

KANSAS FARMER

For the improvement of the Farm and Home

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TILLAGE is plowing, harrowing, dragging, disking—anything done to stir the soil, either before or after the planting of the crop.

The principles of good tillage are practically the same for all conditions:

(1) Stirring the soil breaks it up. The smaller the particles of soil the greater the area the root hairs or "mouths" of the plant have to "graze" on. Good tillage gives the crop more soil surface on which to feed without increasing your taxes.

(2) When fresh vegetable matter is present, stirring the soil tends to make more plant food available. The organic matter is brought into closer touch with the mineral particles of the soil, and plant food is set free by chemical action as the vegetable matter rots down.

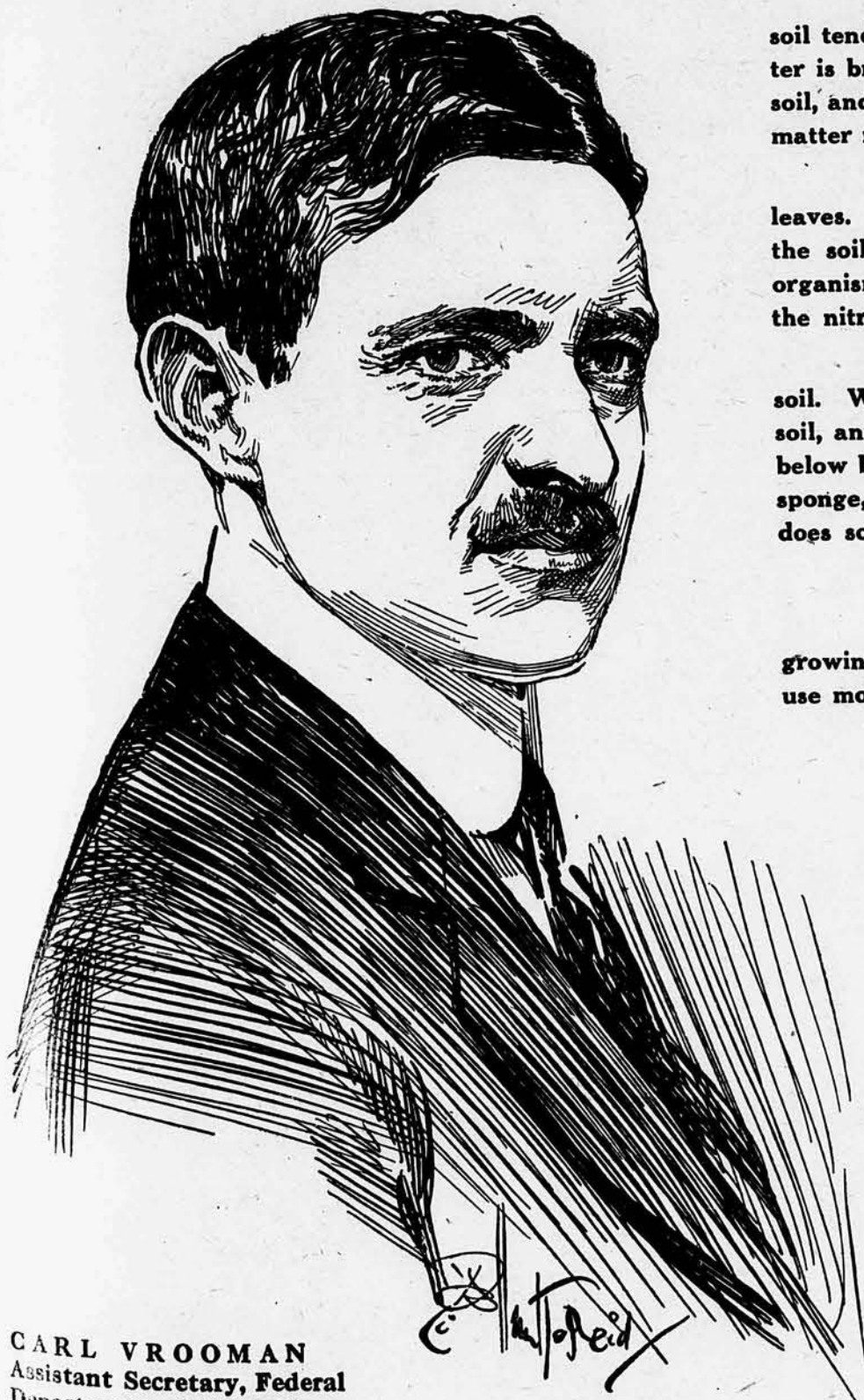
(3) Air is as necessary for the roots of plants as for the leaves. Plants die if there is no air in the soil. Tillage aerates the soil, supplying oxygen, which is used directly by the soil organisms, and nitrogen which is used by legumes by means of the nitrogen-gathering bacteria which live on their roots.

(4) Tillage tends to regulate the water supply in the soil. Well-tilled soil absorbs rain more rapidly than does a hard soil, and permits a freer circulation of moisture brought up from below by capillary action, such as occurs in a lamp wick. Like a sponge, it takes water more quickly and stays moist longer than does soil that is packed hard.

(5) Tillage kills weeds.

Briefly summed up, then, we till to make a home for the growing plant, to set free plant food, to aerate the soil, to get and use moisture and to kill weeds.

—CARL VROOMAN.



CARL VROOMAN
Assistant Secretary, Federal
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32x34 in. 12.50	\$3.50	32x34 in. 25.50	\$5.50
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FARM POWER

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

THE fire hazard on farm buildings is much greater since gasoline or oil is kept for running engines and automobiles on so many farms. It is still the custom to keep the motor car in any wooden building. The car is bound to drip grease or oil, even if the gasoline tank never leaks. In a short time the floor will become soaked with oil.

Even when gasoline is kept entirely away from the buildings, the automobile tank is usually filled when the car is standing within the building. A little of the liquid may easily drop to the ground. It forms gas which, heavier than air, lies along the ground. In either of these cases the least spark will start a fire that may spread rapidly. Such a fire is put out most quickly by being smothered with the gas generated by the modern type of chemical extinguisher.

It will pay every farmer to get a large metal container in which to store gasoline. Especially is this true in these days of advancing prices. The container should be placed at a suitable height so that a hose or pipe from it will fit into the tank of the automobile, or of a can set in the wagon which is to haul it to a stationary or movable engine. Place this container far enough away from the buildings to avoid the danger of explosion or fire. Car or cans being filled at this point, will further minimize the hazard.

The shed or garage for gasoline-driven vehicles should be located so as to avoid the danger of fire to the barn or house. It should be of fireproof material—concrete, brick, stone, or corrugated metal. The latter can be bought at small cost all ready.

Of course all farm buildings are insured against fire in some responsible co-operative, mutual or stock insurance company, but get out your policy and read every word of it to make sure that it contains no clause voiding it in case of fire from gasoline or oil. Some policies are so worded that the only safe way is to have a new clause printed or written upon the policy by the issuing company, specifically protecting the insured against the hazard from gasoline or oil; if dynamite is used on the farm, it should also be specified. If necessary, pay a little more to have the insurance cover these items rather than to run the risk of not recovering your loss in case of fire. Remember, in case of fire your policy will be construed by the company in precise accordance with its language. You may think or claim or believe that the policy provides one thing when it says another. It is up to you to assure yourself on these points now, before you have a loss.—Northwest Farmstead.

Success With Tractor

The skill with which a tractor is handled will have much to do with the results obtained. A farmer who is handy with machinery will get much more use out of his farm tractor than the man who only knows how to start and stop the engine and guide it. It is the most useful piece of machinery one can have about the place, and can be used for a hundred different things. A modern tractor developing eight to sixteen horsepower will go almost anywhere that a horse will go and it will do many things the horse could not do. It will pump water, grind feed, run the saw, cut silage, do the threshing, the plowing and pull the binder if necessary. It will pull a road drag and can be used to pull heavy logs or timbers from place to place. Every farmer should try his machine at various jobs so that he will become used to it and get the most out of it.

Road Directing Device

A car passed through Kansas recently fitted with a new automobile device, the milometer. It is attached to the steering column of the car and contains a tape with the mileage printed thereon. With this device all that is necessary for the driver to do, if he is traveling from Kansas City to San Francisco, say, is to install one of these milometers equipped with a Kansas City to San Francisco tape routed as he wishes to go.

The tape tells the driver how far to go in each direction, and measures the distance for him, so that he knows when he has reached the proper point, and so on to the end of the trip. By merely

watching this tape the driver is bound to get wherever he is going without losing the road. The manufacturers of the device provide free tapes with directions to points all over the United States.

Safest to Buy New Cars

We are sometimes asked whether it is desirable to buy a used car or not.

The answer depends a good deal on the condition of the used car under consideration. If the cylinders are much worn there will be considerable loss of power, and the chances are that it would cost close to a hundred dollars or more to give the old car a thorough overhauling. Even then the body would stamp it as an old-timer.

For thorough satisfaction a new car is the best "buy," but if one wants to have a machine that will take him around, and if he is not particular about the looks, a used car will generally give service for a few years and will give lots of valuable experience.

Kerosene as Engine Fuel

Independent dealers in kerosene are making a special effort to stimulate the use of this fuel in operating engines. A committee was recently appointed to investigate the plan of using kerosene as a substitute for gasoline in operating automobile engines. Professor Charles E. Lucke, of Columbia University, believes this idea is quite feasible. The principle he has in mind is to pre-heat the air and the kerosene to 300 degrees, the heat to come from a kerosene lamp. The committee referred to will later refer the matter to the Association of Automobile Manufacturers in the hope that practical details may be perfected.

It is stated that at the present time kerosene is selling at seven to ten cents a gallon retail, the demand for it being so small relatively speaking, that large quantities of it are in storage. The gasoline supply seems still to be far behind the demand, owing to large orders both at home and abroad.

Leaky Tire Valves

There is nothing more exasperating than a tire valve that will not hold air in the tire. Fortunately these valves are usually very reliable, but they sometimes go wrong, and if a fresh set of interior fittings is not at hand a temporary expedient is to plug up the valve with a bit of soap, after the pressure has been pumped up. Another way is to use some chewing gum. These are old bicycle dodges, but equally as effective for an automobile.—Scientific American.

A thousand acres have been selected near the city of Hutchinson to be used in the big traction plowing demonstration to be held July 24-28. This land is easily accessible, being only a half mile north of the interurban railway. The present indications are that the plowing exhibition will be even larger than it was a year ago. It offers a splendid opportunity for farmers to study the operation of tractors. Forty-eight tractor manufacturers have already signified their intention of taking part in this plowing demonstration. In addition there are twenty-six firms of accessory manufacturers listed to take part.

Probably two-thirds of the expense incurred in operating an automobile is by tire upkeep. There are many things that drivers can do to lengthen the life of their tires, but it is impossible to get the most out of a tire without the use of a tire tester and a small vulcanizer that will repair small cuts and injuries in casings. A repairman is not always on hand and such a small vulcanizer may save serious inconvenience.

Some automobile owners seem to have an impression that old tires should not be inflated as much as when new, the assumption being that they can't stand the pressure. As a matter of fact, tires naturally vulcanize or harden with age and as a consequence their resilience becomes impaired. Nothing will put the finish to an old tire quicker than to run it under-inflated.

In case of engine trouble look for the most simple causes first, such as loose wires or empty gasoline tanks.

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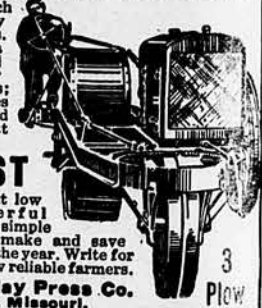
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BOARD OF AGRICULTURE REPORT

There has been a marked falling off in the condition of wheat in Kansas since the April report of the State Board of Agriculture. At that time the growers were not asked to furnish estimates of prospective yields, but from the reports estimates were made by various individuals placing the expected yield based on April conditions at 126 to 136 million bushels. Based on conditions existing May 17, the reporters for the State Board estimate a prospective yield of 108 million bushels, or an average yield of about thirteen and one-half bushels an acre on the eight million ten thousand acres of growing wheat as reported a month ago. These acreage figures, however, are subject to revision later when the official returns from the assessors are received.

The falling off in the condition of the wheat during the past month has largely been in the so-called wheat belt of the central third of the state. It is attributed largely to the injury from Hessian fly and dry weather. In the eastern part of the state conditions have been more favorable. There have been good rains throughout the state so that the moisture conditions have been considerably improved.

The chinch bug has not been mentioned by a single reporter, but the green bug has caused considerable damage in the southern counties, especially Comley, Harper, Sedgwick, and Sumner. In these counties the wheat seems to be uneven and spindling in its growth and observers have attributed it to a number of different causes, among them being lack of vitality in the seed, poor preparation of the seed bed, winds, dry weather, and of course Hessian fly and green bug.

