red Forcings and French Breakfast are the earlier, and medium varieties Crimson Giant and later White Strassburg.

For spinach Victoria and Prickly seeded are early varieties. Pepper grass or upland cress is a welcome substitute for water cress where water cress is not grown. If early onions are wanted the sets should be planted, the color being a matter of taste. The main crop of onions is grown chiefly from seed and the standard varieties are Globe Danvers, Red Weathersfield, Yellow Prize-taker and Silver King. In home gardens the top sets onions have the advantage of producing sets alternate seasons, but the quality is somewhat inferior to the best seed onions.

The smooth seeded peas will stand considerable frost and it is well to plant them liberally. Alaska and Earliest-of-All are some of the best of the smooth seeded varieties. For a later crop, the wrinkled peas produce more heavily and are better quality. Of these, Gradus, American Wonder, Abundance and Fil-

quality. For later stock Danish Ball Head has been one of the best. For anyone wishing red cabbage, Red Rock has been generally successful. Cauliflower may be planted at the same time as cabbage, and Early Snowball and Early Erfurt have been some of the more successful varieties. For tomato plants, a good succession of varieties is desirable: Chalk's Early Jewel, Trucker's Favorite, Stone, Matchless and Trophy, and if dwarfs are wanted, Dwarf Champion and Dwarf Stone. If a yellow variety is wanted Golden Queen is one of the best, and while planting the hotbed, some egg plant and peppers may be grown with practically the same care as tomatoes. For egg plant Long Purple and Long Pekin have been successful varieties. Of the large peppers Large Bell or Bull Nose and Sweet Spanish are least likely to acquire an excess of flavor. Chinese Giant bears larger peppers but not so many, and for pickling peppers Long Cayenne is a favorite.

With the warm weather cucumbers and summer squash may be planted. White Spine and Cool Crisp are good slicing varieties of cucumbers. For the summer squash Early White Bush and

growth before the weeds can choke it out, thus giving an opportunity to cultivate before the weeds get high enough to interfere with the growth of the corn.

All who have any interest whatever in agriculture, are warning farmers about their seed corn. Too little is being said about the seed bed. Putting seed in ground sowed with weed seed is a great drawback in producing a profitable crop.

Weeds sprout and grow at a temperature at which corn cannot. If the spring should be cold and backward it is plainly evident that the weeds will grow and reach a growth before the corn can start.

It is a well known fact that stirring the ground in the spring has a tendency to warm it. This is simply because the rays of light and heat cause the moisture on the surface to evaporate. This evaporation of the moisture tends to warm the ground simply because the water in the ground determines very largely the temperature. Consequently the more the ground is stirred and worked in the spring the quicker it becomes warm on the surface.

If the farmer will take it upon himself to plow the ground and see to it that the weed seeds and trash are buried deep enough so as not to interfere with the final preparation of the seed bed, this portion of the seed bed will remain colder than the surface. The difference in these two temperatures will assist the farmer to get his crop planted in the surface soil and the seeds sprouted long before the lower portion will become warm enough for the weed seeds to sprout and grow. If he does this it is perfectly plain that the weeds seeds, being mixed with the earth when the harrowing is being done, merely plants them with as much care as though the farmer were planting weeds instead of preparing the seed bed for the crop.

If special care is taken to put the weed seeds and trash on the bottom of the furrow and deep enough so that they will not sprout and grow until the farmer has had an opportunity to cultivate the crop, this material will become a source of profit instead of a menace.

Growing plants require an abundance of plant food. The ground must supply this food in soluble form. The green vegetation which will spring up by the sprouting of these weeds in connection with the humus formed by the trash, which by this time will have become partially decayed, will cause enough bacterial action, or fermentation, in the ground so that the nitrates and other plant food will be formed as the growing plants need it. In this way the weed seeds and trash will furnish the proper food for the crops which the farmer cultivates, thus giving a more luxurious growth and better returns than could have been expected if these weed seeds and trash were not buried on the bottom of the furrow.

This condition will more universally prevail this year on account of the amount of moisture which the soil contains at this time. The winter's freezing has been doing its work in preparing the weed vegetation for quick decay when it is buried in the ground.

It is a fact that Nature supplies the materials to make the pocket-book jingle if we but take it upon ourselves to use these means as Nature intends they should be used.

The assumption that either a disk or mouldboard plow of itself will bury this trash on the bottom of the furrow is wrong. It is absolutely impossible from the nature of plow mouldboards to bury trash on the bottom of the furrow. Weed hooks and chains have been used for many years with but partial success. In localities where pointers are used, trash is buried on the bottom of the furrow. The reason for this is because the jointer turns a little furrow on top the unplowed ground. The plow following turns the trash which is ordinarily left straggling through the turned furrow on the bottom of the furrow.

This trash must not be left partially uncovered this spring simply because the weeds having an unusual growth will be pulled out by the harrow teeth and scattered over the top of the ground. Some device for getting the weed seeds on the bottom of the furrow must be used. The jointer is the most successful of any device thus far known for doing this work. There are sections of the country where the jointer is not known, but its merits should be carefully considered when conditions are such as to make it of the greatest importance to put the trash on the bottom of the furrow.

Adaptability of Corn and Grain Sorghums



THIS map represents the results of a study of the comparative value of corn and the grain sorghums in Kansas. The state has been divided into districts based upon the relative value of corn and kafir or other grain sorghums as shown by these investigations made by the Kansas Experiment Station.

In the northeastern part of the state—District 1 on the map—corn is nearly every year a more profitable grain crop than kafir or other sorghums. The soils of this area are well adapted to corn and the rainfall is sufficient to mature large crops of grain.

In District 2 corn is the better crop on the rich bottom land and on the deeper upland soils, but on poorer and more shallow uplands kafir usually gives better yields.

In District 3 kafir almost always outyields corn, and is more profitable except on the best land. Even on the latter, kafir is usually more profitable if it can be utilized as feed, as the total yield is usually greater.

In District 4 milo and feterita, which are also sorghum crops, but earlier than kafir, yield about the same as corn, on the average. The elevation here is great, which makes the seasons too short for kafir. Corn can be planted somewhat earlier than sorghums, and for that reason has a longer growing season.

In District 5 it is very seldom that corn will produce so large yields as the grain sorghums, and it is almost always a less profitable crop, even when the greater cost of harvesting the grain sorghums and the smaller value to the bushel is considered.

basket are the best medium, and the later varieties, Telephone and Strategen. Beets should be planted early and better quality will be secured by planting in succession. Early Egyptian and Eclipse are among the earliest and for later use Crimson Globe and Bastian's Half-Long are good varieties. For turnips for the garden the Extra Early White Milan is one of the earliest and White Egg is fine quality, although somewhat later. For the root crops a short row of carrots will furnish an abundance for the family, but any surplus can be readily disposed of to the horses and cows and it is worth while to plant a considerable quantity. Shorthorn, Chantenay and Danver's Half-Long are standard varieties. Of the parsnips Guernsey and Hollow Crown are best known. Salsify or vegetable oyster may well have a place in every garden; while not so productive as carrots and parsnips it is of higher quality and a yield of a pound to a foot of row is easily secured. Two good varieties are Long White and Sandwich Island.

Seed for the plants of early cabbage should be sown as early as the hotbed can be gotten ready. The Early Jersey Wakefield is one of the earliest, and early Winnigstadt, which is pointed in form, is not quite so early but of good

Giant Crookneck and Vegetable Marrow are planted for early, and for later sorts Hubbard, Boston Marrow and Winter Crookneck are still standard sorts. For the string beans Stringless Green Pod is one of the most satisfactory varieties, and Rust Proof and Golden Wax are standard sorts. In favorable seasons very fair success may be expected with the brush line beans. Beans should not be planted until all danger of frost is past. The extra early varieties of sweet corn are for the most part small ears and not so good quality as the later sorts. Peep O'Day and Adam's Early are the earlier varieties and fairly desirable until Stowell's Evergreen and Country Gentleman, two of the most popular and generally successful varieties are ready for use.

Combating Weeds by Good Plowing.

When corn is planted this year it should be on ground that is plowed deeply with every particle of trash and vegetation on the bottom of the furrow, the ground well harrowed and the seed bed compact from the bottom to the top. Before a hill of corn is planted, the ground must be warm enough for it to grow. This kind of a seed bed will help the corn to sprout and reach a good

Budding and Crafting Fruit Trees

SUBSCRIBER W. J., an Illinois reader of KANSAS FARMER, asks for instructions on the budding and grafting of small trees.

Budding is usually used in the propagating of the stone fruits, such as the peach, cherry, and plum. The seedlings grown and used for the stocks must be in active growth when the budding is done. The bark must peel readily, leaving the active inner cells of the cambium layer upon the young woody growth. The bud which is to produce the new plant of the desired variety, must come in contact with this layer of active cells. In preparing the stock for the bud, two cuts are made through the bark in the form of a "T." The bark is then raised, being careful not to injure the inner layer. The bud which has been removed from the "bud stick" with a sharp, thin-bladed knife, is slipped in under the opened bark of the stock. It is held in place by wrapping it with cord or nar-

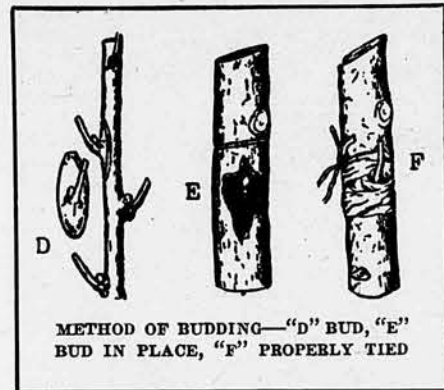


SPLITTING LIMB FOR CLEFT GRAFT

row strips of cotton cloth. These must be cut a week or two after the work is done. The illustration shows the method of doing this work.

In budding peaches, care must be exercised to avoid using any fruit buds for propagation. The fruit buds of peaches are found on the new growth.

Grafting is the method usually employed in propagating apple trees. The whip graft, such as is used in the nurseries, must be made in the winter time. The only method of grafting that is practical as the growing season begins, is cleft grafting. This is used in top working trees of some size where it is desired to introduce a new variety using the established tree as the stock. In cleft grafting the limb of the tree is sawed off and then split by the use of a heavy



METHOD OF BUDDING—"D" BUD, "E" BUD IN PLACE, "F" PROPERLY TIED

knife or a knife specially designed for the purpose, as is shown in the cut. The twig of the variety desired is brought to a wedge shape at the lower end and is inserted in the cleft of the stock tree. It must be so placed that the cambium layer of the twig or scion comes in close contact with the similar layer in the stock.

The split in the stock must be protected by covering it with grafting wax. One of the most commonly used preparations is that composed of rosin four parts, by weight, beeswax two parts, and tallow one part. These are melted together, and when melted poured into water and as soon as it is hard enough to handle it is worked over until it becomes tough and light yellow in color. The hands must be greased when handling this wax. Some of this wax should be so placed on the graft as to keep all moisture out and prevent the germs of decay from getting a start.

Write for the different seed catalogs even though you will order few or no seeds this season. There is something of interest and value in each catalog and the dealers are glad to send them to you.

It is well to close down the hotbed sash early in the afternoon, so that all the heat possible may be retained for the night. If mats are used, they should go on early.



The After-Cost

WHEN you buy an automobile, you expect to use it not only this year and next year, but for four or five, or six years, or even longer. So, while the first cost is always important, it is not nearly as important as the after-cost.

You want a car that can be operated economically. You want a car that will give you the greatest mileage per gallon of gasoline and oil. You want a car that is properly balanced and light in weight so that you will get high tire mileage.

This question of operating expense is one that some people overlook but it is the operating expense that makes a car either a good investment, a health and pleasure giving investment—or a burdensome annoyance and financial drag.

The World's Motor Non-Stop Mileage Record, established last January by a Maxwell stock touring car, offers some interesting facts. Not claims or beliefs or opinions, but *facts*—facts that are supported and vouched for by The American Automobile Association, the supreme court of the automobile industry.

In the first place, the record breaking Maxwell car ran over town and country roads for 44 consecutive days and nights, averaging more than 500 miles per day. During this time—1,056 hours—the engine never stopped and

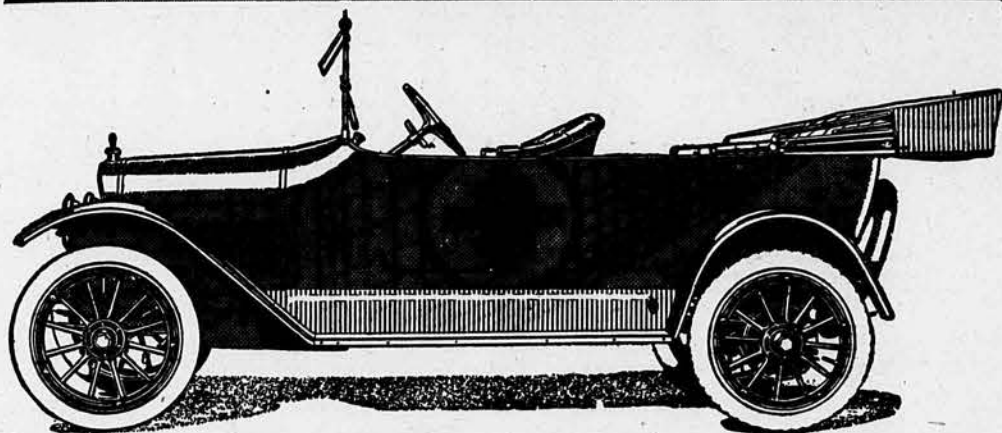
the car stopped only long enough to take on gasoline, oil, water and a fresh driver. The ability of any car to run 22,000 miles in 44 days without stopping the engine is conclusive proof of its genuine merit and quality throughout.

But this is not all. Not only did the Maxwell prove its sturdiness, its wonderful endurance powers, but it established an average gasoline consumption of nearly 22 miles to the gallon. This is truly remarkable in view of the fact that this was primarily a Motor Non-Stop Endurance test and that no effort could be made to save fuel at the risk of stopping the engine.

In addition, the champion Maxwell stock car used only one gallon of oil to every 400 miles of its journey, and it went the whole distance of 22,000 miles on two and one-half sets of tires. We have never heard of anything that could compare, in the smallest degree, with these figures, the accuracy of which is officially and indisputably established.

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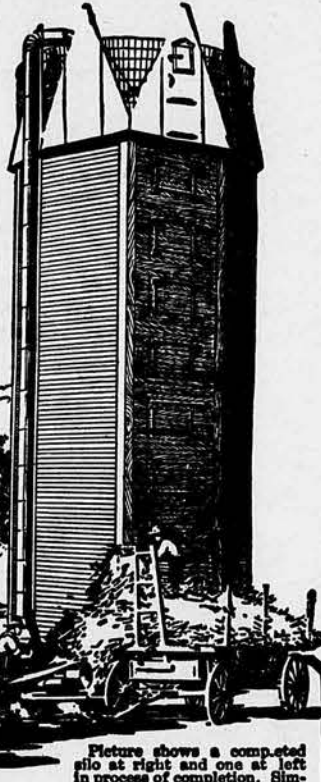
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THE KIND OF CORN TO GROW

THE author of the recent bulletin on "Growing Corn in Kansas," C. C. Cunningham, is thoroughly familiar with every section of the state, in fact the most valuable data in the pamphlet is that secured through studies made on the farms in various parts of the state. He has the following to say on the question of varieties best adapted to the various sections:

"The precipitation, elevation and soil conditions vary so much in different sections of Kansas that the varieties of corn which grow best in one locality are frequently very poorly adapted to others. In Eastern Kansas the annual rainfall averages 35 inches or more. In this area fairly large varieties usually produce the largest yields. In Western Kansas the annual rainfall is less than 20 inches, and the elevation is from 1,500 to 2,500 feet above that of Eastern Kansas. If the large, late-maturing varieties of Eastern Kansas are grown in this area they will invariably be injured by drouth, hot winds or early frosts. They may produce fodder, but they will not produce grain. On the other hand, of the small, early-maturing varieties usually grown in Western Kansas are grown in Eastern Kansas they will ripen so early that they will not derive any advantage from the longer growing season and greater supply of moisture, and will consequently produce a low yield as compared with the adapted varieties.

"Many soil areas in Southeastern Kansas are deficient in plant food and humus. Earlier and smaller varieties must be grown than on fertile lands, as the supply of available plant food is not sufficient to mature the larger, later varieties. In any part of the state it is necessary to grow earlier and smaller varieties on the poorer soils than on the fertile lands.

"Because of these radical variations in soil and climate, the state may be divided into nine corn-growing sections as shown in the map on this page. The division lines of the sections have been arbitrarily located. The characteristics upon which the divisions are based merge so gradually into one another that it would be impossible to locate exact dividing lines.

"The soils of section 1 are derived largely from glacial drift, and usually are exceptionally well adapted to corn. As a rule they are deep, friable clay loams and silty clay loams, containing in the virgin state an abundant supply of organic matter. The varieties of corn most extensively grown in this section are Reid's Yellow Dent, Boone County White, Hiawatha Yellow Dent, and Iowa Silvermine. Reid's and Iowa Silvermine are medium early-maturing varieties and are best adapted to the uplands and the less fertile types of soils, while the other two varieties are larger and later-maturing and are usually grown on the best lands.

"In section 2 the soils are residual in character and are derived largely from sandstones and shales. They are often deficient in organic matter and comparatively low in fertility. Practically all the soils of this section are silt loams, clay loams, and clays underlain by retentive subsoils of heavy clay. The northern portion of this section, as a whole, is better adapted to corn than is the southern portion, because of the difference in the type and fertility of the soil.

"Section 3 includes the 'flint hills' and rough limestone country, which are

largely pasture lands. Nearly all the upland in this section is poorly adapted to the production of corn because of the shallow nature of the soil. The creek and river bottoms make splendid corn lands, and on these soils corn is the principal crop. Some of the more level and deeper soils on the upland in the northern part of this section are well suited to the production of corn.