In Stafford, Pratt, Sumner, McPherson, Salina, and Ottawa counties, the reporters' figures indicate a yield of not to exceed ten bushels an acre. In the seven biggest wheat-producing counties of the state, having considerably more than one-fifth of the state's total acreage, the prospective acre yield is eleven bushels. The wheat-growing counties of the northwestern part of the state report the best outlook on the basis of present conditions.

The outstanding feature of this report is that relating to the injury being done by Hessian fly. This pest is undoubtedly present in greater numbers than ever before in the counties having the larger acreages of wheat. In fact it seems to be doing the most damage in the part of the state given over most exclusively to the growing of wheat.

GRANGERS VISIT COLLEGE FARM

The grangers of Riley County held their annual spring picnic last week on the agricultural college farm, at the invitation of the farm department of that institution. In addition to the members of the local grange, ten automobile loads came from the Gatesville Grange of Clay County. All brought well filled lunch baskets, and Professor Call served ice cream and coffee.

While this was a most pleasant affair socially, those present found the visit to the farm most instructive. This farm is an experimental one, and to visit it in company with Professor Call and his assistants gave insight into experimental methods that will enable them to more fully appreciate the results of the various tests when they are published. The work in developing high-yielding strains of wheat has already progressed to a point where some very tangible results are beginning to appear. Some of the high-yielding strains are now being tried out on farms in various parts of the state in order to determine their adaptation to the different localities. The plots where these strains are being bred were studied with much interest.

The effect of the date of cutting upon alfalfa stands is now becoming quite apparent. The plot that is being cut each time at the bud stage is becoming thin, the bluegrass crowding out the alfalfa plants. Cutting alfalfa continually at this stage seems to be detrimental to the stand. The plot cut at the full bloom stage is maintaining the most vigorous stand. This is not necessarily to be taken as an argument for

cutting alfalfa hay at this stage. The quality of the hay and the total yield for the season must be considered. It is worth while, however, to know that cutting the alfalfa at the bud stage has a detrimental effect upon the vitality of the plant. This knowledge is useful in handling a newly-seeded field.

Many experiments were explained as the visiting grangers went over the farm. Information gained in this way is most valuable. Many do not appreciate what it means to have such a series of experiments under way.

There were about 250 in attendance, among them being the State Master, A. P. Reardon, and W. T. Dickson of the Executive Committee.

COWS FOR DAIRY CLUB

Some of those wishing to join the Kansas Farmer Dairy Club seem to have the impression that the cow they use must be one that freshens after they buy her. It is always desirable to start a record as the cow freshens, because she gives the heaviest flow of milk at the beginning of the milking period. As a rule, the biggest year's records are made by starting soon after the cow freshens. Good cows that will freshen at the most desirable time may be hard to find. Some are finding it necessary to take cows now giving milk, starting their records at once. Of course, these cows are likely to freshen again before the year's record is complete, and this means that they will be dry for a few weeks. It would be better to start a record with a cow of known producing capacity, even though the record cannot start at freshening time, than to buy a poorer cow just because she happens to be bred so as to freshen some time between now and September 1. Some of the club members have already started records with cows that have been fresh a month or two. Others can do likewise.

None should give up getting into the club because he cannot go out and buy a good cow due to freshen at exactly the right time. Judging from some of the letters we have received, we fear there are some who are letting this point keep them from joining the club. If you can get a good cow now giving milk, the record can start at once. If the cow freshens again before the end of the year, the flush period immediately following calving may make up for the time she would have to be dry.

DAIRYMEN DISCUSS BUSINESS

As stated by one of the speakers at the recent dairy meeting held in Abilene, the impression seems to be abroad that the only way to make a beginning in dairy farming is to buy a bunch of cows that have some of the marks of dairy breeding, and begin milking them. Good cows are an important consideration, but there are whole trainloads of cows being shipped out of Wisconsin and other states having the color markings of dairy breeds, that are anything but good cows. In every dairy community a certain per cent of the cows must be discarded and sold to the butcher each year. Since this craze for dairy-bred stock has developed all over the country, very few of these culls find their

way to the shambles. The man who sets up as a dairyman with this class of stock has made a poor start in the business.

It is a mistaken idea that the first and most essential step to making some money milking cows, is to purchase animals of supposedly dairy breeding. In nine cases out of ten the most consistent thing to do is to begin to make a study of how to feed and care for milk cows, putting the knowledge into practice on such cows as may be at hand. Our cows are not as poor as our feeding methods. In dispersing a grade dairy herd in Dickinson County, a cow that had made an exceptionally good record was sold to a man who has never been able to get any sort of record out of her. The former owner, who is a good dairyman, said he could hardly believe it possible that this cow could do so poorly as she had done in the hands of the new owner.

Dairy progress has really been seriously retarded in Kansas by the idea that the business must be conducted as a highly specialized industry and made the main issue on the farm. As a matter of fact, dairying is simply a part of well balanced farming. On comparatively few farms of Kansas should it be the main issue. A man can make good money milking a few cows and continue growing market crops.

The farmer who milks as many cows as his family can handle is always sure of some ready money each month. Lack of capital is one of the serious drawbacks in farming. The man with only his cash crop to depend upon becomes financially embarrassed and oftentimes cannot handle this crop so as to get the largest net return from it.

While there were a number of men in attendance at the Abilene dairy meeting who make dairying their main issue in farming, one of the strongest points brought out in the meeting and one upon which there was almost unanimity of opinion, was that dairying as a state industry is a part of diversified farming and will mean much to the financial prosperity of the state if so developed.

It is obviously impossible to obtain maximum results with a tractor when it is used with implements designed primarily for use with horses, and the objection of many tractor owners that the tractor cannot be used with profit for certain types of field work will probably cease to hold good in the near future. There is every indication that there will soon be available farm implements designed especially for use with the tractor which will increase its value for farm work, making it practicable and economical for many kinds of field operations where it is now both impracticable and uneconomical.

Plan now to have plenty of roughage. If you are short of concentrated feeds you can always buy them, but you will have trouble getting as good roughage as you can grow, and besides there is no fun hauling hay for a big bunch of live stock. They seem to eat it too fast.

ADVERTISING A COMMUNITY

The State Dairy Association held an auxiliary meeting in Abilene last week. It was voted at the annual meeting in January to hold two such meetings during the year—one in the spring and one in the fall. It was left to the executive committee to select the places for holding these meetings. Abilene was the town selected for the first of these meetings because of the reputation that has come to Dickinson County by reason of the cow testing association that has been maintained there for the past three years. One of the dairymen from the southern part of the state, who found it most inconvenient to get to Abilene, said at one of the sessions that this meeting would not have been held there but for this cow testing association. It is a real asset to the community.

We believe the dairymen of this cow testing association do not fully appreciate the advertising value of their organization. The enthusiasm of the members is increasing each year in so far as the results of the work affect the actual conduct of their milking business, but they have not begun to realize on its advertising value in building up the prestige of stock produced in the community. Reference to the work of this association is found in agricultural papers all over the country. Articles concerning it have been clipped and used in foreign papers. With such start, this county could easily become a center for the production of dairy cattle of high quality. Kansas, and the whole West and Southwest, needs more good dairy cattle, and it is in such centers that the best cattle will be grown and through the publicity given by the work of such association buyers will be attracted just as they now are to similar communities in older dairy states.

The results coming from such a piece of work should not be confined to the limits of one county. There has been a feeling that the dairymen of this county have not taken the interest they should in the work of the State Dairy Association. It was perhaps to secure this interest that the recent meeting was held in Abilene. Through the constructive development of the dairy business over the state as a whole, Kansas can expect to realize much profit in the years to come. The holding of these auxiliary meetings in different parts of the state will develop this spirit among the dairymen. The ones who are making progress locally will be given a broader vision through active connection with the State Dairy Association. From this standpoint the recent meeting was a success. About 150 were in attendance, a large proportion of whom had never attended the annual meeting at Manhattan.

The fall meeting will probably be held in the southern part of the state.

Saving the waste of money on highway bridges is just as important as saving it in building and maintaining roads, and wherever roads are placed under trained, energetic engineers, bridges receive careful supervision. It is sometimes surprising to the non-technical taxpayer to observe where these economies are possible. In Nova Scotia, for instance, where timber is relatively cheap compared with its cost in many parts of the United States, it has been found possible to save a considerable sum annually by flooring bridges carrying heavy travel with wooden blocks on creosoted planks and beams. The cost of such construction is much in excess of that of the ordinary plank floor, yet five years' experience shows that the longer life of the block floor makes it materially less expensive in the end.

The six-shovel cultivator is a much better implement for cultivating corn than the four-shovel one, except where there is considerable trash on the ground or where the weeds are numerous and well rooted. The six-shovel cultivator stirs the top soil more thoroughly, leaves it in better condition, and does not destroy so many roots as the four-shovel cultivator, since the six small shovels do not have to penetrate so deeply as the four large ones to stir the soil completely.

Dairy Club Open Until September 1

WE WISH it understood that any boy or girl who can get a good cow and start a milk record on or before September 1, can get into the Kansas Farmer Dairy Club. We find that many of the banks desirous of helping boys and girls get into the club have not had their offers accepted because the ones wishing to take advantage of the opportunity cannot get cows. Over a hundred banks are co-operating, some of them willing to help ten or a dozen boys and girls buy cows and take part. About seventy members are now entered, but there are so many banks willing to co-operate who have not had their offers taken because of this difficulty to get cows, that we have decided to permit entries to be made any time up to September 1. All records must start on or before that date.

STRAWBERRIES FOR WINTER

Methods and Recipes For Canning and Preserving This Delicious Fruit

By OTIS E. HALL, K. S. A. C.

STRAWBERRIES belong to the group of berries and fruits which can safely be canned by the old "open kettle" method, but since this method is neither practical nor reliable for garden vegetables and many other products that are now being home-canned, we shall recommend the newer or "cold pack" methods in some of the strawberry recipes.

To make sure that these terms are clear, let us define what is meant by the "open kettle" and "cold pack" methods.

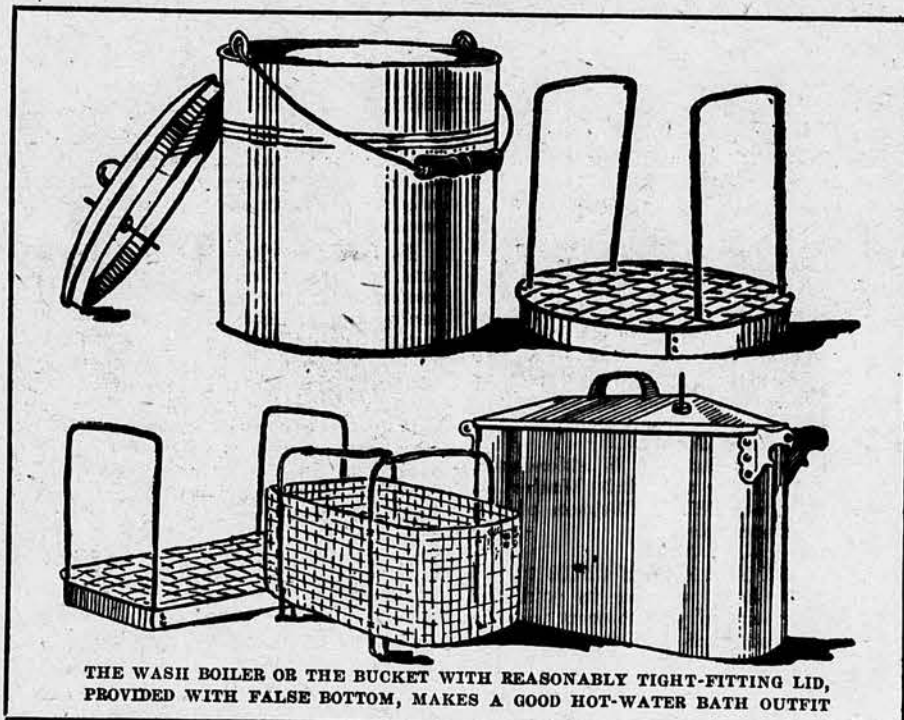
The "open kettle" method is the name applied to the method used when the products are cooked or sterilized in an open or closed vessel and then transferred to the jars or containers while hot and immediately sealed tightly.

By the "cold pack" method, the products are simply packed in their fresh and natural state in the jars or containers, after blanching—if blanching is called for in the recipe. To the fruits hot syrup or hot water is added, and to the vegetables and greens, hot water and a little salt. Then the sterilization is done in the jars after they are partially or entirely sealed. When this method first came into use, three days or different operations were thought necessary for vegetables, but now the job is all finished at a single operation in one day.

In order to can by the "cold pack" process, some kind of a canning outfit is necessary. While there are many different styles and makes of commercial and home-made outfits, they can all be classed in the three types, which are as follows: Hot-water bath outfit, water-seal, and steam pressure.

The hot-water bath outfit is the most popular of these three methods. This is not because it is the best or the cheapest—in the long run—but because the commercial outfits are new and not sold on the general market. While the hot-water bath outfits are also classed as commercial outfits and are made and sold by a large number of companies, they can be made at home much easier than can either of the other two types mentioned. The hot-water bath outfits include all those made from wash boilers, water pails, lard cans, or other kitchen vessels which can be provided with reasonably tight-fitting lids. The reason this type of outfit is called "hot-water bath" is because the jars or cans are kept partially or completely immersed in boiling water during the sterilization period.

The water-seal outfits are specially constructed and are seldom home-made. They are sold by their manufacturers under various names, and in most cases they, like the steam-pressure outfits, depend on steam instead of hot water to do the sterilizing of the products. The reason they are not classes as steam-pressure outfits is because they do not carry enough steam. Many of the home-made steam outfits can be made to hold as much steam as can some of the water-seal outfits. However, the



THE WASH BOILER OR THE BUCKET WITH REASONABLY TIGHT-FITTING LID, PROVIDED WITH FALSE BOTTOM, MAKES A GOOD HOT-WATER BATH OUTFIT

water-seal outfits are much cheaper and lighter in weight than are the steam-pressure outfits of equal capacity, and because of these two reasons in some communities they are found more frequently than are the steam-pressure outfits.

Steam-pressure outfits include all those outfits which are able to carry at least five pounds of steam—228 degrees Fahrenheit. They are equipped with steam gauges which enable one to tell exactly how hot they are or how much steam they are carrying and the gauge makes unnecessary any guessing as to when the sterilization period should end.

When one's time and the efficiency of the work done are considered, the steam-pressure outfits are perhaps the cheapest and best type of outfit in the long run. For canning fruits and a few of the vegetables, however, the other types are just as good. But with a good steam-pressure outfit such vegetables as corn, greens, peas, and meats can be canned in about half the time and with considerably more safety than they can possibly be canned with any other kind of outfit. But in the recipes given each of the three outfits will be considered.

TWO RECIPES FOR CANNING STRAWBERRIES

No. 1. Can same day fruit is picked, if possible. Cull and stem. Rinse by pouring water over berries while in strainer or sieve. Pack in jars while fresh. Place rubber in position, add boiling hot syrup of thickness desired. For a thin syrup use two cupfuls of water to each cupful of sugar. For a medium thick syrup use one cupful sugar

to one cupful water. For a thick syrup use two cupfuls sugar to each cupful water. Whatever proportions used in the syrup, bring to a boil and hold for two to five minutes. After adding syrup to fruit, put on lids and only partially seal—if screw-top jars are used, just turn as tightly as you can with small finger and thumb. If using hot-water bath outfit, sterilize twelve minutes after water around jars boils—keeping water up to shoulders of jars. If using water-seal outfit, sterilize ten minutes; if steam-pressure outfit with two to five pounds of steam, sterilize six minutes. Do not use over five pounds of steam or you will over-cook the berries. Remove jars, tighten lids, and if screw-top jars are used, invert to cool and to test for leaks.

Berries canned this way will not stay at bottom of jar. If you wish to keep berries from rising in jar, try this recipe:

Prepare berries as above. Add one cupful of sugar and two tablespoonfuls of water to each quart of berries. Boil slowly for fifteen minutes in enameled or acid-proof kettle, keeping covered with a well-fitted lid while boiling. Allow berries to cool and remain over night in covered kettle. Pack the cold berries in glass jars. Put rubber and cap pin position—not tight. If using a hot-water bath outfit, sterilize ten minutes; if water-seal, eight minutes; if steam-pressure with five pounds of steam, five minutes. Remove jars, tighten lids, and if screw-top jars are used, invert to cool and test for leaks.

These recipes can also be used for canning raspberries, blackberries, dewberries and loganberries.

PRESERVING STRAWBERRIES

Strawberries are unlike many of the other berries in that they can be preserved and then used to more and better advantage than if canned. As a rule, it is also much safer to preserve than to can them. This is true because of their tendency to "cook up" or fall to pieces when subjected to the degree of heat required to properly sterilize them or any other fruit of their class. Some methods of preserving strawberries require a little more time than do the methods for canning them, but unless special care is exercised in the canning, the difference in quality will make up for the additional time spent. There are many recipes for preserving strawberries, two of which are as follows:

No. 1. Select nice fresh berries. Remove stems and clean by pouring water over them while placed in a strainer or sieve. Too much juice and flavor are lost when berries are washed or handled roughly in water. Allow one pint of sugar to one and one-half pints of berries. Put sugar in preserving kettle and add just enough water to dissolve sugar. Bring to a boil and hold until syrup is good and thick, then slowly add the berries. Cook very slowly just at the boiling point for ten to twenty minutes—depending on how the syrup thickens. Have jars tempered and rubbers in place. Fill jars while preserves are very hot. Put on lids and seal good and tight.

No. 2—Sun-Preserved Strawberries. Prepare berries as above. Allow one pint of sugar to one and one-half pints of berries. Put sugar in preserving kettle and add just enough water to dissolve it. Let sugar and water boil until it is as thick as it can be without going back to sugar. Watch closely to keep from scorching. Drop berries in carefully so as not to crush them, and let cook five to eight minutes. Remove and spread out in china plates or porcelain pans and place in sun for ten hours. While in sun, keep covered with mosquito netting or something of the sort to protect from flies and bees. Put in jars while cold, and seal.

Whether using a hot-water bath, a water-seal, or a steam-pressure outfit, some sort of false bottom must be provided for canning in glass. The purpose of the false bottom is to keep the jars from resting on the bottom of vessel or too close to the intense heat which will cause them to break. Where much canning is done it will pay to construct a false bottom to fit vessel used, but a few pieces of wood or heavy wire can be used. For a pail or lard can, a small round wire stand or rack such as are sold at any hardware or ten-cent store, will do nicely. Two or three of these racks will make a good false bottom for any wash boiler. Do not use a solid false bottom such as a board or asbestos lids, as too much of the heat will be lost.

Silage in Fattening Rations

THE Chicago market was recently topped by one of five lots of cattle fed by the Missouri Agricultural Experiment Station to determine the profitability of using silage and nitrogenous concentrates in cattle feeding. The particular lot of six steers which topped the market did not make as much profit as another lot fed more economically and marketed on the same day. The market toppers were fed 133 days on shelled corn, oil meal, corn silage, and alfalfa hay. They dressed 64.19 per cent of beef of a quality that made them well worth the high price of \$9.75. They made an average daily gain of 2.45 pounds and yielded a net profit of \$9.32 a head.

The complete test included five lots of 2-year-old steers fed the following daily rations: Lot 1, 15.6 pounds of shelled corn, 2.6 pounds of cottonseed meal, 17.67 pounds of corn silage, and 3.69 pounds of alfalfa hay; lot 2, 15.24 pounds shelled corn, 2.54 pounds of old process oil meal, 16.47 pounds corn silage, and 2.27 pounds of alfalfa hay; lot 3, 5.05 pounds cottonseed meal, 36.22 pounds corn silage, and 3 pounds of alfalfa hay; lot 4, 5.05 pounds of old process oil meal, 37.62 pounds corn silage, and 4.03 pounds of alfalfa hay; and lot

5, 16.26 pounds corn silage, 15.27 pounds shelled corn, and 3.9 pounds alfalfa hay. All lots had access to all the silage and alfalfa hay they desired and the figures given indicate the amounts they actually ate under these conditions.

Lots 1 and 2 were fed their cottonseed and linseed oil meal at the rate of one pound of the concentrate to 6 pounds of corn. After the first thirty days they received all of this mixture that they would clean up within a reasonable length of time after feeding. The same method of feeding grain was followed in the case of Lot 5. Lots 3 and 4 were started on 2 pounds of meal per head daily and gradually increased during the

latter part of the fattening period, until they were eating 7 pounds apiece daily. These lots received no corn except that which was in the silage.

In estimating the cost of grain and profit per steer, corn was included at 70 cents a bushel, corn silage at \$4.50 a ton, cottonseed and oil meal each at \$37 a ton, and alfalfa hay at \$14 a ton. The gain on hogs was credited to the steers at \$8 a hundred pounds. In lot 3 the hogs lost slightly in weight and this loss was charged to the cattle feeding operations at the same rate.

As judged by the percentage of dressed beef it will be noted that the price at which Lot 1 sold was too low and Lot 5

too high in comparison with the prices of the other lots. An inspection of the beef in the coolers indicated that there was practically no difference in the value of the beef from the various lots, although Lots 1 and 2 showed a slightly higher finish than the other three.

The results indicate clearly the possibility of fattening cattle successfully without corn other than that contained in silage when a liberal allowance of some high protein concentrate is fed. The cost of fattening cattle can be reduced by this means. The total cost of feed fed per steer in Lot 3 was \$26.07 and in Lot 4, \$27.44, while in Lot 1 it was \$40.85 and in Lot 2, \$38.63. In rations where corn was fed only in the form of silage the hogs were practically eliminated as a factor in cattle feeding. While it is possible that the best finish cannot be obtained on fat cattle without adding corn to such rations as were fed to Lots 3 and 4 during the latter part of the fattening period, it is possible to make a choice grade of beef without additional corn. By the fullest use of silage and high protein concentrates, such as cottonseed meal and the capacity of a farm to fatten cattle, can be greatly increased and our farming intensified.

TABLE GIVING RESULTS IN DETAIL.

	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5
Average daily gain per steer, lbs...	2.72	2.45	1.97	2.38	2.14
Cost of gain on steer per 100 lbs...	\$10.42	\$10.58	\$10.15	\$8.58	\$10.88
Selling price per 100 pounds.....	\$9.60	\$9.75	\$9.65	\$9.65	\$9.75
Pounds shrink per head in shipping..	48.80	39.44	43.11	39.71	30.00
Percentage dressed beef.....	63.53	64.19	62.38	61.33	62.58
Net profit per steer.....	\$6.77	\$9.32	\$9.87	\$14.56	\$10.53

ECONOMIC STUDY OF TRACTOR

Summary of Experience of Two Hundred Corn-Belt Farmers in Power Farming

INFORMATION coming from users of tractors is of great value to those interested in this source of farm power. Under the title of "An Economic Study of the Farm Tractor in the Corn Belt" the Federal Department of Agriculture Farmers' Bulletin 719 summarizes the experience of nearly 200 farmers in using different sized tractors on farms of different acreage. The object of the bulletin is not to draw general conclusions from facts and figures, but to place before the farmer the experience of others and leave it to him to calculate the probable value of the tractor for use on his particular farm. Before citing the information, the investigators point out that data on the operation of tractors soon become obsolete because of the changes and improvements in these outfits as well as on account of change in prices and the cost of fuel and oil.

The figures cited in the bulletin, the authors believe, are correct for conditions that existed in the spring of 1916 on the farms in Illinois, and they believe that these figures should be applicable not only in that state but throughout the corn belt, since the Illinois farms reporting are quite typical in most respects of general conditions prevailing in the corn belt.

On practically all of the farms reporting, corn is the principal crop, approximately 40 per cent of the entire acreage being planted to that crop. Oats are raised in most cases with an acreage of about one-half as great as for corn. Wheat is raised to a limited extent on more than one-half of the farms. Hay, including alfalfa and clover, forms a large percentage of the remaining crops. Both spring and fall plowing are practiced. The land on these farms is mostly level or gently rolling and quite free from stone for the most part. While there is a good deal of rather heavy loam, the plowing conditions are not severe except in very dry weather. The fields commonly are regular in shape, ranging in size from about twenty acres up.

These conditions under which the tractors were used should be borne clearly in mind in considering the following summary of the principal facts borne out by a careful study of the experience of the farmers as stated in their reports. Moreover, it should be understood that the figures given represent average results obtained in actual service and not maximum possibilities of the tractor. These averages, however, are believed to be worth more to a farmer in determining the possible value of a tractor in his work than are maximum figures from tests which, no matter how carefully conducted, can represent only a limited number of machines and a limited variation in conditions.

The summary averages a large number of favorable and unfavorable reports from both competent and incompetent operators. The reports include new tractors with new sharp plows and older tractors using plows that have been sharpened several times and not in perfect adjustment. For this reason the average fuel consumption of two and a half gallons per acre from so many users possibly is a safer guide to the farmer than would be gasoline rates obtained under fairly ideal conditions.