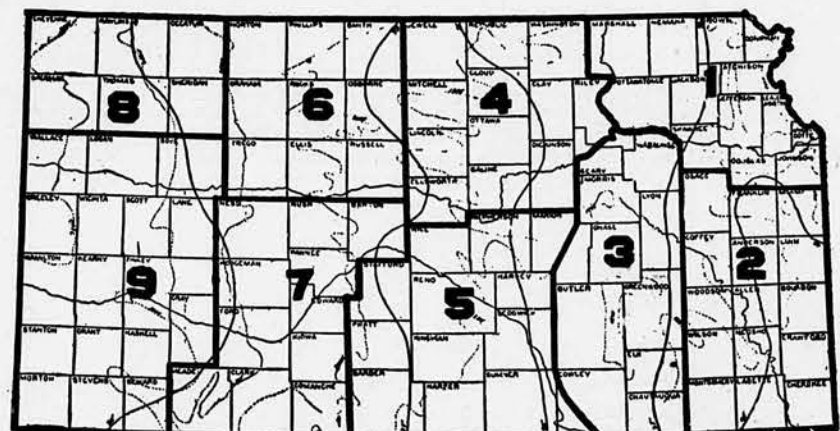
"Pride of Saline, Iowa Silvermine and Kansas Sunflower are the varieties adapted to the uplands and thinner soils of sections 2 and 3, while Commercial White, Boone County White and Hildreth Yellow Dent are grown on the bottom lands and the more fertile soils. The last-mentioned variety is adapted only for strong soils. When grown on good land in favorable seasons, however, the Commercial White is to be preferred to the Hildreth as well as to the Boone County White.

"In the sections comprising the rest of the state, climatic conditions are the factors most likely to govern the productiveness of the corn crop. For this reason the divisions are based entirely on these factors. The soils of these sections are not so heavy as those of sections 1, 2 and 3; they are easier to till, cultivation is not delayed so much by wet weather, and weeds are more easily controlled. These sections are, however, more subject to drouth, and failures due to this cause are more frequent. Because of the difference in latitude, earlier-maturing strains must be grown in section 4 than in section 5. Section 5 is more subject to damage from hot winds than is section 4. Otherwise conditions for growing corn in the two areas are very similar.

"As a rule, medium-sized varieties of corn, such as Pride of Saline, Iowa Silvermine, Kansas Sunflower and Reid's Yellow Dent, are best suited to sections 4 and 5. The Commercial White and the Boone County White do well on the better corn lands. The former variety matures too late to grow in the northern part of section 4. Reid's Yellow Dent and Boone County White are not so hardy or vigorous as the other varieties, and therefore are not so well adapted for growing under adverse conditions. These varieties often do not thrive well in section 5 because of high temperatures likely to prevail in this part of the state.

"With the exception of the northeastern part of section 6, the rest of the state is not well adapted for growing corn except on well-watered river and creek-bottom soils. The sandier soils are better corn lands than the heavier types, especially those which are underlain with subsoils containing more or less clay.

Sections 6 and 7, and also sections 8 and 9, are very similar to each other as regards soil conditions and precipitation. The two northern sections, however, are much better adapted to the growing of corn than the two southern sections, in that they are not so subject to hot winds and high temperatures. The varieties of corn adapted to sections 8 and 9 must necessarily be hardy, small-growing and early-maturing, because of the short season and the light annual precipitation. Adapted strains of Iowa Silvermine, Pride of Saline and Kansas Sunflower are suitable for growing on the better soils in sections 6 and 7, while Reid's White Dent and other acclimated varieties are best for the uplands. For growing in sections 8 and 9, acclimated varieties, such as Reid's White Dent, Sherrod



MAP SHOWING CORN-GROWING SECTIONS OF STATE

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White Dent, Colorado Yellow Dent and adapted strains of Iowa Silvermine and Pride of Saline, are recommended.

"In sections 6 to 9, inclusive, corn is often a total failure, and, as a result, seed of old, adapted varieties is frequently lost. In good seasons sufficient seed for at least two years' planting should be saved. Corn of good quality, properly stored, will make good seed after two years, and often three-year-old adapted corn will give better results than new seed that is not acclimated to Western Kansas conditions.

"Where a variety of corn is recommended for two or more sections, strains adapted to the respective sections should be grown. Iowa Silvermine corn grown on the fertile glacial soils of section 1 is not so well adapted to any other section as is an acclimated strain of that variety.

"In every locality of the state there may be local strains or varieties of corn that have been developed in the respective localities as a result of careful selection of the seed for a period of many years. As a rule, these local varieties are exceptionally well adapted to the places where they were developed."

Early Garden Work.

The forehanded gardener will find it desirable to do much indoor garden work even while winter seems still with us. The early tomato, cabbage, celery and even lettuce plants may be started indoors. George O. Green, horticulturist of the Extension Division of the Agricultural College, says that the lettuce plants grown indoors may be easily transplanted and are much more hardy than some of the plants we think have to be transplanted several times before they finally go into the garden. Some early lettuce is a most acceptable addition to the diet in the early spring. The plants may be easily started in a living room where a hard coal heater is kept burning or in the basement of a furnace heated house. An incubator may be used with success to supply the necessary heat.

Cigar boxes can be used for starting young plants in a small space. The bottom of the box should be covered with small pebbles or broken pottery for drainage. It should then be filled with sand to within a half inch of the top. After pressing this down smoothly some V shaped furrows a half inch deep and a couple of inches apart may be made by pressing a corner of a small square stick down into the sand. The seed should be sown thickly in these furrows and sand sifted over the top until the furrows are level. After springing the sand with water it should be pressed flat with a small board and the box set in a warm place where the temperature will be about 70 or 80 degrees. It should be carefully watered. The plants should be up and showing their first leaves and a few short lateral roots in five or six days. They are now ready to be transplanted to larger wooden flats 10x14x12 inches. These should have the bottoms covered by pebbles or broken pottery as in the small germination flat. They should then be filled with good, rich earth pressing it down smoothly on top. The small plants may be dug out of the germination flats by the use of a knife or the contents, after giving the box a jar on a bench or post, may be pitched out of the flat by a slight toss, leaving the sand on the bench with the plants on top. In setting the plants in the larger flat Mr. Green suggests the use of a lead pencil in making the holes, placing them three inches apart each way. The dirt should be pressed firmly around each plant as it is pressed in the hole. They should then be watered and left in the shade a couple of days until the roots have become established. They should then be transferred to a sunny window and allowed to grow until it is warm enough to transplant them to the outside garden or the cold frame.

Mr. Green says one cigar box flat handled in the way suggested will germinate enough seedlings to fill several of the larger flats. Several varieties of vegetables may be started in one flat and enough plants produced to furnish more than enough for the ordinary farm garden.

When in the market for seed, examine carefully that offered and reject any that contains the seeds of noxious weeds. As it is impossible to tell whether seed will grow by looking at it, and difficult or impossible to be absolutely sure that there are no objectionable seeds present, it is a wise precaution to have all seed tested for purity and germination. The Kansas Experiment Station at Manhattan will do this work and promptly report the results.

Good plants to use on poor soil are nasturtiums, zinnias, petunias, poppies, candytuft, and portulaca.

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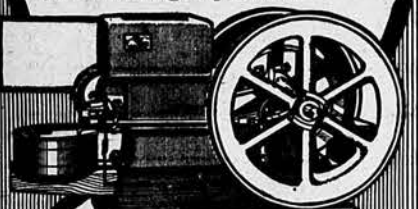
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You can raise calves at half cost by using "Brooks Best" Calf Meal as hundreds of others are doing. This is guaranteed perfect milk substitute, and costs less than other calf meals where freight rates are so high. Fifty pounds, \$1.75; 100 pounds, \$3.25; 500 pounds, \$15.00. Free directions. **BROOKS WHOLESALE CO.** Ft. Scott, Kansas.

Ask your dealers for brands of goods advertised in KANSAS FARMER.



BANKER AND DAIRY CLUB

THE banker who looks over the counter to see whether his customer asking for a loan, has any milk on his boots, is applying a test based on good common sense. The banks are in a position to know what kind of farming is safe farming. They know that the man milking cows has a check to cash each month. When a farmer must let a bill of \$1,400 or \$1,500 accumulate at the stores while he is growing and harvesting a crop, there is just cause for uneasiness on the part of those to whom he owes money. The banks consider a man following diversified farming—milking as many cows as his family can handle, keeping a big flock of hens, a few pigs, and doing at least a part of his farm work with good mares—a much safer risk, than the one trying to get rich by growing wheat or corn or following any other single line of farming on a large scale.

The Kansas Farmer Dairy Club appeals to bankers because it is so directly in line with all their experience in making loans. They see in it a chance to be of some service in helping to demonstrate what the milking of cows can do toward developing a prosperous type of farming. It is by no means a selfish interest. They are interested in seeing their patrons successful and indirectly that will help the business of the bank. It is apparent to all that there can be no real progress in a community if any one interest is advancing at the expense of another.

There is only one way to get into the dairy business right, and that is to grow into it. The purchasing of a herd of dairy cows does not by any means set a man up in profitable dairying. When you set about to establish a dairy farm, you are establishing a factory—an enterprise—just as a man engages in the manufacturing business. The highest degree of profitability comes as a result of gradual development and cannot be reached in a single year.

The editor of KANSAS FARMER had some experience in the milking of cows that is most suggestive to the boys and girls who are becoming members of our dairy club. He made his start in dairying at a time when it was almost necessary to milk cows in order to have any money with which to buy the necessities of life. We made our start by milking such cows as we had, and soon began to have some ready money. Our first introduction to cattle of dairy breeding came through the purchase of a couple of grade Holstein heifers. They were purchased at a dispersion sale made by an uncle and were bought more to help the sale along than with the idea of getting anything especially valuable in the dairy line. These heifers were carrying calves and freshened in the fall. That winter they gave more milk than all the rest of the cows we were milking. That opened our eyes to the value of dairy breeding. These heifers were real educators and we saw what it would mean to have a herd of such cows. Of course, we could not hope to build up such a herd without a high-class pure-bred sire. We finally bought one for \$250, which was considered an unheard-of price for a bull at that time. That \$250 looked bigger to us than \$2,500 did ten years later. But we got the bull, if we did have to sell a bunch of the common cows to pay for him. The man from whom we bought this bull showed us a four-year-old cow—a pure-bred—and offered her for \$100. The price put on this cow was another big jolt, but with the educative influence of those two grade heifers fresh in our

minds, we mustered up our nerve and bought the cow. She was almost dry at the time, but soon freshened, and how she did roll out the milk!

It turned out that we were most fortunate in our selection of foundation stock. The bull was easily worth \$1,000 to any man with a herd of ten or fifteen cows. He put our herd on the map. We kept him as long as we could use him. In eleven years' time, from this beginning, we developed a herd of twenty-five cows averaging 14,000 pounds of milk a year, with an average butter-fat production of 315 pounds. Only a few of the cows were registered, but when we dispersed the herd they sold all the way from \$75 to \$500 apiece. Heifer calves six months old brought high prices solely on the basis of the records of their mothers.

A remarkable demonstration in the money-making possibilities of good cows is being made by the Dickinson County Cow Testing Association. This association was organized three years ago. As a result of the first year's work the value of good cows was most strikingly demonstrated. While some herds were better than others, there were good profitable cows in all the herds, and even the best of them had some poor ones. The records of the ten best cows in these herds are given in a table on this page. There was no guess-work about these figures. They represent exactly what the cows were doing. The average value of the butter fat for the year was 28 cents a pound, and 40 cents a hundred was allowed for the skim milk fed to calves and pigs. With one exception, these ten cows were of dairy breeding. They produced six times the average profit of the ten poorest cows.

There will be boys or girls started in the dairy business by the banks through the Kansas Farmer Dairy Club, who will perhaps develop even better herds than that of the editor or those owned by members of this Dickinson County Cow Testing Association. These results are by no means extraordinary. A single cow or heifer carefully selected might easily become the foundation of a better herd than we dispersed. The bank making such a thing possible is a public benefactor. In the near future we will publish a list of those co-operating in this movement to encourage a greater interest in dairy farming on the part of the boys and girls.

The great value coming from interesting young people in things that have to do with good farming, is recognized by our agricultural college and in co-operation with the Federal Department of Agriculture, the promotion of clubs of various kinds has been an important part of the work of the extension division. Twelve different kinds of clubs are being conducted by Otis E. Hall, the state leader. He and others interested in the work have been quick to see the possibilities of a dairy cow club and have furnished valuable suggestions in formulating the plans for the Kansas Farmer Dairy Cow Club. We are glad to report that the agricultural college is co-operating in this manner in this movement, as it is always willing to do in any cause that has for its purpose the advancement of our agricultural interests.

Give your heifers every opportunity to develop sufficient size and a sturdy frame before they freshen for the first time.

Carelessness in the selection of sires will quickly ruin a herd of good cows.

Record Of Ten Good Cows

Months Milked	Milk	Fat	Value of Products	Cost of Feed	Profit
Eleven.....	13,698	546.30	\$201.12	\$55.91	\$145.21
Twelve.....	8,094	448.51	152.58	49.00	103.58
Eleven.....	10,258	385.83	144.44	50.35	94.09
Eleven.....	7,229	384.27	131.90	48.49	83.41
Ten.....	8,191	377.42	133.92	26.16	107.76
Eleven.....	7,290	376.24	130.00	49.89	80.11
Nine.....	8,042	374.62	131.77	37.42	94.35
Eleven.....	7,926	372.37	131.50	37.17	94.33
Ten.....	6,573	367.76	124.86	41.30	83.56
Ten.....	6,973	364.88	125.70	47.77	77.93
Average.....	8,427	393.42	\$140.77	\$43.35	\$ 96.43

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WHEN WRITING ADVERTISERS, MENTION KANSAS FARMER

Precipitation Has Not Increased

THE theory that climate is changed and precipitation increased by the settlement of a country, the breaking up of the soil, cultivation of fields, planting of trees, the retention of water in lakes, ponds and irrigation ditches, would appear to be well founded. Unquestionably vastly more rainfall is caught and retained in the soil and otherwise in a settled and cultivated region than in the same region prior to settlement and cultivation. This is especially true of a prairie country. A greater portion of this water must return to vapor from through evaporation and the transpiration of growing vegetation, and a lesser part return to the sea immediately and directly through streams, than was the case when the country was in its virgin state. And since rainfall can only occur through the condensation of water vapor, it would seem that this added vapor should, by re-condensation, add to the annual precipitation.

But, like many other apparently reasonable theories, this one does not work out in practice.

Notwithstanding the occasional publication of partial proof to the contrary, this theory is quite well grounded in the minds of a great many people. It has been used as an inducement for the settlement of new sections in the semi-arid belt. Real estate men have not neglected this asset to their advertising folders, and numerous claims have been made, usually accompanied by figures either false or not representative, that certain regions have actually experienced a marked increase in rainfall through settlement and cultivation. In addition, assertions are frequently made that the winds have lessened, and the climate generally undergone a change.

These beliefs and theories have found

run back seventy-four years. The figures for the last complete ten-year period are slightly less than for the first.

Six stations have records covering six complete periods, or sixty years. The combined average for last three of these periods, is .38 of an inch greater than that of the first three periods—an inconsiderable difference—but the last period shows a less average than the first, by 1.01 inches.

Fifteen stations have complete records for forty years, or four periods. The average precipitation for the first twenty years was substantially the same as the last twenty; to be exact, it was .255 of an inch more.

Not only does the general or combined average fail to show any substantial increase or decrease, but no single station can be selected which does show such change.

THE CONCLUSION.

The accuracy of the weather department's figures will probably not be questioned. They are complete, with the exception that a few interpolations from near-by points have been made, where exact figures for a month at a station were missing. But these instances are few, and cannot inject appreciable error into the calculations. It may be taken, therefore, that the settlement and cultivation of the great plains region has so far not affected the precipitation either way. The Great American Desert clearly had substantially the same average rainfall and climate when it was named as it has now.

But the facts should not be discouraging. It is more to the credit of the settlers of the Western plains and conquerors of the desert that they accomplished their task without climate and conditions being changed than otherwise.

Rainfall records of eighteen representative stations between the Mississippi River and the Rocky Mountains, showing the average annual precipitation in ten-year periods:

Station.	1841 to 1850	1851 to 1860	1861 to 1870	1871 to 1880	1881 to 1890	1891 to 1900	1901 to 1910	1911 to 1914
Denver, Colo.	14.88	13.89	14.01	14.51	16.16
Las Animas, Colo.	11.66	11.42	12.02	11.00	13.33	15.26
Fort Reno, Okla.	29.70	27.70	33.46	22.48
Fort Sill, Okla.	30.03	30.40	30.85	32.77	23.42
Independence, Kan.	38.91	39.50	35.75	40.04	35.28
Manhattan, Kan.	28.38	33.08	30.02	29.61	36.19	26.15
Fort Scott, Kan.	42.76	.....	.....	.....	.....	41.21	41.48	40.75
Wallace, Kan.	17.64	16.44	14.49	17.28	11.11
Hays, Kan.	25.42	21.67	22.34	24.95	19.27
Leavenworth, Kan.	30.39	34.55	31.92	39.42	37.21	36.23	35.50	32.53
Oregon, Mo.	37.64	37.80	34.61	34.66	36.82	38.29	28.38
Miami, Mo.	30.98	33.57	33.92	43.09	37.42	41.64	.....
St. Louis, Mo.	45.34	45.27	40.82	37.32	39.85	36.12	36.23	40.41
Austin, Texas.	29.38	33.73	33.88	35.20	33.38	28.69	33.82
Menardville, Tex.	22.00	.....	23.03	.....	21.85	22.09	.....
Santa Fe, N. M.	22.32	13.96	13.98	14.00	15.05	13.74	14.92
Dodge City, Kan.	17.88	21.81	21.71	19.33	19.06
Fairbury, Neb.	30.04	29.54	27.35	32.14	.....

lodgment in many of the most learned modern minds. No less a student than James Bryce, ex-ambassador from Great Britain to the United States, has been quoted as expressing the belief that the climate of Oklahoma had already undergone considerable change, and would undergo much more, as a result of settlement and cultivation, and the building of ponds.

It does not require documentary evidence to prove that wet and dry years occur in series or cycles, irregular though they are. But when it comes to determining with any degree of accuracy what the permanent changes in climate or precipitation, if any, have been, it is necessary to consult reliable records.

As far as the United States is concerned, the only climatological records covering a long period of years, and at the same time a great number of representative localities, are those of the weather bureau of the Department of Agriculture. For the purposes of this article, and as bearing particularly upon the subject in question, the only records necessary to consult are those of stations between the Mississippi River and the Rocky Mountains. It will be conceded that if there is anything whatever in the theory of increased precipitation, it would show here. There are several hundreds of these stations, the records of which run back for twenty to seventy-five years. Some of them are fragmentary, but there are enough of them complete upon which to base a conclusive opinion, and arrive at the actual facts.

In order to do this, the writer has with great care assembled the records of eighteen representative stations, in seven states, reducing them to annual averages for periods of ten years. These figures appear in the table.