The chief advantages of the tractor for farm work, in the opinion of the operators, are (1) its ability to do the heavy work and do it rapidly, thus covering the desired acreage within the proper season; (2) the saving of man labor, and the consequent doing away with some hired help; and (3) the ability to plow to a good depth, especially in hot weather.

The chief disadvantages are difficulties of efficient operation and the packing of the soil when damp.

The purchase of a tractor seldom lowers the actual cost of operating a farm and its purchase must usually be justified by increased returns.

One of the most important points in connection with the purchase of a tractor is to obtain one of suitable size for the farm on which it is to be used. In this connection experienced tractor owners in Illinois make the following recommendations:

For farms of 200 crop acres or less, the three-plow tractor.

For farms of from 201 to 450 crop acres, the four-plow tractor with the three-plow outfit second choice.

For farms of from 451 to 750 crop acres, the four-plow tractor with the five and eight-plow outfits tied for second choice.



A 15-30 TRACTOR PULLING TWO DEEP-TILLING PLOWS TURNING THE SOIL TEN TO FIFTEEN INCHES DEEP.—THE ENGINE HAD POWER ENOUGH TO PULL ANOTHER SIMILAR GANG

A farm of 140 acres is the smallest upon which the smallest tractor in common use, the two-plow outfit, may be expected to prove profitable.

Medium-priced tractors appear to have proven a profitable investment in a higher percentage of cases than any others.

The life of tractors, as estimated by their owners, varies from six seasons for the two-plow to ten and a half seasons for the six-plow outfits.

The number of days a tractor is used each season varies from forty-nine for the two-plow to seventy for the six-plow machines.

No definite figures on the repair charges for late model tractors can be given; it would not seem safe, however, to count upon less than 4 per cent of the first cost annually (this representing the average for farm machinery in general).

Under favorable conditions a fourteen-inch plow drawn by a tractor covers about three acres in an ordinary working day. Under unfavorable conditions large gang plows will cover less ground per day per plow pulled than will the small ones.

Two and one-half gallons of gasoline and one-fifth of a gallon of lubricating oil are ordinarily required in actual practice to plow one acre of ground seven inches deep. The size of the tractor has little influence on these quantities.

Plows drawn by tractors do somewhat better work, on the whole, than horse-drawn plows. In Illinois the depth plowed by tractors averages about one and a half inches greater than where horses are used.

Efficient operation is essential to success with a tractor, and proficiency usually can be obtained more cheaply and easily by previous study and training than by experimenting with one's own tractor.

With a proficient operator the tractor is a very reliable source of power. The use of the tractor for custom work is usually an indication that the home farm is not large enough to utilize it economically. The doing of custom work with the tractor, on the whole, appears to be a questionable practice, although nearly 45 per cent of machines are used for such work to some extent.

A tractor displaces on an average about one-fourth of the horses on the farm where it is used. On a large number of Illinois farms brood mares constituted 33 per cent of the work stock before the purchase of the tractor. The use of the tractor increased this proportion only 3 per cent. Experienced tractor owners do not consider even a two-plow outfit profitable on a farm of less than 140 acres. The average size of farm on which two-

plow outfits are used in Illinois is 270 acres.

The four-plow tractor is most recommended by experienced owners.

Both increases and decreases in the crop yields are reported from the use of the tractor, although favorable effects are more common than unfavorable.

Winter Wheat Below Average

A special committee of the Chamber of Commerce of the United States makes the prediction that the winter wheat production this year will be below the ten-year average of the decade 1906-1915, approximately one-third less than the harvest of 1915, or roughly speaking, around 450,000,000 bushels. The committee declared there was approximately at the time of its survey, April 8 of this year, 20 per cent less acreage standing in wheat than at the same time last year. The question of what the price of wheat will be during the next six months is one which will have a profound effect on the business of the country.

The committee's forecast, at least for the spring and summer, is for comparatively high prices in wheat, since at the time of observation there did not seem to be any likelihood of the crop approaching the yield of last year. This estimate is based on a continuation of European hostilities. Should peace come, however, and the Dardanelles be opened, releasing what is generally thought to be the accumulated surplus of wheat in Russia, there would undoubtedly be a decline in price. What this decline would be, the committee says, can only be a matter of conjecture, but any decline particularly during the harvesting season or afterwards when the wheat is placed on the market, is bound to have an unfavorable effect on the farmer.

Another factor in the situation is the large surplus carried over from last year. As a rule, the National Chamber committee says, the farmer who is in a position to hold his wheat will only sell it when it reaches a price in accordance with his ideas. It is the expressed belief that a great majority of the farmers at this time have the ability to carry their grain for quite a time if they so wish. Should it appear, however, with the coming of peace, that the high price of wheat is ended for the time being, it is more than likely that large holdings will be thrown upon the market with the effect of further lowering the price.

The decrease in acreage has been greatest in the large wheat growing states, and particularly marked in the central West, or, according to the committee, Kansas, Missouri, Illinois, Indiana, Michigan, Ohio and Iowa. It is due to unfavorable weather last fall during the planting time and to an unusual amount of winter killing, in some sections. This caused an abandoned acreage much larger than the average. As a result much land will be plowed up and replanted to other crops. There is not much change in the acreage in Nebraska and the southwestern states, except Oklahoma and Texas where the acreage is also less than last year. In the western, Pacific Coast, eastern and southern states the acreage is much the same as last year.

Figures which the committee submits demonstrate the fallacy of a pronouncement that the prices of grain foods have shown an advancing tendency of late years. A curve of prices shows that for over fifty years there has been no decided tendency either towards advances or declines but merely a series of indeterminate fluctuations that indicate nothing in particular and lend no support to any theory.

This, too, in spite of the unprecedented and abnormal demand caused by the European war, with consequent high prices. It requires no gift of prophecy to realize that with peace must come a cessation of this demand, the releasing of the pent-up Russian surplus, and consequent declines in prices that can be stayed only by crop disasters in this country and other surplus wheat producing nations, so that the next phase of the curve at that time will in all likelihood be downward.

It pays to keep plow points and cultivator teeth sharp. A dull tool will never do effective work.

Oil and grease are both cheap, and yet proper lubrication is often overlooked. It has more to do with the life of an engine than any other one thing.

MOST of the reports from which figures were taken for use in this bulletin were obtained during January and February, 1916, though a few were obtained in December, 1915. Over 50 per cent of the outfits reported on were bought during 1915, and no reports were used which related to machines used more than three seasons; from this it will be seen that the data cover only modern outfits. No reports were considered which were furnished by farmers who held agencies for tractors or were otherwise financially interested in the business. The figures should, therefore, represent the opinions of unbiased men.

The chief advantages of the tractor for farm work, in the opinion of operators, are first, its ability to do the heavy work and do it rapidly, thus covering the desired acreage within the proper season; second, the saving of man labor, and the consequent doing away with some hired help; and third, the ability to plow to a good depth, especially in hot weather.



The Kingdom of the Subscriber

In the development of the telephone system, the subscriber is the dominant factor. His ever-growing requirements inspire invention, lead to endless scientific research, and make necessary vast improvements and extensions.

Neither brains nor money are spared to build up the telephone plant, to amplify the subscriber's power to the limit.

In the Bell System you have the most complete mechanism in the world for communication. It is animated by the broadest spirit of service, and you dominate and control it in the double capacity of the caller and the called. The telephone cannot think and talk for you, but it carries your thought where you will. It is yours to use.

Without the co-operation of the subscriber, all that has been done to perfect the system is useless and proper service cannot be given. For example, even though tens of millions were spent to build the Transcontinental Line, it is silent if the man at the other end fails to answer.

The telephone is essentially democratic; it carries the voice of the child and the grown-up with equal speed and directness. And because each subscriber is a dominant factor in the Bell System, Bell Service is the most democratic that could be provided for the American people.

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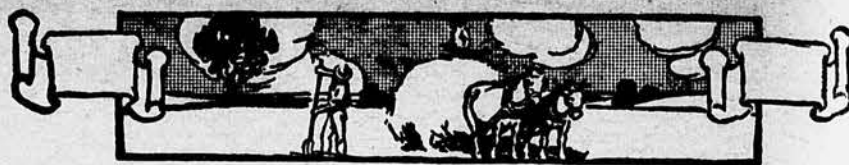
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Characteristics of Bermuda Grass

BERMUDA is propagated either by the seed or the roots. The seed is mostly imported and very low in germination. From the seed the Bermuda comes later in the spring and is not hardy or acclimated.

Bermuda is a southern grass, where it has grown for many hundred years. It is being acclimated to more northern territory. When acclimated to the northern districts, it is known as hardy Bermuda, to distinguish it from that grown from the seed.

It will grow upon all types of soil and under all kinds of skies, be they wet or dry. It will grow and keep green during the driest, hottest weather. It never gets too hot for it, but it does get too cold. Should the fall and winter be dry and the cold severe, it might winter kill until it becomes acclimated. It is a good idea to leave a part of the grass grown the first season as mulching for the first winter. If there is plenty of moisture in the ground it will stand quite cold weather. It is well to set in listed furrows that the first-year plant may have the protection of the furrow ridge the first winter.

Once thoroughly established, it will last for a lifetime. It is now growing in many parts of Kansas and some in Nebraska.

It cannot be even injured by over-pasturing. It is exceedingly rich in protein while small. As it grows larger it takes more crude fiber and is neither so palatable nor nutritious. The best plan is to keep it eaten as closely to the ground as possible.

It is set by burying a part of a root containing one or more joints with a few inches of soil and stepping upon to firm it. A broad leaf will appear in about two weeks. When a few inches tall it will fall to the ground, and from the first joint send a root into the ground to form a new plant. This new plant will send forth several runners like the strawberry plant. Upon each of these there will be joints about every three inches. At every joint there will be a new plant formed. This continues until the ground is occupied by the Bermuda, when it will take on an upright position.

At the State Fair, Oklahoma City, in 1911, there were two Bermuda plants that measured ten feet in length. These, however, were abnormal. It will easily grow to be two feet high upon good soil, and if cut for hay will do it again several times during the season. It will make good hay, but it grows so thickly upon the ground that it is difficult to cut. It is by nature a pasture plant, just as alfalfa is a hay plant. Bermuda will grow upon the poorest soil and under the most unfavorable climatic conditions, but it does much better with an abundance of plant food and plenty of water. I set it upon the poorest land, saving the better for other crops. It will do better upon the poor lands than anything else I ever tried. It is a persistent grower, sending its large roots far into the subsoil in search of plant food, and when it gets it there is a growth. It is a soil builder. The best crops I raised last season were upon what was once my poorest land. It was an old Bermuda pasture. It should be plowed occasionally, as cultivation is the life of the soil. It makes a better hog pasture than alfalfa. The rooting of the hogs serves as cultivation.

I have thirty acres of Bermuda hog pasture, and cannot raise enough hogs to eat all of it, but it is nice to have too much feed. It will grow upon overflow land too wet for other crops. It will live for a week or more under water and then come forth from a foot and a half of drift and grow better than ever because it has a greater supply of available plant food. It stops all soil erosion. Eight years ago I set it upon a dam for holding water. At first I left a spillway, but as soon as the Bermuda was established I filled the spillway, letting the water run over the top of the dam. It holds, as the root system of the Bermuda is so dense that it cannot be moved by the water. It will catch and hold all the blow soil coming its way. When growing, it somewhat resembles bluegrass. If eaten off at sunset it will grow enough for the cows to breakfast by daylight.

We are receiving so many inquiries in regard to Bermuda that we write this as an answer to these many questions.—BERMUDA MITCHELL.

Have you a pure-bred sire in your herd? If not, there is no investment that will pay you bigger returns. Think it over.

FARM

When Average Yield Decreases

A decreased average yield per acre is a state we commonly attribute to decreasing soil fertility or the practice of poor farm methods. In the Year Book for 1915, J. C. McDowell, of the office of farm management, United States Department of Agriculture, points out that farming methods may be just as good or better, but an increased acreage of less productive land has been put under cultivation.

In districts where commercial fertilizers are not used, statistics frequently show that as prices go up the average yield per acre goes down. Better prices for wheat have caused large areas of wheat to be grown in the drier districts of the Central West on land that cannot be made to produce large yields per acre. This lowers the average yield of wheat in these states at the very time the farmers are improving their methods in order to have more wheat to sell at the higher price. In this way increased prices often lower the average yield of farm crops over considerable areas by bringing what were formerly unprofitable acres under successful cultivation.

The extensions of agriculture into regions that formerly could not be farmed at a profit may be due to a variety of causes, among which may be mentioned higher prices, better cultural methods, more efficient machinery, and immigration, due to a general increase of population. All these factors combined to push both the corn belt and the wheat belt farther and farther west, thus developing large areas of land that had previously been considered worthless. The decreased average yield of corn per acre in some of our western states is, perhaps, due more to increased acreage than to depletion of soil fertility. In the table on this page, it will be noted that for Kansas and Nebraska there seems to be a direct relation between large acreage and low yield per acre.

YIELD OF CORN AS RELATED TO ACREAGE.

Years.	Kansas.		Nebraska.	
	Average annual acreage.	Average yield per acre.	Average annual acreage.	Average yield per acre.
1871-1880	1,940,037	33.7	822,269	35.7
1881-1890	4,997,125	27.6	3,309,981	31.5
1891-1900	7,357,234	21.9	6,036,385	26.4
1901-1910	7,298,172	22.1	7,642,217	26.1

In this table it will be noted that average yields go down as the acreage increases, and that when the acreage becomes practically constant the yields do the same. The acreage for the ten-year period 1901-1910 is practically the same as it was for the preceding ten years, and the yield is approximately the same for both of these ten-year periods. Other causes, such as variation in seasons, generally influence the average yield of crops, but in this table the effect of climatic conditions for any particular year is minimized by taking ten-year averages. Sometimes our farming methods are criticized on the ground that they have decreased the yields by robbing the soil, when as a matter of fact, the decreased average yield may be due in part to the bringing of less productive land under cultivation.

Corn Growing Experience

Joseph Andrews, of Linn County, has worked out a very successful system of corn growing based on conditions in his locality. While it is now too late to take advantage of any of the ideas suggested that have to do with the preparation work, Mr. Andrews' observations and experience will stimulate thought and, perhaps, help some of our readers similarly situated to greater success in corn growing. He writes as follows:

"I prefer the lister, one year with another, on all kinds of soil except the black, heavy loam that we sometimes call gumbo. I farm both prairie land and bottom land. The past season I gave the lister and the surface planter a fair test. I listed some ground in March, plowing some at the same time in the same field. At planting time the plowed ground was double disked and planted with a check-row planter. The ground that was listed was re-listed and planted. Both parts of the field were planted at the same time. The first cultivation was a harrowing, the whole field

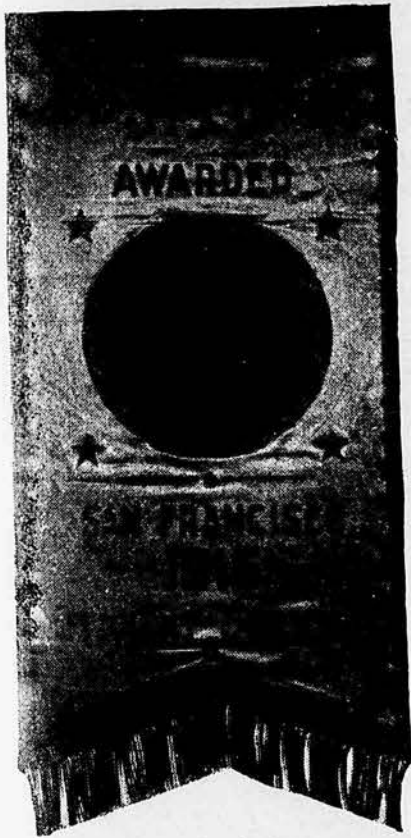
being covered the same day. At the next cultivation a six-shovel cultivator was used on the surface-planted corn, and a little disk cultivator on the listed corn. From then on the fields received the same number and kind of cultivations. The average yield from the listed portion of the field was 55 bushels an acre, from the check-rowed portion 45 bushels.

"In preparing ground for corn by the lister method, I prefer to fall or early spring list, putting on plenty of horses and running the lister deep. This gives a deep furrow full of loose soil to cultivate after splitting the ridges when the corn is planted. At this second listing I do not run the lister more than half as deep as the first time, having the subsoiler run about four inches deep. When corn is planted by this method there will be no water standing in the furrow, even after a fairly heavy rainfall. It will all be taken up by the loose soil left by the deep listing in the spring or fall before.

"Some of the listers on the market have the moldboard set too high. They make a furrow with a straight, sharp edge. This tends to keep the sunlight from getting down to the corn when it is small. I find that this method of planting enables me to grow corn in fields that are very weedy. I have been able to clean out the worst kind of weed patches in two years."

Kansan Wins Honor

The gold medal ribbon here shown was awarded to J. Clyde Ferriter, of Wichita, for efficient and conspicuous service to the Jury of Awards at the Panama-Pacific Exposition. Only three such medals were awarded. Mr. Ferriter was assistant superintendent of the Kansas exhibits, and also secretary of the Ex-



hibitors' Association of the Panama-Pacific Exposition. Most of his time was spent in charge of the Kansas exhibit, where he daily talked to thousands of people, explaining the exhibits and telling of Kansas. The service he rendered was highly regarded by the Kansas Commission.

Futurity Payments Due

We have the following letter from J. R. Pfander, secretary of the National Bureau-Jersey Record Association. It is of interest to breeders who have nominated herds and others as well.

"The litter nominations must be made by June 1, 1916. If you did not receive the blanks from us or have mislaid them, all the information we require is the date of farrow of the litter, the name and record number of the sire and the dam, and one dollar for each litter. You can nominate as many litters as you desire, as you will be allowed to exhibit as many pigs as you desire, providing they have been kept good.

"I wish to call particular attention to the fact that any breeder who has not nominated his herd for the futurities, but has purchased a bred sow from a nominated herd, has a right to nominate the litter or litters from the sows purchased as bred sows from a breeder whose herd is nominated, and we will only be too glad to furnish any one with a complete list of the nominated herds.

"If you purchased a bred sow from a breeder whose herd is nominated and

your herd is not nominated and you wish to show the litter or litters in a futurity show, just send us the name and record of the sow and the sire of the litter together with the date of farrow of the litter and the name and address of the breeder you purchased the sow from as a bred sow and remittance of one dollar for each litter you wish to nominate.

"The futurity premiums amount to \$400 in cash and a silver trophy, and any breeder is making a mistake if he allows this opportunity to pass without making a special effort to win some of this money.

"I will be glad to hear from any one wishing additional information relative to the futurity shows."

Important Live Stock Meeting

During the past winter 100 head of high-grade Hereford calves have been fed at the Kansas Experiment Station to study some of the problems in the production of baby beef or yearling beef. At the fourth annual meeting of the cattle feeders of Kansas to be held at the agricultural college and experiment station at Manhattan on Friday, June 9, these calves will be lotted as fed during the winter in order that each man present may see for himself the difference in the condition of the various lots. A complete statement of the amount of feed, its cost, the gains of the cattle, their value upon the market, and the profits secured from feeding will be presented in tabular form to all those who are present.

The calves have been fed in six different lots, five getting a basal ration of alfalfa hay, silage and cottonseed meal. The other feeds used are shelled corn, ground corn, corn and cob meal, ground kafir and ground kafir heads. It will be possible to see whether or not it has been profitable to put any preparation upon corn for feeding calves, to compare ground kafir with corn in its various forms, and to compare the ground kafir heads with ground kafir. The sixth lot has been fed without silage to determine whether or not it is advisable to add silage to rations for fattening calves. The results of this work will be presented by the various members of the animal husbandry department, who will also present the various phases of the departmental work on that date.

The purpose of this meeting is to present to the feeders, at a time when the information is really valuable, the results secured from the feeding trials that are now in progress.

In addition to this a very interesting and instructive program has been arranged. One of the most important problems confronting the cattlemen of Kansas and other states is the financing of feeding and breeding operations. This question will be handled by P. W. Goebel, president of the largest bank in Kansas and one of the most sound financial advisers of the state. His subject will be "Financing the Cattlemen." Mr. Goebel has been loaning money to cattlemen for twenty years and is especially well fitted to discuss this particular subject. He is also president of the Bankers' Association of America and is a forceful, direct and logical speaker.

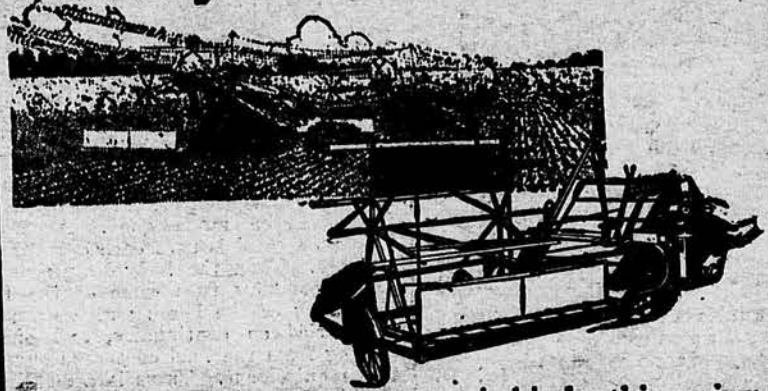
Prof. C. F. Curtiss, dean of the agricultural department of the Iowa State College and director of the experiment station, a man who is known in every section of the United States as one of the most competent judges of live stock and who has probably done more to encourage the production of pure-bred live stock of superior merit than any other one man in the United States, will be present and discuss the influence of the breeders of pure-bred live stock upon the cattle feeding industry. Professor Curtiss has not only done a great deal of work in a public way at the shows and expositions of the country, but is the owner and manager of the Rookwood Farms at Ames, Iowa, upon which are produced some of the best pure-bred cattle and hogs that are to be found any place in America. In this way he combines his theoretical training with his business ability and will be able to present to the Kansas cattlemen information that is based upon practical experience.

In addition to these men President H. J. Waters of the college, W. M. Jardine, dean and director, and Prof. L. E. Call of the agronomy department, will appear on the program giving the results of the experimental work in crops and soils.

An opportunity will be offered to all who are here to visit the agronomy, dairy and poultry farms. The pure-bred and grade herds of breeding cattle, show cattle, horses, hogs and sheep will be conveniently assembled for inspection.

A little time spent with a wrench to see that everything is tight and in order will often save a big repair bill.

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Kansas Farmer Dairy Club

Maintenance Requirements Must Be Met

WHEN we feed a cow or any other animal, we can be sure that it will use all the nutrients required to keep up its own body, before using any for growth or the production of milk. The living body might be compared to a piece of intricate machinery. It is constantly suffering from wear and this must be made good. A certain amount of feed is used each day for this purpose. Then the body heat must be kept up. This uses some of the feed. The work of the heart and lungs must be carried on continually, and energy coming from the feed consumed supplies this requirement. There is a small loss of mineral matter daily, and this must be replaced. The daily nutrient requirements for these purposes is spoken of as the "feed for maintenance."

From what was said last week, it will be understood that some protein will be needed to replace the worn-out parts of the body. Protein only, can be used for this purpose. It does not take very much, but nothing else can take its place. Since protein is also required for milk production, it is plain that there must be enough left over after the cow has replaced the worn-out tissues, to make milk. The greater amount of the feed of maintenance is that required to keep up the heart of the body and supply the energy for carrying on the work of the heart, lungs, and other muscular activities. This need is met by the carbohydrates and fat in the feed. This is a fortunate circumstance, for feeds containing large amounts of carbohydrates are cheap and easily grown. Such concentrated feeds as corn supply much more heat and energy than will an equal amount of coarse fodder, but cattle belong to that class of animals having a stomach or several stomachs specially fitted for digesting bulky feeds. When grazing or eating bulky feeds, they swallow without chewing. It is stored in the stomach, or first stomach, where it is softened, and later the animal brings up to the mouth small portions of the contents of this first stomach for chewing. This is continued until it is all worked over and ready for the next stomach. This process is called rumination, or in common words, chewing the cud.

It is always a good rule to follow in feeding cows to give all the bulky feed they can handle. This, because these feeds are cheaper and from them the cow can usually get all the nutrients required for maintenance. Unless the fodder and hay is of extra good quality, there will not be enough left over for very much milk. The cow can only eat a certain amount of this coarse feed. If her capacity for rough feed was unlimited, there would be no necessity for feeding any grain.

The exact amount of nutrients the cow will need for her body will depend upon her size, disposition, and the surroundings. The large cow will need more feed to keep up her body than will the small cow. The one that is irritable and discontented will need more than one that is quiet and docile. The cow that is exposed to the cold will need more feed to keep her body warm than will the one kept in a comfortable barn.