The records of three of these stations

What better proof could be desired that Nature's forbidding aspect need not always deter man, or that man can conquer without Nature readjusting her habits to suit his limitations? And yet this is a line of thought which is liable to lead the too sanguine into fatal error, for there is a limit beyond which man may not dare go with hope of success. Many have done so, and have failed.

Though the seasons have not changed permanently, men have by experience and study learned how to successfully farm under climatic conditions which a few decades ago would have been, and were, impossible with the methods then in use. The system of agriculture advocated by the Dry-Farming Congress is more responsible for this than anything else.

Climates vary, but never change permanently.—W. I. DRUMMOND, in the Agricultural Review.

Comfort in Farm House.

In the city a cold draughty house remains unrented. Why should such houses be considered good enough for people to live in in the country? It is just as important to have a comfortable house well equipped with modern conveniences, such as a good heating plant, running water, and a lighting system, as it is to have harrows, plows, drills, and binders for the field work of the farm.

There are homes in Kansas where there has been sickness and where deaths have occurred this winter because of the lack of some of these conveniences that should be considered necessities. The farm family is frequently held together by the slender thread of the mother's strength, and everything possible should be done to make her work easier and preserve her health. It is the duty of every farmer to give his wife and family the better things of life.

Warm the house —make a home!



Women like radiator heating—it puts June in every room

All mothers wish for homes that are evenly warmed all over to cheer and comfort husband and little folks; and to make the home a cozy, genial center for the gatherings of good friends.

All mothers now-a-days deserve to be freed forever from the back-breaking labor of "tending stoves," that heat only "in spots," and spout ash-dust and coal-gases. The only sure way to fill a house with mild, delightful warmth and make it a home is with an IDEAL-AMERICAN outfit.

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is guaranteed (when properly fitted) to cure sore shoulders and galls, and prevent them. The genuine Lankford Collar is carefully made of best white sail duck, and trimmed in heavy, durable leather. It is stuffed with pure, downy, curled, medicated cotton that will not pack or harden, and which absorbs impurities and prevents irritation of wound. Remains soft and pliable at all times. Avoid cheap substitutes as they contain unsanitary material, such as straw etc. Fits any shaped neck—will not squeeze. Automatically evens up the weight, and distributes the load properly. Look for early flame stripe attached. Sold by most dealers this trade at \$1.25 and up. Over 12,000,000 sold. Send postal mark always for full information, and name of nearest dealer.

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The all-steel **peg-tooth harrows** are made up of stiff sections, that give the lumps strong action and leave the surface smooth. These features, and many others that are money makers for farmers, are explained fully in our tillage catalogues, which we send promptly on request. Write for one, and read it over, before you go to the local dealer to see the implement you are interested in. The catalogue helps you to buy right.

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<p>Lot No. 49 ED-311. Ajax high-grade rubber surface roofing, put up 100 square feet to the roll, two to three pieces to a roll, complete with nails and cement; 3 ply. 38c</p> <p>Lot No. 49 ED-411. Galvanized Roofing, full 28 gauge heavy weight 2 1/2 in. corrugated sheets, 4 and 4 1/2 ft. long only. This material, although used, has been reclaimed and refinished and in addition to being galvanized, will be painted red, free of charge. Price per square \$2.25</p>	<p>Lot No. 49 ED-711. 28 gauge painted reclaimed and refinished stock 2 1/2 in. corrugated only, sheets approximately 2 ft. wide by 2 1/2 to 3 ft. long. Coated with a good grade of heavy asphalt paint. Price per square \$1.33</p> <p>Lot No. 49 ED-911. Red and green slate roofing, 108 sq. ft. to the roll, two to three pieces to the roll, complete with nails and cement, high grade covering, full weight and extra heavy. State color wanted. \$1.08</p>
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College Lambs Top Market

THE 300 head of lambs fed by the Kansas Experiment Station, were sold two weeks ago in Kansas City, bringing \$11.10 a hundred—the top price for the day. These lambs had been fed in four lots of 75 each. The primary purpose of the test was to determine the relative value of shelled corn, threshed kafir, and ground kafir heads. The rations fed were as follows: Lot 1, shelled corn, cottonseed meal, silage, and alfalfa hay; lot 2, kafir grain, cottonseed meal, silage, and alfalfa hay; lot 3, ground kafir heads, cottonseed meal, silage, and alfalfa hay; lot 4, shelled corn, cottonseed meal, and alfalfa hay. The feeding of this last ration gave an opportunity to study the effect of silage in feeding lambs for market. The most important point, however, was the relative value of the two means of feeding kafir as compared with the feeding of shelled corn.

The marketing figures indicate that there was little difference in the efficiency of the different rations from the standpoint of gain and finish. The lambs all sold for the same price. The gains made were very nearly the same for all lots. Lots 1 and 2 averaged 75 pounds a head when sold. Lot 3 averaged a fraction under 72 pounds, while in lot 4 the average weight was 76 pounds. A difference of four pounds in weight at the end of an 80-day feed is very slight, and might possibly have been chargeable to something else than the character of the rations.

These lambs were followed through the packing house in order to secure figures on the way the different lots dressed. These dressing percentages ran very close. Lot 3 was the lowest, being 55 per cent. The lot dressing highest was No. 1, being 56.6 per cent. Lot 2 dressed 55.3 per cent, and lot 4, 56.5 per cent.

Both corn and cane silage was fed during the experiment. No attempt was made, however, to compare the two different kinds of silage. That made from the corn was only fairly good in quality. The cane silage was unusually good.

The preliminary report on this experiment gives nothing as to the comparative costs of these different rations, but even without complete figures, it is evident that kafir can be used as a fattening ration for sheep and lambs. Sheep invariably chew their grain much better than do cattle, and for that reason could be expected to make good use of kafir. One objection that has been made to kafir for cattle feeding is that the grains are so small and hard that the cattle swallow them without chewing, and there is much waste. There is very little danger of sheep eating kafir grain without chewing it thoroughly.

This is not the first time sheep have been fattened on kafir at the Kansas Experiment Station. The winter of 1910-1905, 200 range lambs were finished for market. A comparison of the feeding value of kafir grain and shelled corn was the principal point being studied in that test. There were two different kinds of lambs fed, what are known as "Mexicans" and "Montanas." The two different classes were fed in comparison, but it was possible to make

comparison in each case between corn and kafir.

The gains made by the Mexican lambs fed kafir averaged .287 pounds daily, for the 108 days of the test; those fed shelled corn, averaged .277 pounds; the Montana lambs fed kafir made an average daily gain of .361 pounds; and those fed shelled corn .379 pounds. It will be noticed that in the case of the Mexicans the kafir-fed lambs made slightly larger daily gains, while the reverse was true with the Montanas. Alfalfa hay was the roughage fed in all lots.

The season of 1905-1906 range lambs were again fed kafir and shelled corn in comparison. In this test the kafir-fed lambs made average daily gains of .328 pounds, and those fed shelled corn .335 pounds.

We are referring to these figures to show that this experiment just concluded is added proof of the value of kafir for fattening sheep. It is practically equal to corn pound for pound. It is a fact that should be brought to the attention of farmers living in sections of Kansas where kafir is a more sure grain crop than is corn.

This last trial introduces the feeding of ground kafir heads, and this is of great practical value, since the expense of handling kafir in the grain form has been against it. The grinding of the heads simplifies this matter, and should be more generally adopted. It will widen the use of kafir as a substitute for corn in feeding stock on the farms where it is grown, and there is no other class of animals that will make better use of kafir than will sheep. The complete report of this last test will be looked for with considerable interest by farmers in the kafir-growing regions of the state.

Feeding Lambs With Self-Feeder.

Twenty-eight lambs fed for 40 days by the self-feeder method at the Agricultural Experiment Station at Lincoln made an average daily gain per head of over 20 pounds in a test which closed recently. The net profit per head was \$1.45. The cost per 100 pounds gain was \$7.34.

Pea size oil meal and prairie hay were kept constantly before the lambs from the beginning of the test. Corn was added and gradually increased beginning with the third day. At the close of the third week, the lambs were consuming about two pounds of corn and one-half pound of oil meal per head daily. At the end of the experiment, they were consuming one-half pound more of corn per day and the same amount of oil meal. The average daily consumption of prairie hay per lamb was about one-third pound. Corn was valued at 60 cents a bushel, oil meal at \$40 a ton, and prairie hay at \$9 a ton.

Experiments with ten other lots of lambs of 28 each, being fed for 70 days, will close about the middle of March.

From Wheat to Live Stock.

We have just received a letter from a farmer who tells of his experience in wheat farming and how he had to give it up because "luck" seemed to be against him. It illustrates the risk attendant upon exclusive wheat farming, and points the way to a safer system which includes



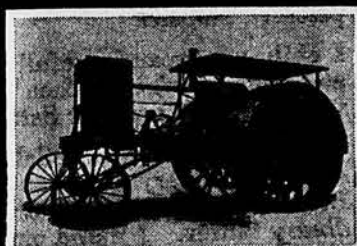
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WHEN WRITING ADVERTISERS, MENTION KANSAS FARMER.

the raising of some live stock and more diversified farming.

This young man secured the necessary tools, rented a piece of land near home, and seeded it to wheat, the seed costing \$1.25 a bushel. The following season he threshed two and a half bushels to the acre. He tried it again, his wheat yielding the following season, twenty-one bushels. This just about enabled him to pay off his loss of a year before. He tried it once more, but a May hailstorm took his whole crop. This was the last blow. If he had been milking some cows, keeping a good flock of chickens, and some other live stock, there would have been something coming in even though the wheat did fail.

This young man decided he would begin anew by purchasing a small farm and starting on an entirely different plan. The plan adopted is one that will make Western Kansas farming far safer than it generally is where wheat is relied upon as the sole crop. The safe method is simply the growing of feed enough for the stock that should be kept and providing for the family table by the growing of vegetables and fruits, the milking of a few cows, the keeping of some hens, and the growing of animals for meat.

After definitely planning for all these things, wheat can be grown not as the only source of revenue, but as the cash crop, from which improvements can be made and better equipment provided. Too often when a good crop of wheat is secured it is all used in paying the bills that have accumulated. The diversified plan, involving the growing of live stock, is far safer, and those who have tried it out are getting ahead. They are making a comfortable living for themselves and their families, are improving their places and helping to build up a permanent prosperity where there has been entirely too much living from hand to mouth.

LIVE STOCK ON TENANT FARMS.

(Continued from Page Five)

small as to merit but little consideration. Apparently, then, from the standpoint of the best interests of the community for the present and in years to come, stock farming by tenants should be encouraged as much as possible.

STOCK FARMING PROFITABLE.

The question arises, "Does stock farming pay?" Many on the basis of the last two years probably have decided that crop farming is more profitable than stock farming, but those who have been following stock farming for the last ten or fifteen years know that on the average their income has been better than that of their neighbors who have been crop farmers. Not only have the average yields been greater on the stock farms, but they are in better condition and their owners have accumulated more wealth than those who have grown crops almost exclusively. It is interesting here to note some results secured recently in a survey made in Iowa to determine the relation of the type of farming to crop yields and to labor income. The figures are given in the table below:

LIVE STOCK AND LABOR INCOME.

Animal Units per 100 Acres	Per Cent Receipts from Crops	Yield of Corn	Tenant's Labor Income
5	88.1	35	\$ 485
8.1	75.4	43	736
13.9	45.5	47	1,215
27.8	13.5	54	1,649

The table shows that where the number of animal units per 100 acres was 5 and the per cent of receipts from crops was as much as 88, the yield of corn was only 35 bushels an acre and the tenant's annual labor income was \$485. As the number of animal units per 100 acres increased, the per cent of total receipts from crops decreased while the yield of crops and the tenant's labor income increased very materially. This holds true in normal years. During the last two years it has not been true, in many instances. In some investigations made in Kansas for 1914, it was found that the greater the crop area and the greater the proportion of the income from crops, the greater was the labor income, and the same has been true in 1915, largely because of the unusually high prices for corn and wheat and the unsatisfactory markets for live stock. On the basis of the last ten years, however, we can speak with confidence in saying that the live stock farmer has been more successful than the crop farmer. This being demonstrated, we believe that a system of farming in which live stock will have a large part will appeal to the average tenant and it certainly should appeal to the landlord, because under present conditions it is the only way in which his capital—that is, his land—may be maintained at highest efficiency.



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on the Quality of anything produced by the soil. That's why farmers are among the biggest consumers of "PIPER." They recognize the supreme quality of leaf in this highest type of chewing tobacco in the world.

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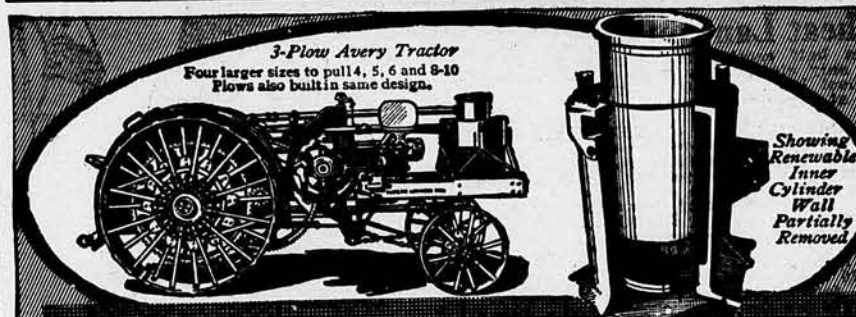
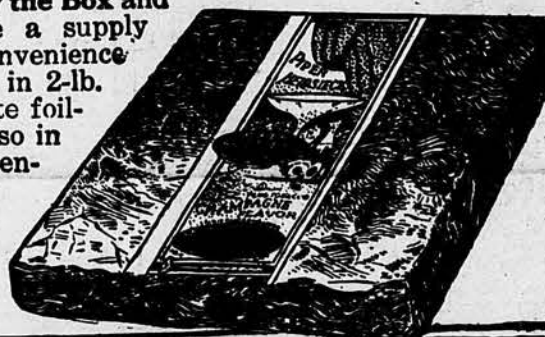
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miles good high school town; good soil; big
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160 Acre Farm, 8 miles Logan; 90 acres
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Little Talks to Housekeepers

Helpful Hints Here for the Women Folks of the Farm

Precautionary measures against tak-
ing cold are timely for the month of
March. Fresh air and exercise are ex-
cellent preventives. The active person
who spends much time in the open is
much less susceptible to colds than is the
shut-in. If we cannot be outside, let us
admit as much of the outside air as pos-
sible, to the house.

Raisin Bread.

Just before putting the bread into
pans, cut from the dough a small
amount. Add one-half cupful butter, two
eggs, one cupful sugar, one cupful seed-
less raisins, flour enough to knead soft.
Let rise again, put in pan, and bake
when very light.

Creamed Potatoes.

Peel the potatoes and slice thin.
Cover with water and cook until tender
but not until slices break. Pour off
water, season with butter, cream, and
pepper. The salt, of course, should be
added at time of cooking.

Two Helpful Bulletins.

Because one special week has been set
aside for the consideration of babies'
needs, it does not mean that the matter
will end there. Many agencies are at

work spreading information that has a
bearing on the better care and develop-
ment of children. The United States
Government has established a children's
bureau and much helpful advice is being
given in this way. Two bulletins issued
by this department, which should be read
by every mother and prospective mother,
are "Pre-Natal Care" and "Infant Care."
These can be obtained by writing Chil-
dren's Bureau, Federal Department of
Labor, Washington, D. C.

Sweet Pea Trench.

Sweet peas can be planted as soon as
the ground can be worked. A good way
to determine this time is by taking up
a handful of the soil and pressing it
into a ball. If the dirt falls apart again,
it is dry enough to be worked.

The peas should be planted deep
enough so that the warm days this side
of freeze limit will not bring them
through the ground, and still shallow
enough so that they will lose no time
coming through as soon as the danger
from freezing is past.

If the peas are planted now, they will
be there to sprout and grow when
weather conditions become favorable.
But the ground may not be workable

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No. 7563—Girls' Dress: Cut in sizes 4, 6, 8, 10 and 12 years. Any of the striped
materials can be used to make this dress, with the trimming of plain material. The
dress closes at the front and may be made with long or three-quarter length sleeves.
The skirt has four gores. No. 7544—Ladies' Dressing Sacque: Cut in sizes 34 to 42
inches bust measure. Any of the pretty crepe materials can be used to make this
dressing sacque. The smocking at the front and back may be used or omitted, as
preferred. Collar and cuffs are of contrasting goods. No. 7538—Girls' Dress: Cut
in sizes 4 to 12 years. Linen, gingham or serge can be used to make this dress,
with the trimming bands of contrasting or plain material. The dress closes at the
front and may have either long or short sleeves. The skirt is cut in three gores,
closes at the left side of the front and may be made all of one material or of two.
No. 7548—Ladies' Skirt: Cut in sizes 34 to 42 inches bust measure. This dress
The skirt is cut in three gores and may be made in regulation or shorter length.
No. 7548—Ladies' Skirt: Cut in sizes 22 to 32 inches waist measure. This skirt is
cut in three gores and has plaited sections on the left side. High or regulation
medium size. No. 7556—Ladies' Dress: Cut in sizes 34 to 44 inches bust measure.
This dress has a plain waist with side front closing and a separate shield and collar.
The skirt is cut in two gores and is joined to a yoke. Long or short sleeves may
be used.

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grit or mottles in my butter, either.
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never saw anything to beat it. Try
Worcester Salt in your butter—
you'll get better butter and better
prices, just as I do.

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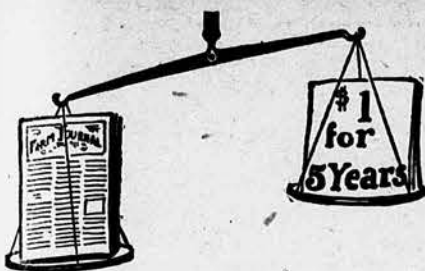
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NEW YORK CITY.

later, in time to give the peas a good early start.

It is as easy to support two rows of peas as one, on the same fence.

The trench should be dug north and south.

Washington's Rules of Etiquette.

We have just come upon a quotation from a diary which was kept by George Washington when he was a young man. A part of the diary was devoted to "Rules for behavior in company and conversation" and it was from this the quotation was taken. Through lack of use, many of them have become old-fashioned, but these rules might well be revived, learned, and practiced in these days when so many little courtesies are overlooked:

"In the presence of others, sing not to yourself with a humming noise, nor drum with your fingers or feet.

"Speak not when others speak, sit not when others stand, and walk not when others stop.