In ordinary feeding, the daily maintenance requirements for a 1,000-pound cow are seven-tenths of a pound of digestible protein, seven pounds of digestible carbohydrates, and one-tenth pound of digestible fat. To produce 20 pounds of milk, it requires 1.04 pounds of digestible protein, 4.7 pounds of digestible carbohydrates, and .4 pounds of digestible fat. If the cow has capacity for giving 20 pounds of milk each day, these amounts of digestible nutrients must be supplied in the daily ration in addition to those required to keep up the body. These figures are those given by Professor T. L. Haecker of the Minnesota Experiment Station, and are based on a large number of careful experiments in feeding cows for milk. This makes the total daily nutrient requirements of the cow giving 20 pounds of milk, 1.74 pounds protein, 11.7 pounds carbohydrates, and .5 pounds fat.

All the boys and girls are familiar with the fact that when cows are grazing on good pasture they will give a lot of milk without any grain feeding. This is because grass is an ideal feed. It will be interesting to figure out the nutrients supplied by grass and see how they compare with the requirements as given above. A cow will consume from 75 to 100 pounds of grass daily. Seventy-five pounds of average bluegrass contains 1.8 pounds of protein, 11.1 pounds of carbohydrates, and .45 pounds of fat. This compares very closely with the actual requirements for producing 20 pounds of

milk daily. Large cows will eat considerably more than 75 pounds of grass a day if they can get it. If the pasture is short, it means that they must graze over a large space in order to get enough. A cow might graze all day long on short pasture and still not have as much grass as she could use for milk.

The point that we want our club members to get from this article, is that the cow's maintenance requirements must be met before any milk can be given. Feeding the cow for milk might be compared with running a machine. It takes a certain amount of power to run the machine empty. If no more is supplied the empty machine would continue to run, but would be piling up the expense day after day, and no work would be accomplished. A good many cows are fed in this way. If feeds happen to get a little high in price, the owner decides he will cut down the amount so as to reduce the expense. He may reduce it so the cow is getting barely enough to keep up her body. The daily feed bill will be less, but the expense will pile up each day, and there will be little milk produced and little profit made. Suppose feed enough is given so the cow can give 10 pounds of milk a day although she has a capacity for giving 30 pounds. By increasing the quantity of feed so that about 50 per cent more nutrients are supplied daily, the cow can produce the 30 pounds of milk. The total production has thus been increased 200 per cent, although only 50 per cent more nutrients have been given. The reason the small increase in feed makes a big increase in production, is because the actual cost of running the machine is the same in each case. It is a poor policy to have an efficient machine and then run it empty or at only half capacity. That is what you do when you supply your milk cow with only enough feed to keep her own body going. It is from the extra feed above maintenance requirements, that the profits come. Be sure your cow is getting all the feed she can handle. This is as important as it is that the feed should be of the right kind. If she is not a good type of dairy cow, the extra feed may be used for some other purpose than milk. You can learn what she is doing with the feed by watching the milk record closely and weighing the cow occasionally.

Every cow has a certain capacity for making milk. By gradually increasing her feed and watching the milk record, you can tell when she has reached her capacity. If an increase in the right kind of feed does not bring a corresponding increase in milk, the feed is being wasted. You cannot make your cow give 60 pounds of milk a day if she has capacity for making only 50. If you find your cow is steadily gaining weight, it is an indication that feed is being used for storing fat on her body, and is therefore wasted so far as making milk is concerned. The ration should be so adjusted that the cow does not vary much in weight from day to day.

Dairy Club Work a Business

Our dairy club boys and girls should not overlook attending promptly and carefully to all matters of business in connection with the club work. Your cow may be the best one in the club, but it will be necessary for you to prove this by your records, so you can see how necessary it is to keep these accurately.

When you have purchased your cow, be sure to send in the report blank for this purpose properly filled out. Also when the cow freshens and your milk record begins, send in that blank with all questions correctly answered.

Every body and girl in the dairy club has gone into business, and your business cannot prosper unless you know just what you are doing. And as we are your partner, remember that we, too, should have all reports called for in our agreement.

Have you filled out and sent to your banker and to KANSAS FARMER all blanks which should have been sent by you up to this time?

This business experience will be valuable to you to just the extent that you make it so.

Grain for Calf

We feel sure our dairy club members will take great pleasure in raising their calves. If they happen to be heifers, you can look forward to making the effort you put into this work, most profitable. Perhaps for some of you this will be your first experience in calf feeding. There is far more danger of your

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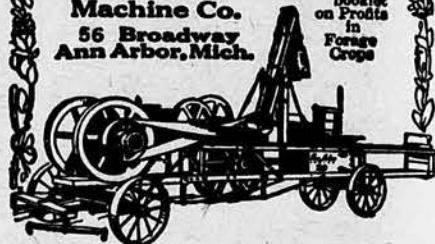
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feeding the calves too much than too little. The calf's stomach is small and it is Nature's way for the calf to get the milk often and in small quantities. For the first two weeks the hand-raised calf should be given milk fresh from the cow morning and night, with a mid-day feed warmed to the same temperature. All pails used must be kept clean and carefully scalded. The change to skim milk should be made gradually, and grain must be fed to make up for the butter fat removed. The real young calf cannot digest the starch found in grains, but by the time it is two or three weeks old the digestive fluids that act on starch, are found in its mouth. Starch, when properly digested, serves the same purpose as the fat in the milk. Starchy grains like corn, kafir, or oats, are much better than such feeds as oil meal. Oil meal is an expensive feed and is rich in protein. It is fat, not protein, that is needed to supply what skim milk lacks.

The grain must not be mixed with the milk. If this is done it will be swallowed without chewing and will not be acted on by the fluids in the stomach. Indigestion and scours will be the result. Give the calf its grain when it is through with its milk. When eaten dry in this way it will be chewed and the saliva of the mouth will mix with it and the first processes of starch digestion will take place.

These may seem like small matters, but they are important.

Splendid Dairy Record

Two living calves and 2,005 pounds of 85 per cent butter from 33,292.5 pounds of milk in the period from January 7, 1914, to March 4, 1916, is the record of the Jersey cow Temisia's Owl's Rose 215973.

"Rose" first came into the limelight in 1915, when she qualified for an American Jersey Cattle Club gold medal, by producing 17,056.4 pounds of milk, containing 863 pounds of fat and by carrying a calf during 237 days of the year's test. She started this noteworthy record at the beginning of her twenty-sixth months' performance, on her fifth calf, at six years and eleven months of age. She dropped her sixth calf on March 1, 1915.

As the function of a dairy cow is to produce milk and butter as well as reproducing her kind, Temisia's Owl's Rose may be said to be fulfilling her mission to the satisfaction of her owner, R. A. Sibley, of Massachusetts, at whose farm she was bred.

Self-Suckling Cow

G. W. S., Jewell County, writes that a sure cure for the self-suckling cow is to get a beef gall from the butcher shop and rub some of its contents on the cow's teats. We have never before heard of this cure. If any of our readers have cows with this habit and have been unable to cure it, we would suggest that they try this remedy.

Calf Feeding Club

A most successful steer calf feeding contest was conducted last fall by E. J. Trosper, director of agriculture in the State High School at Lake City, Minn. Four counties were covered in this contest. It continued for several months, closing November 5, when nearly three dozen steer calves and their feeders lined up for final judgment and award.

The rules of the contest admitted any boy under twenty-one years of age and allowed him to enter a steer calf dropped after January 1, 1915, of any breed, provided entry was made before June 15. All boys were required to file a statement showing how the calf was fed and managed. The calves were judged according to market finish and general conformation, for which fifty points were allowed; weight according to age, 30 points; show appearance and performance, 20 points. All of the boys who entered the contest manifested enthusiasm and perseverance. During the summer months, several auto trips were directed by Mr. Trosper, chairman of the committee. The object of the various trips was to instruct the boys in practical and scientific feeding, to photograph the calves, and continue interest in the contest. Toward the close of the season an automobile trip was made in which all of the contestants were invited to participate and a visit made to the home of each and an inspection made by them in a body, of every calf undergoing fitting. During this trip a special effort was made to bring to the boys' attention many valuable points in feeding and general care of the calves. It was a busy day and a profitable one, as is suggested by the expression of Charles Howard, who fed the winning calf, a roan Shorthorn. He wrote as follows:

"From that day to the day of the contest, I had a picture of every other calf

in the contest in my mind and a number of the boys told me that they had the same experience. I know it inspired us to do better work with our calves."

The calf shown by Charles Howard and winning first place over all was dropped May 24, and was sold after the contest. The amount received for this calf and in prizes made a total of \$115. The expenses of each boy and his calf incurred at the show were paid by the Lake City Colt and Calf Show Association. The exhibition of the calves was declared the crowning feature, and has excited widespread interest in that section of the state. The first five calves were purchased by N. P. Rogers, president of the South St. Paul Live Stock Exchange, and turned over to the Minnesota Agricultural College for experimental feeding and demonstrating purposes.

A larger contest for 1916, with a longer feeding period, is now under way. There will be two classes, one for boys and girls under twenty-one years of age and another for exhibitors over twenty-one years of age. The 1916 contest will be placed on a business basis, requiring complete records of the care and feeding operations. The prospect is now for sixty or more calves to finish in the contest.

Which Is the Best Breed?

Beginners in live stock frequently ask which is the best breed. There is no best breed for all conditions. It depends upon circumstances and surroundings and the purpose for which the animal is to be used. What line of production do you wish to pursue and what are your preferences?

You do not want to keep beef cattle for dairy production, nor dairy cattle for beef production.

If you wish to produce baby beef, you want a breed that can be fitted for the market at any age.

If you sell milk in a market where milk is milk so long as it tests up to the state standard, it is a business proposition to keep a breed that gives great quantities of milk.

If you would make butter of fine quality, it is wise to select the breed that in competitive work has made such butter most economically.

If you have a lot of rough pasture land for the cows to graze over, you should select a breed that was developed under similar conditions and will do well when thus pastured.

If you would cater to a special trade that demands a specific kind of product, it is your business to keep the breed that enables you to furnish that product.

There is no such thing as a best breed, because each breed has its distinctive qualities, adapting it to certain lines of work, most economically and efficiently.

The selection of a breed is not a matter of whim or fancy, but a business proposition requiring careful thought.

Co-operative Beef Club

For thirty years a beef club has been in operation in Prairie Township, Carroll County, Missouri. The rules and plans of the club are now so well organized that it may be regarded as a model to be followed with profit by many other sections of the state. Butchering takes place every Friday afternoon and the carcass is divided among sixteen families. Similar organizations have succeeded very well in many other parts of the country. It is quite generally customary for each family to receive a different portion of the carcass so that in a few weeks or months any unequal division which may occur one week will be counterbalanced by a corresponding advantage or disadvantage in later weeks. Sometimes each family in turn furnishes an animal approved by a committee of the club and does the butchering. Sometimes the committee purchases and butchers the animal without calling on any members of the club and then sells the meat. In this case we have practically co-operative buying from members of the organization but without profit to those members who sell what they have bought for that purpose.

One of the ways to cheapen pork production is to let the pigs gather their own crops. But this does not mean that they should be forced to roam over a hundred-acre field each day to find this feed. It means that there should be plenty of feed upon a small area of land, and the true way to get this is to plant and cultivate crops especially for the hogs, and when mature let them do the gathering. If you haven't done so already, it is time now to give this your attention.

Concrete floors are a big aid in producing milk that is clean and untainted.

A Game Farm Pays Good Dividends

HAVE you ever considered the possibility of increasing the cash yield of your farm by means of game breeding? There is a constant and growing demand for game birds and the eggs of game birds. This demand, which comes largely from city markets, from game breeders and from sporting clubs owning game preserves, is so much greater than the supply that good prices are received by the comparatively few people at present engaged in game farming.

You would find a game farm, carried on in connection with your regular farm work, to be a source of considerable profit. In addition to this the raising of game birds is, in itself, an intensely interesting occupation. Your own time would not necessarily have to be given to it. Your wife or your children—whoever is now taking care of your poultry—could run the game farm.

Unquestionably your land is well adapted to the raising of at least one species, possibly several different species, of game birds. Pheasants, quail, wild turkey, and other birds are easily bred in captivity—require comparatively little attention, call for small initial expenditure in time and money.

The subject is one to which you should give serious consideration. All the information which we have regarding it is at your disposal. If you will write for our booklet, "Game Farming for Profit and Pleasure", we will gladly send you a copy without cost to you. When writing use the coupon below.

Game Breeding Dept., Room 99

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Will Save Your High Priced Grain

PRESERVE YOUR LUMBER, SILOS, SHINGLES, FENCE POSTS

CURRY PRESERVER, a carbolineum oil with over a quarter century quality record, will insure your Lumber, Silos, Shingles, Fence Posts, etc., against Rot and Decay. One application of CURRY WOOD PRESERVER (a boy can do the work), will give longer life to your Lumber at less cost.

ADD TO YOUR FARM PROFITS BY REDUCING YOUR EXPENSE.