"Turn not your back to others, especially in speaking, jog not the table or desk on which another reads or writes; lean not on anyone.

"Mock not, nor jest at anything of importance; break no jests that are sharp or biting and, if you deliver anything witty or pleasant, abstain from laughing thereat yourself.

"Be not apt to relate news if you know not the truth thereof.

"Think before you speak; pronounce not imperfectly, nor bring out your words too hastily, but orderly and distinctly.

"When your superiors talk to anybody, hear them, neither speak nor laugh.

"Labor to keep alive in your breast that little spark of celestial fire called conscience."

The Canning Garden.

Fruits and vegetables are very valuable in the diet. They do much toward keeping the system in good running order and this is all-important to the health.

On most farms there is a garden which supplies the family with vegetables and small fruits in their season, but too few housewives realize that vegetables can be successfully canned for use during those months when there is no garden and when such vegetables are relished even more than in season.

Vegetable canning has passed the experimental stage. This work is now done as successfully as is the canning of fruits. The great secret of all successful canning is complete sterilization. The reason some have failed in canning vegetables, is that they have not excluded or killed the bacteria and spores present and which are bitter enemies. The parent bacteria are readily killed at the temperature of boiling water, but the spores or seeds are not so easily disposed of, and upon cooling will germinate and the new bacteria will begin destructive work. Complete sterilization is necessary, after which the jar caps should be carefully placed that all outside air may be excluded—not because the air will spoil the contents of the can, but because the air is apt to be full of bacteria.

There are several successful methods of canning both fruits and vegetables, and these will be thoroughly covered by KANSAS FARMER during the canning season and in time to be of use to our readers. Valuable help in this line can also be obtained by writing the Kansas

Agricultural College Extension Division and the Federal Department of Agriculture, for bulletins which have been issued on this subject.

The housewife who has not tried to can vegetables for winter use, will do well to begin this year. The start for such work should be made now by planning an additional amount of garden sufficient to supply the winter's needs of vegetables.

The work of canning will be most easily accomplished by making successive plantings of the vegetables to be canned, for in this way not all of it will come at once but a few cans may be put up at a time. Another advantage of planting in this way is that the season for the different vegetables may be lengthened and more of them may be enjoyed in the fresh state. Did anyone ever have enough green peas by the time the vines were dried and had ceased bearing?

In order to prove the possibilities in the field of canning, last year two Leavenworth County women—members of a mother-daughter canning club—successfully canned seventy-five and eighty-eight varieties of fruits and vegetables.

Baby Week.

It is highly commendable that we have awakened to the importance of the babies' needs to the extent of declaring a nation-wide baby week, March 4-11, at which time innumerable agencies will be at work organizing forces for the betterment of those conditions surrounding the lives of children.

However, if we live in a community that is not organized for this work, let us ourselves be vitally interested in the movement and thereby seek to spread the contagion for better environments for the child-life upon which the future of our nation depends. Let us first investigate our own methods. Let us make sure that we are in no way placing a stumbling-block in the path that leads to a noble manhood or womanhood—physically, mentally, and spiritually—and then let us, by example and kindly neighborliness, seek to help others to realize the importance of this work.

It is hard for us to believe that any mother wilfully neglects her baby. Occasionally an instance is brought to our attention which at first sight seems to be the result of lack of mother-love, but we feel almost sure that if all the facts were known, even in such cases ill health or ignorance would be responsible for the neglect.

The mother naturally and willingly does for her child the very best she knows that is within her power. Many mothers cannot do all they would like to do for their babies, but it may be the things they would like to do are not to the best interest of the baby. Many do for the baby, things that might better be left undone. We refer to those over-fancy clothes the making of which greatly taxes the mother's strength and keeps her indoors when she should be exercising in the fresh air and sunshine. Simply-made clothes are better for the baby. The garment that can be put on with the least amount of trouble and that has no rough, irritating edge to come in contact with the baby's tender skin, is preferable to the complicated, lace-trimmed garment.

Too much stress cannot be laid upon the benefits to be derived from a careful study of the requirements of mother and babe, to the end that both may be strong and healthy and happy—all requisites of a normal child.



KNOX CHERRY SPONGE

Soak ½ envelope Knox Sparkling Gelatine in ½ cup cold water 5 minutes and dissolve in 1 cup canned cherry juice that has been heated. Add 1 ½ cups canned cherries, stoned and cut in halves, ½ cup sugar and 1 tablespoonful lemon juice. When mixture begins to set, add whites of 2 eggs, beaten until stiff. Turn into mold first dipped in cold water, and chill. Garnish with whipped cream, sweetened, and flavored with vanilla, and chopped cherries. Other canned fruits may be substituted for the cherries.

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DES MOINES INCUBATOR CO., 83 Second St., Des Moines, Ia.

Tells why chicks die

E. J. Reefer, the poultry expert, 4633 Farmer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure It." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 95 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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Brooders with warm dirt floors save incubator chicks. Any brooder can be changed to this kind. Send us five to eight names of friends who use incubators and we will tell you just how to change your old brooder or to build these from an ordinary box. We will also tell you why chicks die in the shell. ABSOLUTELY FREE FOR THE NAMES. THIS WILL SAVE YOU \$100.00 THIS SUMMER. SEND NAMES TODAY.

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Rose Comb Reds, mated to roosters costing \$15 to \$35. Fifteen eggs, \$2; thirty eggs, \$3.50; fifty eggs, \$5. Splendid range flock, \$5 per hundred. Send for catalog.

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Co-operative Egg Selling Groups

FARM women, in a number of Southern communities, are being encouraged by the demonstration agents to form co-operative egg-selling associations, the object of which is to secure better prices for poultry products. Members of these associations send all their eggs freshly gathered to one member, who tests and grades them carefully, packs them attractively, and sees to their shipment and sale. The product of the group is sold co-operatively, the members paying their proportion of the cost of handling and sharing in the profits. The agents representing the department and state college help these groups by giving their members instructions in shipping by parcel post and express, in grading and testing eggs, and in choice of containers. In several of these groups the members have come to appreciate the value of a standardized product and, therefore, have agreed to raise the same breed of chickens and thus produce the same grade of eggs.

The following report from Mississippi, where there are 50 co-operative egg-selling associations and two junior poultry clubs, is typical of the work in the other Southern states. An association with a packing center at Centerville has a membership of 17. A secretary-manager is paid 1 1/2 cents per dozen to do the packing, which is done in an old school building. This club has sold more than \$500 worth of eggs at prices substantially above the local market quotations. Another association, with a packing center at Woodville, has a membership of 20. They pay their secretary-manager 2 cents per dozen. The grading and packing are done by committees of three, which serve in turn. A local railroad agent has allowed the members to use part of the depot for a packing room. The association has an electric tester and scales for weighing the eggs. Under its standard, it does not accept eggs weighing less than 2 ounces each. The first shipments were made in commercial cases, but the eggs are now packed in one-dozen cartons and shipped in the cases. This association separates fertile from infertile eggs and secures a premium for the infertile ones. They have sold 3,815 dozen at an average price of 24 cents.

Pedigree Hatching.

Chicks hatch in sacks on the agricultural college poultry farm. On the eighteenth day after the hen is set the eggs are put in individual mosquito netting sacks. This is done so that when the chicks hatch each one will stay with his shell.

On the twenty-second day the chicks are taken out of the incubator and unsacked. Each egg has a number on it—the number of the hen that laid it. This number is placed on the records. A numbered band is put on the chick and recorded with the former number. All records of the egg production and fertility of the parentage of the chicks are complete. In this way the inferior fowls can be weeded out and an improved line produced. This idea will be of value to the breeder desiring to hatch different strains in the same incubator.

Ration for Chick Feeding.

The Ration: Mixture No. 1—Rolled oats, 8 pounds; bread crumbs, 8 pounds; sifted beef scrap, 2 pounds; bone meal, 1 pound.

Mixture No. 2—Wheat (cracked), 2 pounds; cracked milo or corn (fine), 2 pounds; pinhead oatmeal, 1 pound; millet, 1 pound.

Mixture No. 3—Wheat bran, 3 pounds; milo, kafir or meal, 3 pounds; wheat, middlings, shorts, 3 pounds; beef scraps (sifted, best grade), 3 pounds.

Mixture No. 4—Wheat (whole), 2 pounds; kafir, milo or corn, 2 pounds; hulled oats, 1 pound.

Mixture No. 5—Kafir, milo or corn, 3 pounds; wheat, 2 pounds.

The Method: One to five days, Mixture No. 1, moistened slightly with sour skimmed milk, fed five times a day; Mixture No. 2 in shallow tray containing a little of No. 3 (dry), always before chicks. Shredded green food and fine grit and charcoal scattered over food.

Five days to two weeks—No. 2 in light litter twice a day; No. 3 moistened with sour skim milk, fed three times a day; No. 3 always available.

Two to six weeks—As above except

that moist mash is given twice a day.

Four to six weeks, or until chicks are on range—Reduce meals of moist mash to one a day; Mixture No. 4 in litter twice a day; dry mash always available.

Six weeks to maturity—No. 3 and No. 5 hopper fed. One meal a day of moist mash if it is desired to hasten development.

Directions: Provide fine grit, charcoal, shell and bone from the start. Give grass range or plenty of green food. Fresh water. Feed only sweet wholesome feeds. Avoid damp and soiled litter. Disinfect brooder frequently. Provide shade, fresh air and protection from the sun.

Ration for Laying Hens.

The following whole grain mixture is fed morning and afternoon in a straw litter: Sixty pounds milo, kafir, or corn.

Whole Grain: Sixty pounds wheat, barley, or heavy oats.

The following mash is fed dry in a hopper kept open during the afternoon only: Milo, kafir, or corn meal, 60 pounds; wheat middlings (shorts), 50 pounds; wheat bran, 30 pounds; cottonseed meal, 15 pounds; beef scrap, 35 pounds; salt, 1 pound.

The fowls should eat about one-half as much mash by weight as whole grain. It is a good idea to feed only a very little grain feed in the morning and all they want late in the afternoon. This ration should be supplemented with some succulent green feed the fowls will eat. It is important that they have some form of green feed daily.

Grit and oyster shells are necessary, also cool and clean surroundings, with plenty of fresh water.—Texas College Bulletin.

The fertility of eggs is lower during the cold months than it will be later, but a few early-hatched chicks are worth more than many late-hatched ones.

Conkey's Roup Remedy cures your hens. A good preventive, too. 50c, postpaid. Conkey Co., Cleveland, O.—[Adv.]

Tainted or filthy drinking water may start trouble in winter as well as in summer. It pays to have pure water before the fowls at all times, just as a preventive of disease.

There is a heavy demand in foreign countries for American eggs, and several good sized consignments have already been shipped. Upwards of 10,000 cases of eggs were exported from New York in one week lately. Boston is also making large exportations of eggs and chickens.

Henry Sloan, of Kansas City, was fined \$2,000 in the federal court of Buffalo, N. Y., for shipping rotten eggs to be sold as food, from Kansas City to Buffalo.

Over 1,000,000 pounds of poultry, consisting of 3 and 3 1/2-pound chickens, were shipped from the port of New York in one day last month; and it is stated that orders for the same number of pounds are on hand for export shipment during this month. With such large quantities of American poultry going to European markets the outlook for poultry raising is bright indeed.

All cold storage eggs sold in the city of New York must be stamped as such, according to an order recently issued by John J. Dillon, State Commissioner of Foods and Markets. In addition all dealers in cold storage eggs must display signs stating that cold storage eggs are for sale. It is said that 75,000 cases of cold storage eggs were being sold and consumed weekly in New York as strictly fresh eggs, before this order went into effect.

Before scientific study made poultry feeding the exact science that is now is, many practical poultrymen had found by actual experience that oats made a good feed for fowls; but now careful analysis shows this grain to be altogether the best balanced grain feed that can be given to laying hens, and this is especially true when the oats are sprouted and fed in the early stages of germina-

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Alfred Cramer, Morrison, Mo., says: "I have operated about ten other incubators and the Queen is superior to any of them." S. L. Todd, Green Forest, Ark., says: "I have tried six other machines, high and low priced, and the Queen is the best incubator I ever saw." Book Free.

QUEEN INCUBATOR CO., 130 Bryan Ave., Lincoln, Neb.

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Our Boone County White, awarded gold medal at Frisco Pan-Am. World's Fair, 1915, is the strongest type of pure white corn in existence. The germination and root strength unsurpassed, brought to this point by years of careful propagation. Field picked, thoroughly dried, butted, tipped and hand shelled. Price per bushel, \$5.00, f. o. b. our station; sacks free.

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Pure white-blooming variety. Unhulled, 18c; hulled and scarified, 20c per pound. Plump, well matured and re-cleaned.

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MARCH 4, 1916

tion, so that no one can afford to neglect its daily use for his fowls.

If coarse oatmeal can be procured at a reasonable price—say not over three cents a pound—it makes one of the very best foods that can be given to young chicks, and we would feed more of it than any other kind of feed. Rolled oats are also good if the coarse kind cannot be procured. Broken rice is also a very good chick feed, though too much of it might injure them, as it swells considerably after being taken into the crop. Rice is best fed the last thing at night, as considerable time is required for it to digest.

There is a great deal in getting the full value from the feed that is used on the poultry farm. With the same amount of food one man will have better conditioned chickens than another. It is not so much in the quantity you feed as in the way it is fed. This does not mean that there is but one way of feeding chickens, but it does mean that there is a right way and a wrong way. You have seen farmers throw out a lot of corn for the chickens, possibly the first thing in the morning. The hens rush for the spot and are soon filled with the corn, and are likely to hang around until they are fed again. Now, if this man had given a small quantity of oats, and had thrown it in the litter in the poultry house, they would have been compelled to work for it. They would have been benefited by the exercise and would have kept up the search for the grain all morning. The heavy ration of corn could have been fed with better results at night, for the last feeding of the day. Haphazard feeding of fowls is expensive, and not conducive to good results.

The selection of the grains that make up the feeding ration of the fowls counts considerably. It will pay to buy two or more kinds, even if the price differs somewhat. Even when corn is plentiful and cheap, it will pay to buy some wheat, for the feeding value of wheat for eggs is greater than that of corn. You will not have to feed so much, and the fowls will get more good from the smaller amount of wheat than from a larger portion of the corn. The proper thing to do is to get as large a variety of the different grains as possible. Possibly you cannot get all the kinds you wish in the section that you live in, but you can get some of them. Among the feeding grains you will find wheat, corn, oats, peas, kafir, millet, and buckwheat. Keep these in separate barrels. Now as to the feeding of these various grains: The best thing to do is to feed the lighter grains in the morning. The mash which you probably will feed at noon will be the proper thing at that time. Then at night you can feed corn and some wheat or, if you prefer, one night all corn and the next night all wheat. This gives the birds a variety and will be productive of good results. Do not waste any of the grains. See that there are not any left to go to waste on the ground. The morning grain should be scattered in the litter. You will save money by careful feeding and at the same time get better results.

If farmers could be convinced of the great value of skim milk as an addition to the hen's ration, we are sure that they would feed more of it to their flocks. In a recent experiment at Purdue University they got an average of 32.5 eggs per fowl when fed no meat; 135 per fowl when fed meat scraps, and 135.4 when fed skim milk. All had the same rations outside of the meat scraps and skim milk, viz: ten pounds corn, ten pounds wheat, five pounds oats, five pounds bran, five pounds shorts. The meat-scraps pen had three and one-half pounds of meat scraps and the skim milk pen had fifty pounds of skim milk in addition to the grain ration. The highest laying pullet was in the skim milk pen and laid 197 eggs. The poorest layer produced six eggs and was found in the no meat food pen. The experiment was made with Leghorn pullets and it cost about one dollar to feed a pullet one year. The stock, environment, and methods of management were the same, therefore any difference in egg production between any of the pens must have been due to the difference in the ration. The profit per bird was, in the meat scraps pen, \$1.55; in the skim milk pen, \$1.62; with a loss of 10 cents per bird per year in the no meat pen. The skim milk was valued at 30 cents per hundred pounds. The most striking feature of the experiment is the influence of animal protein on egg production. The addition of some form of meat food in a ration increased the egg production about a hundred eggs per pullet per year. This would mean 10,000 eggs in a farmer's flock of one hundred

hens. The skim milk pen laid more eggs in the winter time than any of the other pens and this is the time when the price of eggs is highest. On nearly every farm there is lots of skim milk, and there is no more profitable way of feeding it than to the poultry.

Thirty Years With One Breed.

Thirty years ago I bought ten Light Brahma pullets. I bought these because they would stand the confinement and I would be likely to have less trouble with my neighbors than if I selected a light weight breed.

I had some trouble getting a male to head my pen, as there were not many breeders of this breed in Kansas. I did what everyone should do in buying a male to head a pen—I looked the females over carefully and told the breeder to whom I wrote, where they were most deficient. Having this information, most breeders will send a bird that will improve the stock. I got my male, paying \$5, and from this mating I raised 240, and from them selected a few good pullets to mate up for the next year. I then sent to an Eastern breeder and paid \$10 for a cockerel. This one weighed fourteen pounds and was well worth the price. That year I mated three pens, and by so doing saved the introduction of new blood later. In other words, I commenced line breeding. Since that time I have purchased three males, but always of the same blood. Many a flock has been ruined by introducing new blood lines of which nothing is known except that they had been winning prizes in the shows.

After culling very closely I found I had a flock that was good enough to warrant my offering eggs for sale. To secure publicity, I sent stock to shows at Newton and Topeka, and won some good ribbons. These were score card shows, and they were worth to me—a beginner—a great deal.

I cull out my cockerels in the fall and any that will not do for breeders are fattened and sold as roasters. There is nearly always a good demand for them at holiday time. I never sell a cull for a breeder at any time. The person to whom a cull has been sold, will invariably point it out to some visitor as coming from your flock, but will never say that it was a cull. I ask a fair price for breeding stock and give the buyer good value for his money. A customer so treated will keep coming back.

My advice to beginners would be to not use inferior males for breeding pens under any circumstances. Do not try to raise two hundred or more chickens where fifty would crowd the quarters, and never sell cull stock for breeding purposes. Do not feed too much heavy feed to young chickens, but give range and green feed, with just enough grain to keep them growing nicely. Cull out your stock early in the fall and always give your customer a square deal. You cannot expect to please all, but you will find that to stay in the business you will have to be absolutely square. Do not advertise what you cannot make good.—W. H. WARD, Reno County.

Those who are having their first experience in raising chicks by artificial brooding, should remember that the little chicks must be taught to get under the hover. There is always a possibility of their getting outside and bunched in some corner. By gently pushing them under the hover they soon learn where the warmth is. Little chickens like to scratch, and should always have a supply of chaff or alfalfa leaves in the brooder when they are first put out.

Poor fertility in eggs is the cause of much trouble. Frequently incubators are condemned because the eggs do not hatch better, the real difficulty being that the eggs are weak in vitality and could not be hatched into strong chicks by any system of incubation. When a large per cent of eggs are tested out as infertile, the balance are likely to be of low vitality. The vitality of eggs usually becomes stronger later in the season. In order to improve fertility, breeding stock should be encouraged to take all the exercise possible, and should be given a variety of food, including green material of some kind. In buying eggs of breeders for hatching purposes, it is well to remember that the eggs are not likely to be as strongly fertile early as later. The breeder selling eggs should also be careful and not guarantee too high a per cent of hatch until he knows absolutely how the eggs are hatching. The safest plan is never to sell eggs for hatching purposes until at least one hatch has been made at home.

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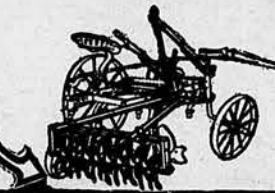


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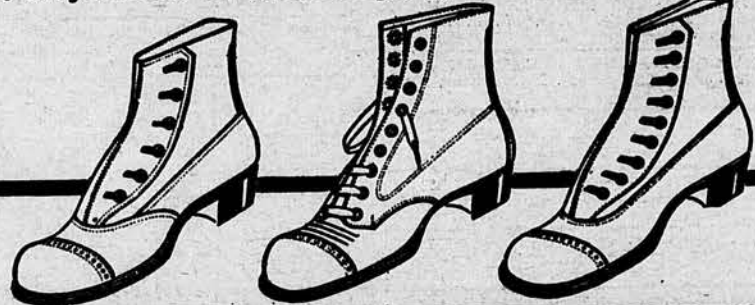
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MAMMOTH BRONZE TURKEYS OF EXCELLENT breeding and quality. Parents winners at Kansas State and other shows. 1915 hatch won at late Panama-Pacific Exposition. Write your wants. Mrs. H. E. Bachelder, Fredonia, Kan.

LANGSHANS.

EGGS FROM VIGOROUS PURE-BRED White Langshans, \$1 per setting, \$5 per hundred. Mrs. Arta Craven, Maryville, Mo.

HIGHEST CLASS LANGSHANS—PEN A is headed by a 96 cockerel. Catalog free. J. A. Lovette, Poultry Judge, Mullinville, Kan.

BLACK LANGSHANS—EGGS FROM blue ribbon and sweepstakes winners; pen and range. Mrs. D. A. Swank, Blue Mound, Kan.

ORPINGTONS.

CAREY STRAIN WHITE ORPINGTONS—Prize winners. Settings, \$2 to \$5. Mrs. Helen Lill, Mt. Hope, Kan.

BUFF ORPINGTON DUCKS AND drakes, \$2-\$3 each. Mrs. Chas. Snyder, Effingham, Kan.

BUFF AND WHITE ORPINGTON COCKERELS. Prices reasonable. Clarence Lehman, Newton, Kan.

PURE-BRED SINGLE COMB BUFF ORPINGTONS; laying strain. Eggs, \$1 per fifteen, \$5 per hundred. Louis Mueller, Orlando, Okla.

SINGLE COMB WHITE ORPINGTON eggs, \$2 per fifteen. Roy Young, Leonardville, Kan.

S. C. BUFF ORPINGTONS—THE KIND that win, lay and pay. Good buff color, shape and size. Eggs, \$1.50 per fifteen. A. L. Beall, Green Castle, Mo.

FOR SALE—BIG AND BUFF TO THE hild, Single Comb Orpingtons. Eggs, \$5 per hundred, \$1.50 per setting. Mrs. N. J. Alvis, Meriden, Kan.

BUFF ORPINGTONS—STRICTLY FANCY matings, splendid winter layers. Eggs, \$1.50 per fifteen, prepaid. White Runner Duck eggs, \$1.25 per thirteen, prepaid. J. F. Cox, Route 28, Topeka, Kan.

ORDERS BOOKED NOW, MARCH, APRIL, MAY, Buff Orpingtons. Large, vigorous, true color, great laying strain, headed by prize 13-pound cock, no better blood in United States. Eggs, fifteen, \$2; hundred, \$10. Indian Runner Ducks, specially marked, lay year round, eggs, fifteen, \$1.50. Mammouth White Holland Turkeys, tom 40 pounds, eggs, ten, \$2.50. G. Stewart, Henderson, Iowa.

BABY CHICK FEED.

FINE QUALITY BABY CHICK FEED, \$1.75 cwt. f. o. b. Ft. Scott, Kan. "Brooks Best" Calf Meal, \$3.25 cwt. Brooks Wholesale Co. (Poultry Ads Continued on Next Page.)

Classified Advertising

Advertising "bargain counter." Thousands of people have surplus items of stock for sale—limited in amount or numbers hardly enough to justify extensive display advertising. Thousands of other people want to buy these same things. These intending buyers read the classified "ads"—looking for bargains. Your advertisement here reaches over 300,000 readers for 4 cents a word per week. No "ad" taken for less than 60 cents. All "ads" set in uniform style, no display. Initials and numbers count as words. Address counted. Terms, always cash with order. **SITUATIONS WANTED** ads, up to 25 words, including address, will be inserted free of charge for two weeks, for bona fide seekers of employment on farms.

HELP WANTED.

YOUNG MAN, WOULD YOU ACCEPT A tailor-made suit just for showing it to your friends? Then write Banner Tailoring Co., Dept. 277, Chicago, and get beautiful samples, styles and a wonderful offer.

LADY OR GENTLEMAN TO TRAVEL for old established firm. No canvassing. Staple line. Salary, \$18 weekly, pursuant to contract. Expenses advanced. Address G. M. Nichols, Pepper Bldg., Philadelphia, Pa.

FARMERS GET \$15 MONTH. MEN AND women. U. S. Government jobs. Short hours. Easy work. Common education sufficient. Write immediately for list of positions now obtainable. Franklin Institute, Dept. H82, Rochester, N. Y.

TELEGRAPHY—MORSE AND WIRE- less. Also station agency taught. R. R. and Western Union wires and complete Marconi wireless station in school. Graduates assisted. Marconi Co. employs our wireless graduates. Low living expense—easily earned. Largest school—established forty years. Investment \$25,000. Correspondence courses also. Catalog free. Dodge's Institute, Bonner St., Valparaiso, Ind.

WANTED—RESPONSIBLE REPRESENT- ative. 12 tools in 1. Sells to farmers, farmers, contractors, etc. Lifts 3 tons, hoists, stretches wire, pulls posts. Many other uses. Free sample to active agents. One agent's profit \$45 in one day. Another \$1,000 in December. We start you. Write for big color plate. Secure exclusive sale. Harrah Mfg. Co., Box M, Bloomfield, Ind.

REAL ESTATE.

NORTHWEST KANSAS ALFALFA FOR sale. Geo. Bowman, Logan, Kan.

OKARKS OF MISSOURI, FARMS AND timber lands, from \$5 to \$40 per acre. Write for list. Avery & Stephens, Mansfield, Mo.

FOR SALE—PANHANDLE AND OKLA- homa land. Write D. Thoburn, Higgins, Texas.

SOUTHERN FARMS—MISSISSIPPI, AR- kansas, Tennessee. Send for booklet. Martin & Cole, Memphis, Tenn.

WELL LOCATED FINE FARM, OKLA- homa land. Write W. T. Davidson, Abilene, Kan.

WANTED—TO HEAR FROM OWNER OF good farm for sale. State cash price and description. D. F. Bush, Minneapolis, Minn.

WANTED—TO HEAR FROM OWNER OF good farm for sale. Send description and cash price. R. G. List, Minneapolis, Minn.

WANTED—FARMS, HAVE 3,357 BUY- ers. Describe your unsold property. 679 Farmers' Exchange, Denver, Colo.

IMPROVED FARMS FOR SALE ON terms same as rent; low rate of interest. Netherow-Reid Realty Co., Eldorado Springs, Mo.

320-ACRE FREE HOMESTEADS; GOOD land; shallow water; free coal and timber; wonderful opportunity. Fox & Frazer, Gillette, Wyoming.

SEND DESCRIPTION OF YOUR FARM or ranch. We have cash buyers. Don't pay commission. Owners only. Write National Real Estate Exchange Association, Peru, Ill.

FOR SALE—A MODERN HOME IN Topeka, located on a good street, near school and business district; two lots, modern seven-room house, barn, a choice location. Will sell at a bargain. No trades. Address Z, care Kansas Farmer.

FARMS WANTED—WE HAVE DIRECT buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 43 Palace Bldg., Minneapolis, Minn.

HALF SECTION IMPROVED LAND TWO miles from county seat, two railroads, churches to fit most notions, and schools for a sizeable brain; good land, good roads, good shallow water, fields and pastures laid off for handy feeding. Six thousand dollars cash will swing this deal. Don't waste stamps with less. Easy time on balance. No trade. L. G. Conner, Canyon, Texas.

IN THE WORLD'S BEST CLIMATE— The Immigration office of the Elephant Butte Water Users' Association, Las Cruces, N. M., invites the homeseeker's attention to the unexcelled opportunities for dairying and general farming on Uncle Sam's greatest irrigation project. Only 45 cloudy days and 8.82 inches rainfall per annum. Associations shows lands, supervises sales, protects purchaser's interests, helps him to succeed. Write us.

HORSES AND MULES.

SHEPHERD PONIES, GELDINGS, MARES and colts, all colors. C. H. Clark, Leocompton, Kan.

MOUSE COLORED FOUR-YEAR-OLD Jack, 14 hands, worth \$200. Four Jacks. J. V. Schotger, Paola, Kan.

WORTH COUNTY JACK FARM— Twenty head of Jacks and Jennets, big boned and wide out. Corson Bros., Potter, Kan.

FOR SALE—FOUR JACKS FROM TWO to five years old. Guaranteed. At a price that will sell. H. C. Miller, Netawaka, Kan.

FOR SALE OR TRADE FOR REGIS- tered Percheron mares or fillies, five good black Jacks and one Jennet. A. N. Kennedy, Narka, Kan.

FOR SALE—TWO REGISTERED PER- cheron stallions, three and four years old. Also grade coach, seven years old. Jersey bull from 600-pound cow, or will trade for registered mares. G. H. Molby, Barnes, Kan.

FIVE GOOD SOUND BLACK REGIS- tered Jacks, guaranteed right every way, \$350 to \$700. Might trade for registered draft, Coach or Morgan. Lewis Cox, Concordia, Kan.

CATTLE.

REGISTERED JERSEY BULL PERCY Lull, Mt. Hope, Kan.

GALLOWAY BULLS FOR SALE. REG- istered. J. W. Priestley, Bolcourt, Kan.

HOLSTEIN CALVES—CHOICE HIGH- grades, crated. Heifers, \$20.00; bulls, \$15.00. L. D. Arnold, Manhattan, Kan.

HIGH GRADE HOLSTEIN CALVES, either sex, \$15 crated. Cows, \$90 to \$100. Paul McFarland, Route 7, Watertown, Wis.

FOR SALE—HIGH-GRADE HOLSTEIN cows and heifers, all ages. R. N. Martin, Blue Mounds, Wis.

FOR SALE—HIGH-GRADE HOLSTEIN heifer calves, \$15 each, crated. Edward John, Watertown, Wis.

HIGH GRADE HOLSTEIN CALVES— Heifers, \$17; bulls, \$15; registered Holstein bull calves, \$35. Findlay Bros., Whitewater, Wis.

REGISTERED HOLSTEIN BULL CALF— Fine individual, nearly white. Dam, two granddams, nearly white. \$60. O. S. Andrews, Greeley, Kan.

FOR SALE—ELEVEN-MONTHS-OLD pure-bred Guernsey bull. Sired by Bernice's Duke 1484, by Alpha's Duke 1491, herd bull at Kansas State Agricultural College, 1912. A. C. Larson, Galva, Kan.

ALYSDALE SHORTHORNS FOR SALE— Six good registered Shorthorn bulls of serviceable age, red in color, prices very reasonable. Write or call upon C. W. Merriam, Columbian Bldg., Topeka, Kan.

FIFTEEN OR TWENTY HIGH-GRADE Guernsey cows for sale. Guaranteed right and free from disease. Some with records. Also few heifers. Chas. Blott, Mukwonago, Wis.

CHOICE HOLSTEIN GRADE COWS AND heifers, mostly springers. The best obtainable. Save time, money and long shipments. Car loads a specialty. State requirements. Paul E. Johnson, Olathe, Kan.

NEW ULYSSES, KANSAS, FEBRUARY 12, 1916

KANSAS FARMER, TOPEKA, KANSAS.

GENTLEMEN: Please discontinue the poultry ad in KANSAS FARMER, as I have received orders for five times the pullets I had and have sold all my cockerels, just from the one insertion.

I think KANSAS FARMER is a fine advertising medium. Will continue ad for eggs at a later date. Very truly yours,

F. L. BLAINE.

MISCELLANEOUS.

FERRETS, FERRETS, RABBITS, GUINEA Pigs, Toulouse Geese. (Jewell), Spencer, O.

2,000 FERRETS FOR SALE. T. BRE- man Co., Danville, Ill.

MONEY TO LOAN ON IMPROVED KAN- sas farm lands. All negotiations quickly closed. No delays. A. T. Reid, Topeka, Kan.

TRADES AND CASH BARGAINS HAND- led everywhere. Hundreds of deals. Cash Exchange Co., El Dorado, Kan.

DRINK AND DRUG HABIT PAINLESS- ly and permanently cured in ten to fifteen days. You take no chances, pay only when cured. Hill Sanitarium, Ardmore, Okla.

FOR SALE—LATEST PLAT BOOK OF Shawnee County, 44 pages, size 14 x 19 inches. Shows each township in the county, with name of each property owner on his land, also rural routes, school houses, railroads and complete alphabetical list of taxpayers in county outside Topeka and Oakland. Satisfaction guaranteed. Cloth binding, \$5.00. To close out remaining Bristol board binding will sell a year's subscription to Kansas Farmer and Plat Book for only \$1.50. Last previous county map sold for \$10. Send all orders to Kansas Farmer, Topeka, Kan.

SILOS.

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

HONEY.

HONEY—FANCY WHITE EXTRACTED, two 60-pound cans, \$11; light amber, \$10; amber, \$8.50. Bert W. Hopper, Rocky Ford, Colo.

LUMBER.

LUMBER—WHERE AND HOW TO BUY it cheap. Send material list to Box 1502, Tacoma, Wash.

HEDGE POSTS.

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

PATENTS.

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

TANNING.

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

TREES, SEEDS AND PLANTS.

300 RUSSIAN OLIVE TREES, SIX TO ten feet. Farrar Nursery, Abilene, Kan.

SEED CORN. BRUCE SAUNDERS, HOL- ton, Kan.

PURE ST. CHARLES SEED CORN, \$1.25 per bushel. Frank Crosby, Route 2, Belvue, Kan.

FOR SALE—YELLOW DENT SEED corn, "Extra Good." Also German millet seed. Wm. Morth, Leon, Kan.

ALFALFA, SUDAN GRASS, CORN, other seeds. Free samples. F. D. DeShon, Route 4, Logan, Kan.

SUDAN SEED, GUARANTEED PURE, 10c per pound. Less for large quantities. P. P. Orr, Garfield, Kan.

EXTRA GOOD SELECTED YELLOW Dent seed corn, will test 95 per cent, \$2 per bushel. R. Sonnenmoser, Weston, Mo.

SEED CORN FOR SALE—WHITE ELE- phant, largest yielding early corn grown. G. Manville, Fayette, Mo.

PURE GOLD MINE AND BOONE COUNTY white seed corn, \$1.50 per bushel. Samples free. J. F. Feigley, Enterprise, Kan.

TREES AT WHOLESALE. CATALOG free. Agents wanted. Peyton Nurseries, Boonville, Mo.

ST. CHARLES WHITE SEED CORN FOR sale, \$1.40, tipped and sacked. Peter Rucker, Route 2, Carbondale, Kan.

PURE WHITE BLOSSOM SWEET CLO- ver seed, hulled, \$10 bushel. Samples free. Chas. F. Redding, Waverly, Kan.

500 BUSHELS CHOICE PURE "COMMER- cial White" seed corn. High germination. Sacks free. E. D. King, Burlington, Kan.

FOR SALE—SUDAN GRASS SEED AT 7 cents per pound in hundred-pound lots f. o. b. Lubbock. J. F. Perry, Lubbock, Texas.

RED TEXAS SEED OATS, DIRECT FROM Texas. Recleaned, graded and sacked, 70 cents per bushel f. o. b. Hiawatha, Kansas. Brown County Seed House, Hiawatha, Kan.

WHITE BLOSSOM SWEET CLOVER seed, guaranteed pure white. Hulled, \$10 per bushel, 60 pounds. Funston Bros., Farmers, Carlyle, Kan.

ALFALFA SEED—BLOODY BUTCHER, White Elephant and Iowa Silver Mine seed corn. I have it. Write for prices. Geo. E. Bass, Yukon, Okla.

PURE SUDAN GRASS SEED, NORTHERN grown, fancy quality and free from Johnson grass, at \$8 per hundred. Southern grown Sudan seed at \$6 per hundred. The Gould Grain Company, Dodge City, Kan., Drawer 718.

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BERMUDA GRASS.

BERMUDA GRASS—HARDY, RANGY growing variety. Stands floods, droughts, hot winds and severe freezing. Best and hardest pasture grass. Great milk producer. Write today for leaflet telling how to get started. Henry Jefferson, Ottawa, Kan.

THE STRAY LIST

TAKEN UP—By W. O. SMITH, OF Holington, Eureka Township, Barton County, Kansas, on January 25, 1916, one steer, color black, star in forehead, weight 750 pounds, appraised at \$25. C. F. Younk, County Clerk.

TAKEN UP, ON THE 10TH DAY OF January, 1916, by Frank Schibler, of Delphos, Logan Township, Ottawa County, Kansas, one heifer calf, color dark red, white underneath body, no brands; appraised at \$25. C. C. Davis, County Clerk.

TAKEN UP—BY CHARLES MOONEY, Hayes Township, McPherson County, Kansas, one horse about eight years, color bay with black points, white spot in forehead, reached mane, wire cut on left foreleg; appraised at \$100. W. E. Rostine, County Clerk.