The large Railroads, Telegraph Companies, Factories, etc., have for years been successfully and profitably using wood preserver for their ties, Telegraph Poles, Floors, Platforms, etc. You can now get the same Preserver in small quantities for use on the farm. The number of uses to which you can profitably put CURRY PRESERVER will surprise you.

Mail One Dollar for prepaid large sample (enough to preserve about a hundred feet), also full directions, price list and useful, interesting literature. Complete particulars including list of uses Free. CHAS. C. CURRY & CO., 2145 RAILWAY EXCHANGE BLDG., ST. LOUIS, MO.

This Useful Outfit Given to Subscription Helpers

1 Butcher Knife - - - - - 1 Meat Cleaver
1 Meat Saw

THREE-PIECE IDEAL MEAT SET

Given as a premium to anyone sending a club of three NEW subscribers to KANSAS FARMER at the special trial rate of 50 cents to January 1, 1917.

USE THIS ORDER BLANK

KANSAS FARMER, Topeka, Kansas.

Gentlemen: Inclosed please find \$1.50 to pay for the following three new trial subscribers to KANSAS FARMER for the rest of 1916.

NAME OF NEW SUBSCRIBER TOWN STATE

1.....
2.....
3.....

In return for my help you may send me, postpaid, the Ideal Meat Set.

Name..... Town..... State.....

BARGAINS IN WHEAT LAND

POSITIVELY NO TRADES CONSIDERED.

This land has proven its ability to make 20 per cent net each year on the value asked. It is offered for sale, as the owner is ready to retire.

FARM NO. 1.

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

FARM NO. 2.

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

FARM NO. 3.

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

FARM NO. 4.

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

WRITE TO H. N. HOVEY, CARE KANSAS FARMER, TOPEKA, KANSAS.

FARM LANDS FOR SALE

A Modern Topeka Home

TO SELL AT A BARGAIN

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

BOX 5, Care KANSAS FARMER

THIS WILL INTEREST YOU

Do you want to move to Topeka to educate your children? If you do, this modern five-room home near Washburn College will just suit you. New, only occupied ten months. A choice location. Must sell quick. \$3,200 takes it. Address S, CARE KANSAS FARMER, TOPEKA.

Come to Fowler, Meade Co., Kansas

Where great opportunity awaits you; where you can buy the finest of alfalfa lands set to alfalfa with flowing artesian wells; fine orchards and homes at from \$50 to \$75 per acre. Finest of wheat land, improved, at \$25 to \$50 per acre. Friends, Catholic, Christian and Baptist churches with large congregations. Write

THE HADDICAN LAND CO., Fowler, Kan.

GOOD FARM FOR SALE

160 Acres, 6 1/2 miles from Woodward, Oklahoma. Located in good neighborhood, near to school. All in cultivation. Orchard, good well and spring. Three-room house. Am leaving country. CHAS. C. HOAG, Owner, Woodward, Okla.

EIGHTY ACRES, one-half mile city 3,500, this county. All bottom, all tillable, no overflow. 35 acres cult. \$28 per a. Terms. SOUTHERN REALTY CO., McAlester, Okla.

UTICA, NESS COUNTY, KANSAS

On main line Missouri Pacific. Send for literature. If you don't want to buy any land, do you know of anyone who does? If you do, send us the names of parties who might buy land here. If we close a deal with any of them, will pay you well for your trouble. Buxton Rutherford Land Co., Utica, Kansas.

SEVENTY ACRES

One mile of pavement, Ottawa, Kansas. Seven-room house extra fine, large barn, other splendid improvements; everything up in splendid condition. Owner wishes to sell on account of business opportunity. Write for full description and view of improvements. MANSFIELD LAND CO., OTTAWA, KAN.

WANTED

A buyer for a quarter of Rush County, Kansas, bottom wheat land, all in crop, at \$5,600. Terms. It's a bargain. Write JAS. H. LITTLE - LA CROSSE, KAN.

FINE SECTION UNIMPROVED

Only eight miles from Leoti, county seat of Wichita County, Kansas. Fine wheat land and can all be plowed. Price for quick sale, \$10 per acre. CARTER REALTY & ABSTRACT CO., Leoti, Kansas.

BUSINESS STATIONERY

At the prices quoted herewith you cannot afford to use anything but printed BUSINESS STATIONERY. Write for samples.

LETTER HEADS—
8 1/2 x 11 inches. Bond paper. White. 500 for \$2.50, 1,000 for \$3.00, additional 1,000 \$1.50. If you wish ruled stock, add 75c per 1,000.

ENVELOPES—
No. 1, 6 1/2, Commercial size. White. 500 for \$2.00, 1,000 for \$2.75, additional 1,000 \$1.75.

ENVELOPES—
No. 2, 6 1/2, Commercial size. White. 500 for \$2.25, 1,000 \$3.00, additional 1,000 \$1.75.

ENVELOPES—
No. 6 Special Addressed Envelopes. 500 for \$1.75, 1,000 for \$2.25, additional 1,000 \$1.25.

BUSINESS CARDS—
Round corner, 2 1/4 x 3 1/2 inches. No. 88. 500 for \$2.00, 1,000 for \$2.75, additional 1,000 \$1.75. These can be supplied in square corners if you wish.

The following items are put up in pads of 100 if you desire, at no extra charge:

LETTER HEADS—
Special Pledge, size 6 1/2 x 9 1/2. Ruled. White. 500 for \$2.25, 1,000 for \$3.00, additional 1,000 \$1.50.

STATEMENTS—
No. 2, Regular size, 5 1/2 x 8 1/2 inches. Ruled. White. 500 or \$2.35, 1,000 for \$3.00, additional 1,000 \$1.50.

STATEMENTS—
No. 1, Special, size 5 1/2 x 8 1/2 inches. Ruled. White. 500 for \$2.25, 1,000 for \$2.75, additional 1,000 \$1.25.

BILL HEADS—
No. 2, size 7 x 8 1/2 inches. Ruled. White. 500 for \$2.75, 1,000 for \$3.00, additional 1,000 \$1.75.

BILL HEADS—
No. 1, size 4 1/2 x 8 1/2. Six ruled lines. White. 500 for \$2.50, 1,000 for \$2.75, additional 1,000 \$1.60.

All prices are quoted delivered to you at your home address, prepaid. For this reason we ask remittance with order.

KANSAS FARMER TOPEKA, KANSAS



A New Crochet Book Edgings and Insertions

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

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

KANSAS FARMER
Topeka, Kan.



Little Talks to Housekeepers

Helpful Hints Here for the Women Folks of the Farm

Adenoids in children should not be neglected, as the results are very detrimental to health and far-reaching. If the child breathes through his mouth continually, a physician should be consulted.

A neat, durable way to sew on hooks and eyes, snaps, and patent fasteners is to buttonhole them into place, letting the purl of the buttonhole stitch come to the outside of the ring. Fasteners put on in this way will outwear any ordinary garment. Once on, they are always on.—BERYL DIXON, Colorado Agricultural College, Fort Collins, Colo.

"I love the blue sky, trees, flowers, mountains, green meadows, sunny brooks; the ocean when its waves softly ripple along the sandy beach, or when pounding the rocky cliff with its thunder and roar; the birds of the field, waterfalls, the rainbow, the dawn, the noonday and the evening sunset—but children above them all.

"Trees, plants, flowers—they are always educators in the right direction; they always make us happier and bet-

ter, and if well grown, they speak of loving care and respond to it as far as in their power; but in all this work there is nothing so appreciative as children—these sensitive, growing creatures of sunshine, smiles and tears."

If you would make the bread crust darker, brush with milk before putting in the oven. If you would make it more tender, brush with melted butter several minutes before removing from the oven. Bread taken from the pans as soon as removed from the oven and placed on an inverted wire basket or something open below under which the air can pass, and cooled without being covered, will have a crisp crust.

Is there a son or daughter in the family eligible to join the Kansas Farmer Dairy Club? The work of this club would be valuable to them because of the dairy knowledge gained and also because of the business experience it affords.

If the child never makes any decisions for himself, when the time comes that

FASHION DEPARTMENT - ALL PATTERNS TEN CENTS

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



No. 7643—Girls' Dress: Cut in sizes 2, 4, 6, 8, 10 and 12 years. The completeness of the detail in this little dress deserves worthy mention and is what makes it a cunning little frock easy to win popularity. The blouse section where the closing length to give youthful line. No. 7682—Ladies' Waist: Cut in sizes 36, 38 and 40 inches bust measure. Strikingly military in design is this waist and of course in the height of fashion. It has the necessary fullness, the military shoulder cape, the cuff that buttons. No. 7645—Children's Rompers: Cut in sizes 2, 4, and 6 years. Even though they may not make their own clothes, there are mothers who will tell kiddies. Rompers have a place among the things made at home, for they not only protect but dress the little tot. No. 7675—Ladies' Apron: Cut in sizes 36, 40 and the back. The waist part in front is in bib style, rather full, but in the back fitting one. No. 7661—Ladies' Skirt: Cut in sizes 24 to 32 inches waist measure. A smart, character necessary for convenience, the inserted side sections are a feature. Serge, in sizes 36 to 44 inches bust measure. This design with its "y" neck on a graceful, fully full blouse has two plaits at the shoulder edge of the side fronts. Sleeves may be made in long or short style. The skirt is three-gored, a novelty pocket is stitched at either side, and buttons generously trim the garment from neck opening to hem.

he must make his own decisions these will be doubly hard and his inexperience may work to his disadvantage. Childish decisions, made with the help and guidance of elders, have their place in the child's development.

The housewife who learns to conserve her energy all possible in the daily routine duties will find she has more time for doing those things which keep up her interest in matters other than work, and all will be accomplished with greater ease.

Promises made to children are real to them and when they are not kept there is real disappointment. And not only this, but they soon think it is not necessary for them to keep promises, either.

Poor Richard Says

An old young man will be a young old man.

Diligence is the mother of good luck. A life of leisure and a life of laziness are two different things.

Sloth like rust consumer faster than labor wears.

An Easy Way to Seal Bottles

When one has not the bottles with patent attached stoppers, the easiest way to seal bottles of fruit juice is to press over the top a piece of white wadding, saturated with melted paraffin, and over this tie one or two thicknesses of waxed paper. (I save the linings of biscuit cartons for this purpose.) The wadding must be cut large enough to reach well onto the neck of the bottle. This way is not only much quicker than fitting in a cork stopper, but there is no trouble in opening the bottle, as a hot cloth placed over the top for a minute or so loosens the wax, or it can be removed with a small-bladed knife.

Natural Courtesy

It is as natural for some children to be courteous and polite as it is for others to forget their training in this direction. A few evenings ago we were visiting at the home of a friend and after a survey of the yard had been taken, as we neared the house the lad of ten at our side stepped ahead and opened the door and while holding it for us to enter, removed his cap that he might be ready to follow. This was only one of the manifestations of his manliness noted by us during the visit. There were several children in the family and all were alike in this respect.

We found ourselves trying to measure the patience it must have required of the parents to accomplish this politeness in those small children. And yet we felt—and we are sure they did, too—that they were well repaid, for they had reached the place where it was no longer necessary to watch to see that the children did not walk on people's toes in an unconcerned way, or "take" the floor in the midst of older ones' conversation in a way that might lead visitors to think they had had no training in this direction.

As the children grow these habits of courteousness will root deeper and become a part of them and the parents will unconsciously value their own reward more and more as they see their children grow graciously into manhood and womanhood.

Camera Pleasures

These are lasting. When time hangs heavy and a case of "blues" is being fought, to look through a bunch of home-made pictures will bring to memory good times of the past, will help greatly to dispel the gloom. All the joy of the occasion upon which the picture was taken, comes back at sight of it. Many opportunities for use will come if the camera is close at hand. How often the mother could get an interesting picture of the little folks at their play. And pictures of the old home or of some favorite spot of early childhood will in the years to come grow in value.

One use for the camera which has been very satisfying to us, is in taking pictures of relatives and friends who have not for years sat for a real photograph. One instance we recall of having "snapped" an elderly friend who died very suddenly a few months later. The little likeness was good and the pose very natural, and when the relatives were wishing they had a late photograph of her, we were glad to be able to give them the film and from which many prints were made.

Then, there is a business value to the camera on the farm, which should not be overlooked. A good picture of the animal that is for sale may be worth the difference between an ordinary and top price.

There are a number of good makes of

cameras and their relative merits should be studied before purchase is made. This can be done by reading the printed matter issued by the different concerns and by talking with users. The lens is the part of the camera that should be given most careful consideration. A study of the book of instructions received with the camera will have its effect upon the work done with the little machine. If the developing and printing will be done at home, this, too, should be studied that the results may be the best possible.