DOGS.

GENUINE SHEPHERD DOGS—BEST OF all purpose farm dogs. Male pups, \$5 each. A. W. Jones, Route 4, Salina, Kan.

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

SITUATION WANTED.

SITUATION WANTED BY YOUNG MAR- ried man, on farm or ranch. H. R. Hawkins, Dugavant, Kan.

MAN AND WIFE WANTS JOB ON farm. No children. Have experience. Want house furnished. Can begin now. Lon Herrel, Arno, Mo.

TOBACCO.

KENTUCKY BEST NATURAL LEAF TO- bacco, smoking or chewing. Parcel post prepaid, 4 pounds, \$1.00; 10 pounds, \$2.00. Rosenblatt, Hawesville, Ky.

PURE BRED POULTRY

COCHINS.

PARTRIDGE COCHINS—ALL FULL- blooded stock, prize winners. Fifteen eggs, \$3. Hens or pullets, \$2 each; cockerels, \$4 each. Nicholas Bach, Hays, Kan.

BUFF AND PARTRIDGE COCHINS— Good stock for sale. Fine choice cockerels, hens and pullets. M. F. Lieward, Burr Oak, Kan.

DUCKS AND GEESE.

WHITE INDIAN RUNNERS, PURE- bred. Drakes, \$1. Bertha Louk, Michigan Valley, Kan.

SIXTY VARIETIES PRIZE WINNING geese, ducks, chickens, peafowls, guineas. Stock eggs cheap. Write wants. F. J. Damann, Farmington, Minn.

When writing advertisers, please mention Kansas Farmer.

Testing Galvanizing on Wire.

By the process of manufacture now in use, the length of service of wire fencing depends largely upon the quality and quantity of galvanizing on the wire. A common test that may be easily applied to determine the relative amount of galvanizing, or spelter, on a woven-wire fabric, as given in a recent Department Bulletin, No. 321, "Cost of Fencing Farms in the North Central States," is as follows:

Make a saturated solution of copper sulphate by dissolving 36 parts of copper sulphate to 100 parts of water by weight. Not less than a quart of the solution should be used in the test, and to make a quart of the saturated solution requires approximately 1½ ounces of copper sulphate, or, as it is commonly called blue vitrol. Slightly more than this amount should be used, however, as there should be a small excess of the copper sulphate. This may be either left in the solution or the solution may be strained off from it. The wire to be tested is immersed in the prepared solution, which should be at a temperature of 60° to 70° F., and left for one minute, at the end of which time it should be removed and wiped thoroughly dry. This operation should be repeated until the wire shows a deposit of metallic copper. The copper will not be deposited on the wire until the galvanizing is removed, and a well-galvanized wire should stand at least three immersions in the copper-sulphate solution without showing copper deposits on it. Some specially galvanized wire will withstand four immersions without showing copper. This wire is known as four-minute wire, and may be had at a slight advance in price. When the common commercial copper sulphate is used in performing the test there is a very slight excess of acid present in the copper sulphate solution, which, if not neutralized, may cause the solution to act more strongly on the wire than it should. The acidity may be neutralized by adding a small amount of copper oxide; two ounces to a quart of solution should be sufficient. On account of the nonsolubility of the copper oxide it must be added a long time—at least a month—prior to the time the solution is to be used.

When Writing to Advertisers, Please Mention Kansas Farmer.

POLAND CHINAS.

Henry's Big-Type Polands

March gilts, sired by Big Bob Wonder, Big Bone Jr., and Grand Orange. Bred or open. Also fall pigs, not related. Write me.

POLAND CHINA BOARS

\$18 for growthy, wide-backed, big-boned fall boars, weighing 130 pounds March 1. Sired by Big Orphan and out of sows by Mammoth Orange and Expansion Too. Also gilts of same breeding. Farm near Sibleyville.

F. S. COWLES, Route 2, Lawrence, Kansas

ARKELL'S POLANDS.
Choice Fall Yearlings and Spring Gilts. Yearlings by Longfellow Again, bred to Chief Big Bone. Spring gilts by Chief Big Bone, bred to Longfellow Again. Priced for quick sale.

JAMES ARKELL, R. 4, Junction City, Kan.

SPOTTED POLAND CHINAS
June and July farrow. Pairs or trios. Not akin. Recorded pedigree with each hog.

GEO. HENRY, JAMESTOWN, IND.

LANGFORD'S SPOTTED POLANDS.
Choice fall boars. Also boars for service. Must sell.

T. T. Langford & Sons, Jamesport, Mo.

OLD ORIGINAL SPOTTED POLANDS.
Booking orders for spring pigs.

A. S. ALEXANDER, R. 2, Burlington, Kansas

FARM AND HERD

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

Address All Communications to Kansas Farmer and Not to Individuals

Personal mail may have to be held for several days, or be delayed in forwarding, and Kansas Farmer cannot assume any responsibility for mistakes occurring thereby

CLAIM SALE DATES.

Jacks and Jennets.
March 9—G. M. Scott, Rea, Mo.
March 6, 1916—W. J. Finley, Higginsville, Mo.
March 7 and 8—L. M. Monsees & Son, Smith-ton, Mo.
March 15—Bradley Bros., Warrensburg, Mo.
March 20—G. C. Roan, LaPlata, Mo.

Shorthorns.
March 8—H. E. Huber, Meriden, Kan.
March 31—Consignment sale, South Omaha, Neb.
April 5 and 6, 1916—Central Shorthorn Sale, Independence, Mo.
April 18—Robert Russell, Muscotah, Kan.

Hereford Cattle.
March 4—Northwest Missouri Hereford Breeders' Association. Sale at South St. Joseph, Mo. Jesse Engle, Sheridan, Mo., sales mgr. H. D. Cornish, Osborne, Mo., Secretary.

Holsteins.
April 25—J. R. Smith, Newton, Kan.

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

Poland Chinas.
March 8—John Kemmerer, Mankato, Kan.

Hampshire Hogs.
March 7—Missouri Hampshire Breeders' sale, St. Joseph, Mo. Isom J. Martin, Mgr., Lancaster, Mo.

A. J. Erhart & Son, of Ness City, Kan., with probably the greatest show record of any Kansas breeders of big-type Poland Chinas, pulled off one of the best sales with the state record for this year of \$73.60 average on forty-seven head of bred sows and bred gilts. The sale was held at the state fair grounds at Hutchinson, Kan. The entire offering was in splendid condition and all were bred for early litters, mated to boars with show records. It will be remembered by a number of breeders that Erhart & Son showed one of the best herds of Poland Chinas last year that was shown at the Kansas and Oklahoma state fairs, winning a number of first and grand champion premiums.

F. S. Cowles, of Lawrence, Kan., one of the progressive big-type Poland China breeders who has succeeded in developing a type of Poland Chinas that is proving popular for breeders and farmers, writes that his herd is doing well. Mr. Cowles has one of the best herds of big-type sows in the state. They were sired by such boars as Mammoth Orange, a very high quality thousand-pound boar, and Expansion Too, an 800-pound boar carrying three crosses of Old Expansion. A feature of his herd at present is the outstanding lot of September boars and gilts sired by Big Orphan 72868, one of the great breeding Poland China sires now in service.

U. S. Byrne, of Saxton, Mo., held a very successful Poland China sale on February 23. Thirty-seven head of sows and gilts averaged \$46. A much higher average would have been had had not a number of the sows and gilts been bred for late farrow. The offering was in fine condition and all the sows and gilts that were bred for early farrow sold for good prices. A large crowd of breeders, both from Kansas and Missouri, were present.

W. D. Gott, of Bronson, Kan., owner of Climax Stock Farm, is one of the very successful breeders of high class Jacks and Jennets in this state. Climax Farm is the home of the famous herd Jack, Dr. McChord. This Jack is one of the most famous sires, and a number of the highest priced Jacks were sired by him, among them being Dr. Long that sold for \$2,500; Gen. Wood, \$2,500; Dr. Wood, \$2,000; Dr. McChord 3d, \$2,000; Hamburg, \$2,000; Dr. Cox, \$2,000; Dr. Leo, \$1,600; Dr. Lier at two years of age \$1,600, and many others at near that figure. Mr. Gott now has fifty head in his herd, including an outstanding lot of young Jacks of serviceable age.

A. S. Alexander of Burlington, Kan., owner of one of the good herds of old original Spotted Poland China hogs, writes that the demand for Spotted Polands has been good and that his sales of breeding stock the past year were the heaviest in the history of the herd. He has recently added some very high class herd material from some of the leading eastern herds. He has bred a number of his best sows for early farrow.

We have just received the report of the proceedings of the four meetings of the directors and the thirty-second annual meeting of the American Aberdeen Angus Association, held in 1915. The pamphlet contains the full proceedings of the annual meeting of the association and all meetings held by the directors during the year, as well as other information of value to Angus breeders. The report should be in the hands of every breeder of Aberdeen Angus cattle.

We have received the catalog of the offering of Jacks and Jennets to be sold by C. C. Roan, of Clover Leaf Valley Jack Farm in his annual sale to be held in his modern sale pavilion March 20. Forty head of high class Jacks and Jennets have been cataloged for this sale. All of the Jacks are broke for service. Every Jack in the sale is black with white points, and while they are in good flesh, they have been hardened by a system of exercise, and are ready for hard service. The Jennets cataloged are an exceptional lot of good breeders. A number of them have foals at side. The foals at foot are nearly all by Mr. Roan's great herd Jack, Yucatan.

The Poland China bred sow sale to be held by John Kemmerer, the well known Poland China breeder of Mankato, Kan., March 8, will be one of the late sales and inquiries for catalogs indicate that it will be one of the sale events of the season. An offering of forty-five head of tried sows, fall yearlings and spring gilts, sired by the best big-type sires of the breed and bred to splendid big-type sires, have been cataloged for this sale.

Mr. Robert Russell, of Muscotah, Kan., is claiming April 18 for a Shorthorn cattle sale, at which time he will sell fourteen strong, rugged bulls and eight heifers—all good farmer cattle. They are Scotch topped breeding, and the herd cows are bred for dairy purposes. The sire of this offering is Red Scotchman by Lord Lancaster, and his dam was Augusta Clipper Marie, a cow now used in the college herd at Manhattan.

W. B. Barney & Son, of Chapin, Iowa, owners of Home Farm Holstein herd, one of the heaviest producing herds in that state, report their herd doing well, and they expect to make some new high records for their herd. Florence Jewel De Kol Rauwerd 164594, a cow bred, developed and owned by Barney & Son, has made a thirty-day butter record of 120.17 pounds and a milk record of 483; best one-day milk record, 95.1 pounds.

The extent of appropriations for 1916 which the American Shorthorn Breeders' Association has made for the state and district fairs and expositions in all parts of the United States should lead to an increase in entries. The aggregate appropriation is far in excess of any previous amount set aside for this purpose. At fifteen of the principal state fairs, the Association offers \$1 for every \$2 offered by the fair association up to \$750 offered by the Shorthorn society. At twenty-seven interstate and district fairs the same ratio is maintained up to a maximum of \$500. The aggregate offered at the International, American Royal and the Pacific International (Portland), is \$12,500. In the future calf classes alone at the Iowa and Ohio state fairs, the American Royal and the International, \$7,000 is guaranteed by the Association.

In various sections of the country the ideal type Morgan horse is again coming into favor. The real Morgan type is 15 to 16 hands high, short of leg, thick and round barrel, courageous, possesses wonderful endurance and intelligence of a high order. This strain may be traced to the great horse, Justin Morgan, foaled in Vermont in 1793. He was a phenomenal horse in every way. From him descended the Black Hawk, Bashaw, Gold Dust, Lambert, and other noted families. One of the good herds of this noted breed of horses is owned by Charles J. Beck, Maplewood, Mo. We have just received the very neat private sale catalog issued by Mr. Beck. The catalog shows a very select lot of Morgan horses of all ages, and contains valuable information in reference to this excellent breed.

In addition to the very liberal appropriations made by the American Shorthorn Breeders' Association to pay cash premiums at the state and district fairs and expositions in all parts of the United States, silver trophies are offered at a number of the fairs and shows to breeders who have not previously shown at the state fair or national show. The Association will also co-operate in a material way with district and state breeders' associations holding shows in connection with public Shorthorn sales. The plan worked out by the Association offers an inducement to beginners and small breeders to enter the shows. It is designed not only to stimulate the effort of every breeder to attain a higher standard of Shorthorns, but to safeguard the venture as well.

G. W. Taylor of Abilene, Kan., owner of Pearl Shorthorn Herd, which is one of the noted herds of that breed in this state, reports a good demand for good Shorthorn breeding stock. A number of smaller sales and a recent big sale to a western breeder has closed out his surplus stock. Mr. Taylor's herd is drawn upon heavily for breeding stock and he never has any trouble in disposing of his surplus at very satisfactory prices.

The live stock breeder who builds up a mailing list is always in position to get in touch with prospective purchasers, and a large per cent of the value of advertising is lost to the breeder who neglects to build up one.

Kansas Farmers' Breeders' Directory is not only a cheap but a good method of keeping before the public throughout the entire year. By using the directory all the time, and space in the breed columns when there is a surplus to sell, many breeders have received the best of results. Write us for rates for the Breeders' Directory.

Never breed good mares to a grade sire, no matter how good he may look. The colts from such horse are an uncertain lot.

It costs as much to feed the poor milk cow as to feed the good milker. In the one case the feed is being lost—in the other it is bringing a good profit.

HOLSTEIN CATTLE.

CLYDE GIROD—At the Farm.

HOLSTEIN FRESIAN FARM

PURE-BRED AND HIGH-GRADE HOLSTEINS, ALL AGES.
We offer a number of grand young bulls, serviceable age, all registered, from A. R. O. dams and sires. Choice pure-bred heifers, some with official records under three years of age.
Two hundred excellent, high-grade, heavy springing cows and heifers, well marked, in calf to pure-bred bulls, to freshen before April 1. Fresh cows on hand, heavy milkers. Heavy calves six to ten weeks old, \$25. Bargains. Send draft for number wanted and we will express to you. Wire, write, or phone us. We can please you.

GIROD & ROBISON, Towanda, Kansas

HOLSTEIN CATTLE.

F. W. ROBISON—At Towanda State Bank.

260 - HOLSTEIN COWS AND HEIFERS - 260

If you want Holstein cows, springers or bred heifers, see my herd. I have them. They are very large, good markings, out of the best milking strains, bred to pure-bred bulls of the very best blood. Special prices on carload lots. Want to reduce my herd and will make bargain prices for thirty days.

J. C. ROBISON

TOWANDA, KANSAS



A THIRTY DAY HOLSTEIN SALE

Consisting of the following:

Fifty fully developed high grade Holstein cows, to freshen in the next three weeks.
Eighty high grade heifers, two and three years old, all springing.
Thirty registered cows and heifers, all bred to Johanna King Segis, the 40-lb. \$5,000 bull. Don't wait to write, but wire me at my expense when you will be here. They are priced to sell.

NEAL HOULET, OXFORD, WISCONSIN.
C. & N. W. Railroad.

Regier's Holsteins

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

G. REGIER & SONS, WHITEWATER, KAN.

IN MISSOURI

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

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

SUNFLOWER HERD

Prince Artis Pontiac Abbecker No. 136382 Heads Sunflower Herd. Only 30-pound bull in Kansas. Buy where the best breeding, best producers come from.

F. J. SEARLE, OSKALOOSA, KANSAS.
(Several bulls ready for service.)

BUTTER-BRED HOLSTEINS

Registered bull calves. Prices reasonable. Write today. These bargains will not last long.

J. F. MAST - SCRANTON, KANSAS

REGISTERED HOLSTEINS

For Sale—Choice young bulls, also a few females. Have bred Holsteins 35 years on the same farm. Come and see our herd.

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

Bonnie Brae Holsteins

Ninety head of high-grade heifers and young cows. Some fresh now. Many heavy springers. Heifer calves. Registered bulls from 7 to 14 months of age.

IRA ROMIG, STATION B, TOPEKA, KAN.

Golden Belt Holstein Herd

Canary Butter Boy King No. 70508 In Service.

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

W. E. BENTLEY, MANHATTAN, KANSAS

REGISTERED HOLSTEIN BULL

Registered three-year-old Holstein bull from a ten-gallon dam. He is a guaranteed bull and will be sold at a bargain.

C. MCCOY, BEATTIE, KANSAS.

CORYDALE FARM HERD

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

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

23 - HOLSTEIN-FRIESIAN BULLS - 23

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

Breeders for Thirty Years.

McKAY BROS., Waterloo, Iowa

BRAEBURN HOLSTEINS

A 15-months bull, mostly white; dam has a 30-pound sister, and sire a 24-pound junior 2 sister; \$200. Younger ones less.

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

FOR QUICK SALE

Fifty head of highly-bred registered Holstein-Friesian cows and heifers; good ages and good producers. Several bulls from calves up to yearlings. Ready for service.

HIGGINBOTHAM BROS., Rossville, Kansas

CHOICE HOLSTEIN BULLS

Four registered bulls, out of A. R. O. cows. Two ready for service. Best breeding. Choice individuals.

BEN SCHNEIDER, NORTONVILLE, KAN.

REGISTERED HOLSTEIN BULL CALVES

My herd bull grandson Old King Segis, fine animal.

E. VIOLETT, Altoona, Kansas.

Holsteins for Sale High bred registered bulls ready for service

N. S. AMSPACKER, JAMESTOWN, KANS.

Purebred Registered HOLSTEIN CATTLE

To the farmer of judgment, seeking more profit and satisfaction in milk production, a comparison of the actual records of the pure-bred Holstein-Friesian breed with others, is an object lesson in economical investment. The ten largest records of the "Black-and-White" cows average 1,007 pounds butterfat and 25,387 pounds of milk. The nearest competitive breed produced 947 pounds butterfat and 18,120 pounds of milk. One good purebred Registered Holstein will produce as much as two ordinary cows, saving proportionately on feed, housing and care. Investigate the big "Black-and-Whites."

Send for FREE Illustrated Descriptive Booklets.

The Holstein-Friesian Association of America

F. L. Houghton, Sec'y Box 114, Brattleboro, Vt.

HOME FARM HOLSTEINS

OFFER HEIFER CALVES

Five months up to 15 months; grand-daughters of De Kol Burke, Fobes Tritodyke Segis. Official record and untested dams. Prices, \$95 to \$325.

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

Albechar Holstein Farm

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

ROBINSON & SHULTZ, Independence, Kan.

REGISTERED

HOLSTEIN-FRIESIAN BULLS

I have two excellent bulls ready for service, sired by Canary Butter Boy King 70508, from A. R. O. dams with 20 and 22-pound butter records as three-year-olds. Write for prices and description to

HARRY W. MOLLHAGEN, Bushton, Kan.

CEDARLANE HERD HOLSTEIN-FRIESIANS

T. M. Ewing, Prop., Independence, Kan. Herd headed by a grandson of Pontiac Korndyke. The average record of his dam and sire's dam, 7 days, 29.4 pounds butter; 30 days, 117.3 pounds.

Several bull calves for sale sired by the above bull and from cows that produce as much as 80 pounds milk per day.

Better buy now while you can get choice.

We Believe that it is your desire when getting a bull, to buy a producer of good individuals that will meet the Advanced Register requirements for 300 days of each year.

Route 44 KINGMAN, Kansas

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

HOLSTEIN BULLS, "REGISTERED"

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

Breeders' Directory

PERCHERON HORSES.

M. E. Gideon, Emmett, Kan.

ANGUS CATTLE.

Geo. McAdam, Holton, Kan.

SHORTHORNS.

E. E. Heacock & Sons, Hartford, Kan.

C. H. White, Burlington, Kan.

HOLSTEINS.

C. E. Bean, Garnett, Kansas.

JERSEY CATTLE.

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

GALLOWAY CATTLE.

GALLOWAY BULLS

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

E. E. FRIZELL, Frizell, Pawnee Co., Kan.

SHROPSHIRE SHEEP

SHROPSHIRE EWES

Bred to the very best bucks obtainable, for sale in lots to suit purchaser. All stock recorded.

L. M. HARTLEY

PINE RIDGE FARM - SALEM, IOWA

SHORTHORN CATTLE.**CEDAR LAWN SHORTHORNS**

For Sale—A number of choice bull calves from 8 to 16 months old, by Secret's Sultan 58333 by Missie's Sultan by Glenbrook Sultan by Whitehall Sultan and out of West-awn Secret 2d, weight 2,200 in breeding condition. Description guaranteed.

B. AMCOATS - CLAY CENTER, KAN.

Tenneholm Shorthorns

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

S. MYERS - CHANUTE, KANSAS

SHORTHORN BULLS.

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

W. D. GOTT - BRONSON, KANSAS

HILL'S SHORTHORNS

Two Shorthorn bulls. One red, 11 months old, sired by Bettie's Albion 399451. One white, eight months old. Extra fine and priced low.

E. HILL - TORONTO, KANSAS

Cycamore Springs Shorthorns

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

M. HILL - LAFONTAINE, KANSAS

Cedar Heights' Shorthorns

Eight head of pure Scotch and Scotch-topped bulls for sale, ten to sixteen months old. Reds and roans. Phone 59-N-1.

HARRY T. FORBES, Route 8, Topeka, Kan.

RIVERSIDE SHORTHORNS

For Sale—Fifteen pure Scotch and Scotch-topped cows and heifers. Five pure Scotch and Scotch topped young bulls. Prices reasonable. Come and see them.

H. H. HOLMES - GREAT BEND, KANSAS

SHORTHORN COWS AND HEIFERS

Thirty head of good registered Shorthorn cows and heifers. Cows with calves at foot, others to calve soon, open heifers by Bra- with Heir 351808. Priced to sell.

E. E. HEACOCK & SON, HARTFORD, KAN.

Doyle Park Shorthorns

Scotch and Scotch-topped, 50 per cent roans. Bulls 8 to 20 months old, sired by Double Champion and by Alfalfa News.

ROMAN & SONS - PEABODY, KAN.

POLLED DURHAM CATTLE.**The Profitable Breed**

For Sale—Double Standard Polled Durham cattle. Write for description, breeding and prices.

M. ALBRIGHT, OVERBROOK, KANSAS

GUERNSEY CATTLE**THE GUERNSEY**

lands for Economical production. More profit from every pound of feed. Do you want cows that will improve your Dairy? Write for free literature.

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

GUERNSEY HERD BULLS

For Sale—Four-year-old registered Guernsey herd bull, gentle. Also one nine months and one three months old. Glenwood breeding. Cheap.

JOHN PERRENOUD, HUMBOLDT, KAN.

HORSES AND MULES.

Type, Stamina, Prepotency in our

TRUE MORGANS

Send for our private sale catalog of stallions and females for sale.

BECK STOCK FARM

Maplewood - Missouri

JACKS AND JENNETS

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

PHIL WALKER, Moline, Elk County, Kansas.

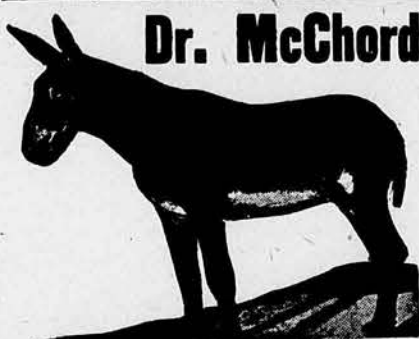
HIGH CLASS JACKS

We offer 25 head to select from. Herd headed by Mo. Chief's Boy 6815. One imported gray Percheron stallion, first prize at Kansas State Fair. Write or phone us.

LOUIS MILLS & SON, Alden, Kan.

For Sale or Trade—Mammoth Jack

Registered, 7 years old, 15 hands, 1,150 pounds, plenty of bone and quality, prompt regester on mares; colts to show. Will sell or trade for high grade mares, nothing under 1,500 pounds wanted. Also three good jennets, will trade on same proposition. Address J. W. MEARS, Route 3, BANDALL, KANS.

- HORSES AND MULES.**Dr. McChord****CLIMAX STOCK FARM**

Home of the Famous Dr. McChord.

Fifty Head in Herd. If you want an extra good jac, you can buy him here. I raise the good kind and guarantee them as represented when sold.

W. D. GOTT - BRONSON, KANSAS

Home of the Giants**Fifty Head of Jacks and Jennets**

At Public Auction

MARCH 15.

Catalogs out Feb. 10

BRADLEY BROS.

Warrensburg - Mo.

Belgians and Percherons

A few extra good Belgian and Percheron Stallions and Mares from two to six years old. All priced reasonably. Come and see them.

W. H. BAYLESS & SONS

Blue Mound, Kan.

FAIRVIEW STOCK FARM

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

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

H. T. HINEMAN & SONS

Dighton - Kansas

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 \$600 than most speculators can for a thousand. Come and see for yourself. They must sell.

E. BOEN, LAWSON, MO.

38 MI. N. E. of K. C. on C. M. & ST. P.

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

Jacks for Sale

I have three good young jacks for sale and worth the money. Also a few very fine jennets.

JOHN A. EDWARDS

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Percherons For Sale

Two Percheron stallions coming two years old, from imported mares and sired by H-men, grand champion K. C. Royal 1912. At 21 months their weights were 1,870 and 1,900 pounds, and the right conformation to match.

J. H. MAPES, ROUTE 3, SALINA, KANSAS

HARRIS BROS.

90 PERCHERONS 90

Sixty Mares and Fillies.

Thirty Stallions, from

weanlings to five years old

At live and let live prices.

Route 6,

GREAT BEND, KANSAS.

REPUBLIC COUNTY JACK FARM

Six good jacks, one extra good, 15 1/2 standard measure, 6 years old and right in every way. Also eight good jennets for sale, all registered and well bred. Priced to sell.

T. E. COLLINS & SON

Belleville - Kansas

Imported Percheron, Belgian and Coach Stallions. Good blood, \$450 up. ILLINOIS HORSE CO., Good Block, Des Moines, Iowa.

HORSES AND MULES.**58 Head Registered Stallions and Mares 58**

Percherons, Belgians and French Drafts, from Yearlings to Seven Years Old.

I have rented my farm and am quitting farming. Must sell all my horses by March 1. Nothing reserved. All priced reasonably—the first buyer to come will get a bargain. I mean business and must sell my entire herd. Come and see me.

J. M. NOLAN - PAOLA, KANSAS

The Champion Breeder—Missouri Chief 8365

Sire of the World's Grand Champion Jack, Kansas City 8743 In public service at our ranch south of Ellinwood. Excellent facilities for handling any number of healthy jennets.

Write Us for List of Winnings of His Get.

Most liberal terms and other information about this sire possessing excellent size, quality, bone, finish, and unexcelled style and action. Winner first as sire at Kansas State Fair, Hutchinson, 1915.

M. E. RICHARDSON - STERLING, KANSAS

ROBISON'S PERCHERONS

Forty young stallions from two to six years old. A few young mares for sale.

J. C. ROBISON, Towanda, Kans.

LAMER'S PERCHERONS

Have just received a new shipment. Also have a barn full of my own raising. A choice lot to select from.

WRITE, WIRE OR PHONE.

C. W. LAMER, SALINA, KANSAS

OFFICE, LAMER HOTEL.

REGISTERED PERCHERON STUDS

We have them, BIG FELLOWS, 1, 2, 3 and 4 years old. Real drafters, BIG BONE, lots of quality and action. Grown right, will go out and make good both as to sires and foal getters. You lose money if you don't look at BISHOP BROS.' STUDS before buying. Twenty miles east of Wichita, on Mo. Pacific Ry.

BISHOP BROS., BOX E, TOWANDA, KANSAS

HORSES AND JACKS

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

OAKLAND STOCK FARM, Box 207, CHILLICOTHE, MO.

PERCHERON and BELGIAN STALLIONS

Twenty head, imported and home-bred. I give a gilt-edge two-year guarantee with every horse sold. Come and see them. Priced to sell quick. Barn four blocks from Santa Fe depot.

W. H. RICHARDS, Emporia, Kans.

THE SAUNDERS JACK COMPANY

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

MAMMOTH JACKS AND PERCHERONS

Forty big, black, mammoth jacks, 15 to 16 hands standard. Young, black, Percheron stallions and mares, extra quality. Also jennets in foal. Mares in foal to 2,400-pound horse. Reference, banks of Lawrence.

AL E. SMITH, R. R. 1, LAWRENCE, KANSAS. Forty Miles West of Kansas City.

EWING BROTHERS

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

EWING BROTHERS - PAWNEE ROCK, KANSAS

IMPORTED PERCHERON HERD STALLION

For Sale or Trade for One His Equal—Siroco (51358), grandson of Besigue (19602), bay, foaled 1901, has weighed 2,160 in good flesh. A sire of the right kind, which we must change on account of so many of his fillies being in the way. Also pair of coming fours and a coming three, sired by him, that are good enough to show in any company.

A. M. DULL & SONS - WASHINGTON, KANSAS

REGISTERED JACKS and PERCHERONS

A few tried imported black Percheron ton stallions; Brilliant blood, good enough for herd headers. Twelve big black registered jacks, two to five years old, 14 1/2 to 16 hands high, well broke and quick performers. Good herd of registered jennets headed by large Spanish jack.

J. P. & M. H. MALONE, CHASE, KANSAS

Rice County.

CHOICE PERCHERON STALLIONS

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

M. E. GIDEON - EMMETT, KANSAS

SHIRE STALLIONS

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

THIRTY HEAD MAMMOTH JACKS

And Jennets for sale. The big kind. Priced to sell.

J. D. HOLMAN - CURRYVILLE, MO.

DUNHAMS' PERCHERONS

For Fifty Years the Best.

Send for fine photographic catalog.

DUNHAMS

Wayne, Dupage Co., ILL.

JACKS FOR SALE.

Seven head of big mammoth jacks, from two to seven years old. Would take some White-Face heifers in exchange. Jacks guaranteed as represented.

PHIL HANNUM, JR. - CARTHAGE, MO.

Home Phone 817 Black.

Reg. Percheron Stallions

Twenty-nine black ton and 2,200-pound 4 and 5-year-olds, 44 black coming 3's, 41 black coming 2's, 29 registered mares for sale. 19 Belgian stallions. Just above Kansas City.

FRED CHANDLER PERCHERON FARM

Route 7, Charlton, Iowa

LIVE STOCK SHIPPERS

Write us for your next shipment. Twenty years' experience. A progressive commission house. This paper or any other market paper sent free. Write for information.

Lee Live Stock Commission Co.
Kansas City and All Markets.

HEREFORD CATTLE.**STAR BREEDING FARM**

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

SAM DRYBREAD - ELK CITY, KANSAS

OHIO IMPROVED CHESTERS**Murray's O. I. C. Chesters**

A few choice boars. Forty choice gilts bred for March farrow; thirty for April farrow. All bred to silver cup winner. They are priced low.

CHAS. H. MURRAY, FRIEND, NEBRASKA

O. I. C. PIGS

Pure-bred O. I. C. pigs, 4 months old. Five boars, one gilt, \$10 each. They are good ones. One pure-bred Jersey bull 27 months old, weight 1,100, \$65.00.

JOE FOX, GREELEY, KANSAS.

RED POLLED CATTLE.**RED POLLED BULLS**

TWENTY yearling bulls, big rugged fellows, sired by top sires; all registered and priced reasonably. Will sell a few females.

E. E. FRIZELL, Frizell, Pawnee Co., Kan.

Coburn Herd Red Polled Cattle

AND PERCHERON HORSES.

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

MAHLON GROENMILLER, Pomona, Kan.

RED POLLED CATTLE

FOR SALE—1915 bull calves by Rose's Grand Champion 17998, a 2,400-pound bull; also a few good cows and heifers.

AULD BROTHERS, FRANKFORT, KAN.

RED POLLED CATTLE.

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

I. W. FOULTON - MEDORA, KANSAS

RED POLLED CATTLE

A few choice young bulls for sale. Priced reasonably. T. A. Hawkins, Hill City, Kan.

BERKSHIRE HOGS.**BERKSHIRE BRED SOWS**

Seventy choice bred Berkshire sows, to farrow every week from March 1 until June. Bred to as good boars as the breed has. Cholera immune.

E. D. KING - BURLINGTON, KANSAS

DUROC JERSEYS.**Sisco's Duroc Jerseys**

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

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

DUROC JERSEY**HERD GILTS**

Twenty spring yearling bred gilts sired by Klondyke and bred to a grandson of B. & C's Col. for May farrow. Price, \$30. First check gets choice. I guarantee satisfaction or money back. Write today, they will sell quick.

H. D. PLUMMER - LONGTON, KANSAS

Bred Sows and Gilts

By the great Duroc Jersey boars, Country Gentleman, Gold Medal and Long Wonder 2d. Bred to Country Gentleman and Gold Medal. All immune. Prize winning blood. We price them right.

W. R. HUSTON - AMERICUS, KANSAS

BIG-TYPE HEAVY-BONED DUROCS

Bred sows and gilts by Blue Ribbon Model, first prize winner at Iowa, Minnesota and South Dakota, 1911. Bred to Illustrators Jr. and Col. Gano Again.

CHAS. CHRISTIANSON, AKRON, IOWA.

DUROC BOARS AND BRED GILTS

Large, smooth, easy-feeding type. From champions Long Wonder, Defender, Superba and Golden Model breeding. Also fall pigs. Everything immune.

JOHN A. REED - LYONS, KANSAS

BOARS! BOARS! BRED GILTS!

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

G. M. SHEPHERD - LYONS, KANSAS

HAMPSHIRE HOGS**ATTEBERRY'S HAMPSHIRE**

Choice breeding. Bred sows and gilts. Outstanding boars. Priced to sell quick.

ATTEBERRY & SON - LANCASTER, MO.

**Working Horses In the Spring**

CARE should be exercised in giving the horse heavy work in the spring. If you have ever experienced stiff and sore muscles with the first few days of work in the harvest field after a week's vacation, you know how a horse feels that has had little to do during the winter and as soon as spring comes is kept pushing on the collar all day.

The horse should never be rushed into hard work without preparation. It requires two or three weeks to harden a horse to steady work after a winter of idleness on a maintenance ration consisting of such feeds as straw, hay, corn stover and a limited amount of grain. Man can usually find relief from pain but dumb brutes often are compelled to suffer agonies because of careless owners.

The horse will become accustomed to hard work without difficulty and will give much better satisfaction during the season if put to hard work but a few hours a day for the first few days when work commences in the spring.

When the horse is doing hard work in warm weather a good ration to feed consists of one-third corn and two-thirds oats. A handfull of oil meal should be fed once a day.

A mixture of prairie hay, half and half, makes a good roughness for either summer or winter. Never give a heavy feed of hay just before hard work. When the horse is being worked all day, feed only a small amount of hay in the morning and at noon. A generous amount of hay should be fed at night when this bulky feed can be digested while the horse is at rest. Heaves is usually caused by feeding musty hay or large amounts of hay before heavy pulling.

Horses often suffer from indigestion caused by the teeth being in bad condition. The lower jaw of the horse is wider than the upper. This causes an uneven wearing on the surface of the teeth, and frequently causes a sharp oute ridge which cuts the cheek and prevents proper chewing of the food, so that a great deal of the food eaten passes through undigested. If such a condition is suspected in any of the horses, a veterinarian should be asked to examine the teeth and correct the trouble. It will not cost much to have the sharp edge filed away, and the increased use gotten from the animal that was kept in poor condition because of the trouble will more than repay the cost.

Be sure the collar fits the shoulder as it should. It should lie snugly along the sides of the neck along the shoulder line, with just room enough to slip in the open hand at the windpipe when the collar is pressed down against the shoulder.

Frequently the work collar which fitted the horse the summer previous, when the animal was in working condition, is too small in the spring. We have found that it pays to buy cheap cloth collars that fit in the spring and use them until the horse gets down to working condition.

Shoulder galls are usually caused by improperly fitting collars and failure to keep the collars free from sweat and dirt. If left in the collar to dry, the sweat forms rough ridges which gall the horse's shoulder in a short while doing heavy work in warm weather.

When horses become galled in spite of all care we have had good results from applying zinc oxide salve at night. In the morning or at noon, or at any time before putting the horse to work, the salve should be wiped off and zinc oxide powder applied. If the salve is left on when the horse is taken to the field, dirt will adhere and the shoulder will gall worse than if nothing had been applied.

—C. O. LEVINE.

Western Kansas Sheep Report.

We have from time to time urged the keeping of a small flock of sheep on Kansas farms. These most profitable animals are not being grown anywhere near as extensively as they should be. The following letter received from August F. Hahn, Sheridan County, shows how a Western Kansas farmer has found a small flock profitable:

"I became very much interested in raising sheep several years ago, and read everything I saw in the farm papers concerning sheep. I finally made a start in sheep in 1913 by purchasing six pure-bred Shropshire ewes and a ram, paying \$100 for them. Every one of the farmers around me advised against raising sheep. They said it was a difficult job at best, and did everything possible to discourage me. After watching the results of my venture the past few years, these same men are now very much interested in my flock.

"The spring of 1914 my six ewes produced eight lambs. I sold three ram

lambs at five months of age, as breeders, receiving \$12.50 for each. I kept three ewe lambs to go into my breeding flock, and butchered two lambs at ten months of age. These two lambs weighed 140 pounds apiece. In addition I sheared fifty-four pounds of wool from the ewes and the ram and made a nice laprobe from the pelts of the two lambs butchered. The second year my six ewes produced seven lambs, of which I sold five at eight months of age for \$9 each. Two were butchered at ten months of age, weighing 147 pounds each. The wool clip from the six ewes, the ram, and the three yearlings, was sixty-eight pounds. So far this year, from seven ewes I have eleven lambs.

"It requires some special knowledge to succeed with sheep. During the latter part of the summer I apply a little pine tar to the noses of my sheep to keep the bot flies away. This same treatment is good for colds. When I shear the flock I trim their toes. This clipping of the toes saves sore feet later on.

"While sheep are most profitable farm animals, I would not advise any man to start in with them unless he really likes them. I really love sheep myself, and this flock has been a paying investment for me, and sheep will make a profit for anyone who will give them the right kind of treatment."

Tools for Vaccinating Hogs.

J. H., a Southern Missouri reader of KANSAS FARMER, asks where he can get tools for vaccinating hogs. He has just got through burning eight pure-bred O. I. C. sows and eighty-nine pigs as a result of a cholera outbreak on his farm, and feels the necessity for securing some protection against such losses in the future. He also asks concerning the relative merits of the "simultaneous" and the "double" treatment.

The vaccination of hogs requires considerable skill and knowledge and it is usually advisable to have the operation performed by a veterinarian who thoroughly understands it. There are, however, a good many farmers who have studied the details carefully and who are thoroughly competent to do the work. In Kansas, a farmer must secure special permission from the State Live Stock Sanitary Commissioner to use virulent blood in vaccinating hogs. A similar rule probably prevails in Missouri. We would suggest that Missouri farmers wishing to vaccinate their own hogs, communicate with the State Veterinarian, Doctor Luckey, at Columbia, Missouri.

The necessary tools for vaccinating hogs can be secured from almost any serum company manufacturing and selling serum.

The term "simultaneous treatment" means the using of a serum of known strength and potency, and at the same time injecting a small quantity of virulent blood from a hog that is very sick with cholera. This actually introduces hog cholera germs at the same time the preventive serum is injected. If the work is properly done and both serum and virus have been properly made and handled, the treatment will give a permanent immunity to cholera. This method of vaccination is being quite generally used by breeders of pure-bred hogs as they are perhaps more apt to have cholera brought to their places than is the ordinary pork producer. By the "double treatment" is meant the using of serum alone and then in about ten days the use of serum and virus as in the simultaneous treatment. This method is not now practiced. It is more expensive and now that serum is being made with greater care and becoming standardized, nothing is gained by the use of the double treatment.

A Good Character.

They were trying an Irishman, charged with a petty offence, in an Oklahoma town, when the judge asked: "Have you anyone in court who will vouch for your good character?" "Yis, Your Honor," quickly responded the Celt, "there's the sheriff there." Whereupon the sheriff evinced signs of great amazement. "Why, Your Honor," declared he, "I don't even know the man!" "Observe, Your Honor," said the Irishman, triumphantly, "observe that I've lived in the country for over twelve years and the sheriff doesn't know me yet! Ain't that a character for ye?"

Those communities in Kansas which are adopting either the method by which a special inducement is given to the tenant to grow live stock or the stock share method of renting need fear few of the evils often accompanying tenant farming.

JERSEY CATTLE.**What Is Gained by Testing Cows**

Testing your cows tells whether they are earning money for you. By the Register of Merit work you can now build up your herd from animals of known production. Science is driving guesswork out of the dairy business. Government records show that the average net profit per cow was increased 129% in eight years by testing. Selection based upon actual dairy merit will produce like results in your herd. Our booklet, "What Is Accomplished by Testing Cows," will help you. Send for it now. It's free.

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

**PUBLIC SALE****60-HEAD JERSEY CATTLE-60**

May 20, 1916.

Send for catalog.

ROBERT I. YOUNG

Route 5 - - - St. Joseph, Mo.

JERSEY CATTLE AND CHESTER WHITE HOGS

Two registered Jersey bulls ready for service. Richly bred.

DORNWOOD FARM, Route 1, Topeka, Kan.

SUNSET "CORRECT TYPE" JERSEYS

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

JERSEY BULLS

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

ROLLA OLIVER, Box 701, St. Joseph, Mo.

CHOICE JERSEY BULL

Yearling Jersey bull for sale, from dam that gave 1,260 pounds of 5 per cent milk in thirty days. Also a bred heifer and a five-month-old heifer calf.

D. A. KRAMER, WASHINGTON, KANSAS

LINSCOTT JERSEYS.

First Register of Merit Herd in Kansas—Established 1878. Oakland Sultan, first Register of Merit sire in Kansas, is dead. Last chance to get one of his daughters, \$100.

R. J. LINSKOTT - HOLTON, KANSAS

SMITH'S JERSEYS

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

S. S. SMITH, CLAY CENTER, KANSAS.

GOATS**MILCH GOATS**

Are free from all disease. They can be successfully kept on a town or a large or small farm. Their feeding cost is trivial, and they produce large quantities of rich milk. Learn all about them by sending \$1 for a year's subscription to THE GOAT WORLD, Drawer U, Baldwin Park, California.

TAMWORTH HOGS.**TAMWORTH PIGS**

Of summer birth, from massive, natural immune parents. Sent in pairs not alone. Write Q. I. SIMPSON, Palmer, Illinois.

AUCTIONEERS.**Live Stock and Real Estate Auctioneer**

Authorized state agent of Kansas Real Credit Association. Write me your wants.

H. M. JUSTICE - PAOLA, KANSAS

ANGUS CATTLE**CHOICE ANGUS BULLS**

Eight registered Angus bulls, yearlings and calves, choice individuals, best breeding. Also a few choice cows. Prices reasonable. On Santa Fe, 18 miles south of Topeka.

GEO. A. DIETRICH, CARBONDALE, KAN.

Advertisers in Kansas Farmer are reliable and sell dependable merchandise. Tell them where you saw their ad.

KENTUCKY JACKS AT PRIVATE SALE



THE firm of Saunders & Maggard, Poplar Plains, Ky., has shipped twenty head of jacks to Newton, Kansas, and they will be for sale privately at Welsh's Transfer Barn. This is a well bred load of jacks, including one imported jack, and they range in age from coming three to matured aged jacks; height from 14 to 16 hands. We will make prices reasonable, as we want to close them out in the next thirty days. Anyone wanting a good jack will do well to call and see them. Barn two blocks from Santa Fe Depot, one block from Interurban. Come and see us.

SAUNDERS & MAGGARD, Newton, Kan.

Missouri Breeders Sale of Hampshire Swine

South St. Joseph, Mo., Horse Sale Pavillion, March 7, 1916

65 - BRED SOWS AND GILTS - 65

Consigned from the leading herds in Missouri. More sows and gilts in this sale than more noted grand champion boars than ever before in one sale. The breeding in this sale has produced 90 per cent of all the breed's noted prize winners. An opportunity to buy the profitable kind of breeding stock at your own price. None but choice tried sows and choice gilts have been consigned. Arrange to attend this sale March 7. Tell your friends about it. It will be better than a State Fair Show. Catalog on request.

ISOM J. MARTIN, Sale Manager, R. 11, LANCASTER, MO.
THOS. E. DEEM, AUCTIONEER.

Cedar Hill Farm Sale Wednesday, Mar. 8

SECOND ANNUAL SALE OF SHORTHORN CATTLE AND DUDOC BRED SOWS. Twenty-four head Registered Shorthorns—Ten bulls 10 to 12 months old; nine yearling heifers; five coming yearling heifers, all sired by the Scotch bull, Silk Goods 293713 by the champion Choice Goods. Some out of Scotch and Scotch topped dams, pure Bates foundation. Also twenty Duroc brood sows and eight farm horses. Santa Fe train at farm six miles southeast of Meriden, U. P. trains at Grantville. Santa Fe trains met on sale day at Meriden. Write for catalog.

H. E. HUBER, MERIDEN, KANSAS
Auctioneers—L. E. Brady and W. O. Warner.

FARM AND HERD.

Robert I. Young, of St. Joseph, Mo., the well known breeder of Jersey cattle, has announced a public sale of Jerseys to be held March 20. Mr. Young owns one of the good herds and is a pioneer Jersey breeder. His Jersey farm near St. Joseph, was the former home of Pogue Irene 2d, dam of the world's famous Jersey cow, Jacoba Irene. Three of her great daughters, Silver Irene, Smoky Irene, and Queen Pogue Irene, are now in one of the greatest herds in New York, and are in the Register of Merit, authenticated by Cornell University. Mr. Young's Jersey farm has long been noted as the home of heavy producers.

Neal Houslet, of Oxford, Wis., owner of one of the big herds of Holstein cattle in that state, writes that his herd is doing well. He has bred a large number of registered cows and heifers to Johanna King 2d, the forty-pound \$5,000 bull. This is one of the Wisconsin herds that is drawn upon heavily for breeding stock.

Catalogs are out for the Missouri Hampshire swine breeders' sale to be held at South St. Joseph, Mo., March 5. Sixty-five sows and gilts have been consigned from the best Hampshire herds in Missouri. This sale promises to be the sale event of the season in Hampshire circles. Sows consigned to this sale that are noted prize winners and producers of champions. There are many sows and gilts in the sale bred to such boars as Lewisville Boy, grand champion of Missouri State Fair, 1915; Pat Mayoy, a many times grand champion; Lancaster Duke, a many times grand champion, and Gen Tipton, a many times grand champion. Breeding that has produced champions every year for the past seven years, and families that have always been the leading prize winners. Some of the very best breeding that produced the World's Fair grand champion boar and the dam of

the grand champion pen of four pigs of the late Missouri State Fair, are included in the offering. The breeding cataloged for this sale produced ninety per cent of the noted Hampshire prize winners.

I. W. Poulton, of Medora, Kan., owner of one of the good herds of Red Polled cattle in this state, writes that his herd is doing fine and that there is a good demand for high class Red Polled breeding stock at satisfactory prices. Mr. Poulton has one of the profitable herds, and at this time has a good lot of young stock.

S. S. Smith, the well known Jersey breeder of Clay Center, Kan., and owner of one of the very high class Jersey herds in this state, writes that his herd is doing well. At this time a feature of his herd is the choice lot of young cows and young bulls. He reports a good demand for high class bulls and has made a number of sales during the past few weeks. He has sold his great herd bull, Blue Boy Baron. This bull proved to be an extra good breeder, and Mr. Smith has a lot of his sons and daughters in his herd. The young bulls sired by Blue Boy Baron in service in other herds are making good.

M. E. Gideon, of Emmett, Kan., one of the live boosters for improved stock on Kansas farms and owner of good herds of pure-bred Percheron horses, Hereford cattle and Duroc Jersey hogs, reports his herds doing well. Mr. Gideon has a good herd of registered and high grade Percheron mares headed by an imported stallion that is among the best in the state. In 1915 he raised ten head of very fine colts. His Hereford herd is one of the best in the state and this year he expects to raise about fifty calves. He has a very select herd of Durocs. A feature of his Percheron herd is an outstanding three-year-old stallion by an imported sire and out of an imported dam. This stallion weighs over 1,800 pounds and is a choice individual, and was raised by Mr. Gideon.

FRANK IAMS'

"Mr. Horseman." 1916 is the "Get Rich Quick" year for "up-to-snuff" Horse Breeders. Get into the "Easy Money-Making Game." Don't wait. Do it in 1916. No horses will be imported in ten years. "Big Horse Family," buy big "Black of Iams and wear diamonds." "Iams' kind" are known "world over" as Top-Notchers at Bargain Prices. Try IAMS.

Big, Nifty, Classy "New Horses" are "Town Talk." His 34 years of success in Importing, Breeding and Selling, 5,640 registered horses—his "50 trips" across the ocean—make Iams a safe man to buy stallions from. His "old customers" are "best Page advertisers," his Breeding Guarantee backed by "Half Million Dollars." Iams' Imported and Home-bred horses are "classy, model big drafters" of large bone, fine form, quality, finish and flash movers. Several European

"Gold Medal and State Prizewinners"

"Iams' kind," and in the "Pink of Condition."

Bought at "bargain prices" and must be sold. "Iams sells horses on honor." A lady can buy as cheap as a man. Iams is not in the "stallion trust," and is selling more pounds of "model draft horse" for the money than any competitor. Iams is cutting the middle out of high prices on his

40 PERCHERON AND BELGIAN STALLIONS AND MARES

2 to 6 years old, weight 1,700 to 2,410 lbs., all "Branded," "Approved," "Registered and Inspected" by governments of France and U. S. and certificates "stamped" O. K. All "inspected" by a Nébr. Deputy State Veterinarian and certificates of "Health and Soundness" are given with each horse. Iams sells

IMPORTED STALLIONS AT \$1,000 AND \$1,400

(few higher). "Home-Breds" come cheapest. Registered 1,800 to 2,100-lb. mares at \$700 to \$1,000. Terms cash, or one year's time at 7 per cent; land security at 6 per cent; \$100 less price for cash than time. Iams pays freight and buyer's fare; gives 60 per cent breeding guarantee. Can place \$1,500 insurance. Iams backs up his ads. with a \$500 guarantee that you find the horses as represented. Write for Horse Catalog. It has a "Big Bargain" on each page. References: First National and Omaha National Banks, Omaha, Neb.; Citizens' State and St. Paul Banks, St. Paul, Neb.

ST. PAUL, NEB.

G. C. ROAN'S ANNUAL Jack & Jennet Sale

- 40 -

Clover Leaf Valley
Farm

Jacks and Jennets

- 40 -



WILL BE SOLD IN MY

Annual Auction at La Plata, Mo., March 20

Twenty Jacks, 2 to 6 years old; 15 to 16 hands high.
Twenty Jennets, ten with foals.

An offering selected to make good for those who buy them. Every jack is black with white points. My jennets are three to six years old.

Every jack to be sold broken for service is now, and will be then, ready to go out and make a full season's service of the very hardest kind, and, if properly treated, finish the season in good shape. These jacks are all in splendid flesh, yet hardened by a system of exercise, and will be able to give nearly twice the service a poor jack could.

The jennets are an exceptional lot of good breeders, and there are a lot of colts by their sides sired by some of the best jacks in this country and are about the best colts ever offered in any one sale. They are sired by such jacks as Orphan Boy 696, the grand champion of the world; Champion Boy No. 5701, he a son of Orphan Boy 696, and sold in my last sale for \$1,200. Some by Yucatan No. 1556. This jack I consider the best breeding jack in Missouri, and is now at the head of Clover Leaf Valley Farm. Send for catalog.

G. C. ROAN, La Plata, Missouri

COL. P. M. GROSS, AUCTIONEER.

READ KANSAS FARMER'S CLASSIFIED
ADVERTISING PAGE FOR READY BARGAINS

I Will Tell You How to Make Poultry Healthy

Make Hens Lay Make Chicks Grow

Now that mating time has arrived, it's up to you to see that your poultry get a tonic and internal antiseptics to make them vigorous and free of disease. *Therefore, feed Pan-a-ce-a.*

In that condition your hens will lay better, you will get more healthy, fertile eggs and the chicks will stand a better show of reaching maturity. *Therefore, feed Pan-a-ce-a.*

And, before the hatches come, I want to warn against gapes, leg weakness and indigestion, for these ailments are responsible for half the baby-chick losses. *Therefore, feed Pan-a-ce-a—it will save you these losses.*

My lifetime experience as a veterinarian, a doctor of medicine and poultry raiser has taught me the needs of poultry under all conditions; that is why I urge you to try my scientific and long-tried prescription,

Dr. Hess Poultry PAN-A-CE-A

It's a Tonic—Not a Stimulant

Here are a few of the valuable ingredients in Pan-a-ce-a to meet the requirements of your poultry which I have just stated:

Nux Vomica, a nerve tonic; *Carbonate of Lime*, a shell former; *Hyposulphite of Soda*, an internal antiseptic; *Quassia*, an appetizer; *Iron*, to enrich the blood, and other valuable ingredients, all well known and recommended by the highest medical and veterinary authorities.

Perhaps the strongest argument in favor of Pan-a-ce-a is the fact that it has been on the market for 22 years and is growing in favor each year. Read the guarantee in the right-hand panel—that is your protection.

There is a Dr. Hess dealer in your town, a man whom you know, a man who stands back of my guarantee and will return your money if Pan-a-ce-a fails to make good. 1½ lbs. 25c; 5 lbs. 60c; 25-lb. pail, \$2.50 (except in Canada and the far West).

DR. HESS & CLARK, Ashland, Ohio

Dr. Hess Stock Tonic

25-lb. pail, \$1.60; 100-lb. sack, \$5.00

Why pay the peddler twice my price?

Your stock need this tonic now to harden and condition them after the confined heavy feeding of winter. There's nothing better to put horses in trim for hard spring and summer work. Milch cows need it just now to prepare them for the heavy milking season ahead. Dr. Hess Stock Tonic makes all stock healthy, keeps them toned up and expels worms. Sold under money-back guarantee. 25-lb. pail, \$1.60; 100-lb. sack, \$5.00; smaller packages as low as 50c (except in Canada and the far West and the South). Send 2c for my new free Stock Tonic book.

Dr. Hess Instant Louse Killer

Kills lice on poultry and all farm stock. Dust the hens and sprinkle it in the nests, or, if your fowl are provided with a dust bath, sprinkle Instant Louse Killer in the dust bath every other week—the hens will do the rest. Also destroys bugs on cucumber, squash and melon vines, slugs on rose bushes, etc. Comes in handy sifting-top cans. 1 lb. 25c; 5 lbs. 60c (except in Canada and the far West). I guarantee it.

Gilbert Hess
M.D., D.V.S.



My Guarantee

So sure am I that Dr. Hess Poultry Pan-a-ce-a will help make your poultry healthy, help make your hens lay and your chicks grow that I have told my dealer in your town to supply you on condition that if Pan-a-ce-a does not do as I claim, return the empty package and get your money back.

FREE

If you have a sick or injured animal, write Dr. Hess, tell symptoms, enclose 2c stamp for reply, and he will send you a prescription and letter of advice free of charge.