There are sizes and prices of cameras to suit all and the investment is sure to be one that will not be regretted.

Canning Time Near

To tell housewives that the canning work comes with a rush each year, is needless, but a part of this rush can be avoided by looking over the cans before time to use them and providing new caps and rubbers. Where canning outfits—which are now being used so successfully by many—are to be tried for the first time, these should be made or bought, as the case may be, so that when the season for doing the work of canning fruits and vegetables comes, the make-ready part of the job will be complete.

On another page in this paper will be found an article on canning and preserving strawberries according to the new method which is proving so successful. By this method many of the vegetables and meats can be saved for out-of-season use when they so acceptably vary the diet.

Summer Fashion Book, 10 Cents.

As owing to the large number of departments, it is not possible for us to illustrate the very many new designs that come out each month, we have made arrangements to supply our readers with a quarterly fashion catalog illustrating nearly 400 practical styles for ladies, misses and children, illustrating garments all of which can be very easily made at home. We will send the latest issue of this quarterly fashion book to any address in the United States, postage prepaid and safe delivery guaranteed, upon receipt of 10 cents.

Cottage Pudding.

- 1/2 cupful butter
- 1/2 cupful sugar
- 1 egg
- 1 cupful milk
- 2 1/2 cupfuls flour
- 4 teaspoonfuls baking powder
- 1/2 teaspoonful salt

Cream butter, add sugar gradually, and egg well beaten. Mix and sift flour, with baking powder and salt. Add these alternately with milk to first mixture. Turn into buttered cake pan and bake thirty-five minutes. Serve with following lemon sauce:

- 1 cupful sugar
- 1 cupful boiling water
- 1/2 tablespoonful corn starch, or
- 1/2 tablespoonful flour
- 1 1/2 tablespoonful butter
- 1/2 Juice of one lemon

Mix sugar and corn starch, or flour, add water gradually, stirring constantly. Boil five minutes, remove from fire, add butter and lemon juice.

Graham Meringues

- 1 tablespoonful melted butter
- 1 egg
- 1/2 cupfuls sour milk
- 1/2 tablespoonfuls sugar
- Salt
- 1 rounded teaspoonful soda
- Add graham flour until mixture will drop from spoon

The Kinds He Knew

One of the questions in an examination on the subject of stock raising was: "Name four different kinds of sheep."

An aspiring youth gave this for the answer: "Black sheep, white sheep, Mary's little lamb, and the hydraulic ram."—Exchange.

Fulfilling the Requirements

Willie came up to his mother with an expression of anxiety on his face. "Ma," he asked, "if a poor, hungry little boy was to come to the back door and ask for something to eat, would you give him that piece of pie that was left over from dinner?"

"Yes, Willie, of course I would," said the mother.

Willie's face cleared. "All right," he said, "just wait a minute till I run around to the back door."—Exchange.

Deep Drilling

"Here's something queer," said the dentist. "You say this tooth has never been worked on before, but I find small flakes of gold on my instrument."

"I think you have struck my back collar button," replied the victim.

Classified Advertising

HELP WANTED.

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.

MEN AND WOMEN WITH SELLING ability earn \$3 to \$10 a day. Staple goods and straight business proposition. C. W. Carmen, Department D, Merchants Bank Bldg., Lawrence, Kan.

MEN AND WOMEN WANTED EVERYWHERE. Government jobs. \$70 month. Short hours. Vacation. Big chance for farmers. Write immediately for list of positions now obtainable. Franklin Institute, Dept. K 82, Rochester, N. Y.

\$1,000 PER MAN PER COUNTY, STRANGE invention, startles world—agents amazed. Ten experienced men divide \$40,000. Korstad, a farmer, did \$2,200 in 14 days. Schleicher, a minister, \$195 in first 12 hours. \$1,200 cold cash made, paid, banked by Stoneman in 30 days; \$15,000 to date. A hot or cold running water bath equipment for any home at only \$6.50. Self-heating. No plumbing or waterworks required. Investigate. Exclusive sale. Credit given. Send no money. Write letter or postal to-day. Allen Mfg. Co., 226 Allen Bldg., Toledo, Ohio.

AGENTS WANTED

SUITS \$3.50, PANTS \$1.00, MADE TO measure. For even a better offer than this write and ask for free samples and styles. Knickerbocker Tailoring Co., Dept. 451, Chicago, Ill.

REAL ESTATE.

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

IF YOU WANT TO SELL OR EXCHANGE property, write us. Black's Business Agency, Desk C, Chippewa Falls, Wis.

GRAHAM COUNTY—160-ACRE FARM, half mile to town and good school; 40 acres alfalfa land, balance corn and wheat land. Easy terms. A. G. Morris, Hill City, Kan.

FARM WANTED—TO HEAR FROM owner of farm or unimproved property to give possession October 1. P. F. Box 387, Olney, Ill.

160 ACRES, 7 MILES MARYSVILLE. Trading point, school, churches near by. Eight room house, large hay and cattle barn, granary, other buildings; stock scales; good water. Howard Vail, Marysville, Kan.

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.

IDEAL DAIRY, POULTRY AND TRUCK farm of forty acres, just outside a good live town, 800 population. Good six-room house, barn, poultry house with cement floor, shop, garage, buggy shed, coal shed, two good wells of never-falling water with wind mills and tanks, one irrigating tank holds 200 barrels, one stock tank 10 barrels. Trees, shrubbery and flowers to make it homey and cozy. Price, \$6,000. Address C, care Kansas Farmer.

WANTED

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

CATTLE.

RED POLLED BULLS FOR SALE. P. J. Murta, Cuba, Mo.

SEE E. L. ENSIGN FOR GRADE HOLSTEIN cows and heifers and registered bulls. Cameron, Mo.

450 FIRST CLASS HOLSTEINS AND Guernseys for sale. Edgewater Stock Farm, Fort Atkinson, Wis.

HOLSTEIN CALVES, 15-16THS PURE, \$20 each, express prepaid. Write us for Holsteins. "Edgewood," Whitewater, Wis.

FOR SALE—PURE-BRED AND HIGH-grade Guernsey calves, bulls and heifers. Arthur Findlay, Whitewater, Wis.

FOR SALE—FIVE REGISTERED SHORT-horn bulls, fourteen months old; also females. J. J. Thorne, Kinsley, Kan.

FOR SALE—REGISTERED HOLSTEIN bull, seventeen months old. A good one. Also one high-grade twelve months old. H. A. Prachehl, Jennings, Kan.

HIGH-GRADE HOLSTEIN COWS AND heifers. Pure-bred bull calves closely related to world's champion cow. Entire herd for sale. Dr. A. F. Pynn, Hartland, Wis.

FOR SALE—THREE PURE-BRED HOLSTEIN bulls, five to thirteen months old; A. R. O. ancestors, King Segis Pontiac breeding. Seventy and eighty-five dollars. Papers furnished. Max Donly, Carlton, Kan.

HIGHLY BRED HOLSTEIN CALVES, either sex, 15-16ths pure, bred and delivered to any station by express, charges all paid. For \$20 apiece. Frank M. Hawes, Whitewater, Wis.

GUERNSEYS OF ALL KINDS, ESPECIALLY high grade heifers and registered bulls. Klement Bros., our representatives, will drive you to the different breeders. This service furnished to all purchasers by Jefferson County Guernsey Breeders' Association. H. A. Main Secy., Fort Atkinson, Wis.

HOGS.

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

CHESTER WHITE BOARS, SEPTEMBER farrow. Registered free. Prices, \$20. Henry Kamping, Elsmore, Kan.

HONEY.

CHOICE WHITE ALFALFA HONEY—Two 60-pound cans, \$11; light amber, \$10. Single cans, 25 cents extra. Bert W. Hopfer, Rocky Ford, Colo.

TREES, SEEDS AND PLANTS.

NANCY HALL SWEET POTATO PLANTS by the million, \$1.50 thousand; 5,000 lots prepaid. J. S. Norman, Bentonville, Ark.

SOY BEANS, DROUTH RESISTING, SOIL enriching, profitable crop. Hand cleaned seed, \$3 per bushel. Mrs. H. E. Bachelder, Fredonia, Kan.

RED BERMUDA AND YELLOW JERSEY sweet potato plants, \$1.25 per thousand by express, 25c per hundred, postpaid. T. F. Pine, Route 3, Lawrence, Kan.

NANCY HALL DOOLY YAM AND Pumpkin Yam Potato slips, any amount, from assorted seed, \$1.75 per thousand f. o. b. McCloud. Satisfaction guaranteed. Orders and correspondence solicited. L. M. Baker, McCloud, Okla.

NANCY HALL SWEET POTATO PLANTS and Newstone, Redrock, Junepink, Earliana tomato plants, \$2 thousand. Wakefield, Flatdutch, Allhead, Drumhead cabbage plants, \$1.25 thousand. All 5,000 lots prepaid. Any kind postpaid 40c hundred; \$1 three hundred; \$1.40 five hundred. Capacity million weekly. Quantity orders solicited. Quick shipment. Catalog free. Acme Plant Company, "Largest Southwest," Bentonville, Arkansas.

SUDAN GRASS

ABSOLUTELY PURE RECLEANED Sudan seed, well matured and very fine for planting or sowing. Less than fifty pounds, 10c; more than fifty pounds, 8c per pound. Cash with order. J. W. Bowiby, Chattanooga, Okla.

BUSINESS CHANCES

FREE FOR SIX MONTHS—MY SPECIAL offer to introduce my magazine, "Investing for Profit." It is worth \$10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the real earning power of money, and shows how anyone, no matter how poor, can acquire riches. Investing for Profit is the only progressive financial journal published. It shows how \$100 grows to \$2,200. Write now and I'll send it six months free. H. L. Barber, 431-28 W. Jackson Blvd., Chicago.

GOATS

SMALL HERD FINE MILCH GOATS, heavy milkers and young stock. Albert McRill, Garden City, Kansas.

DOGS.

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.

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.

HORSES AND MULES.

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

BERMUDA GRASS.

ACCLIMATED BERMUDA GRASS ROOTS—Bran sack full, \$1; six sacks, \$5. Frank Hall, Toronto, 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.

MISCELLANEOUS.

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

FOR SALE—24-INCH BELLE CITY grain separator in perfect order. Handled easily by 8-16 engine. W. A. Wood, Elmdale, Kan.

ON ACCOUNT OF DEATH OF MY WIFE have priced to sell or trade for live stock complete Avery outfit; 20-35 gas tractor, 28x48 separator, 5-14 inch self lift plow. Good order. Always shedded. A. Musil, Abilene, Kan.

FOR SALE—LATEST PLAT BOOK OF Shawnee County, 44 pages, size 14x19 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 Okla. 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.

PATENTS.

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

BEE SUPPLIES.

FOR SALE—BEE SUPPLIES. ROOT'S Good. Send for catalog. O. A. Keene, 1800 Seward Ave., Topeka, Kan.

SITUATION WANTED.

REFINED MIDDLE-AGED WOMAN wants care of old folks, invalid, or housekeeper. Small family. References furnished and required. Mrs. Mason, 221 1/2 Main St., Newton, Kan.

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

RELIABLE POULTRY BREEDERS

LEGHORNS.

PURE BUFF EGGS, \$3.50 hundred. Jesse Crites, Florence, Kan.

SINGLE COMB BUFF LEGHORNS—Thirty eggs, \$1.75; 100 eggs, \$4. J. A. Reed, Lyons, Kan.

PURE-BRED SINGLE COMB BROWN Leghorn eggs, \$3 per hundred. Mrs. F. E. Tonn, Haven, Kan.

PURE-BRED ROSE COMB WHITE LEGHORN eggs now \$2.50 per hundred. L. H. Dicke, Lyndon, Kan.

ROSE COMB BROWN LEGHORN EGGS—Heavy laying strain. M. E. Hoskins, Fowler, Kan.

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REPORT OF LAYING CONTEST

THE first half of the experimental year at the Missouri Experiment Station has just ended with some very interesting results. The pens making the highest records for six months are distributed among the many breeds and varieties. One point worthy of note is that seven of the ten highest belong to what is commonly termed the "all-purpose class," there being two Rocks, two Reds, two Wyandottes and one Orpington, the other three being Leghorns. This is a fine showing for the medium-weight birds, as the six months cover the winter season when eggs are high and also the principal part of the breeding season. A White Plymouth Rock pen made the highest record, 624 eggs for the six months, and a White Rock hen was the best individual, laying 145 eggs during the six months. The high water mark in egg production during either March or April has been reached this year, the records having surpassed all previous records. The records for the first six months of each contest are as follows, each hen's average for the six months, beginning in November: First contest, 63 eggs; second contest, 68 eggs; third contest, 76 eggs; fourth contest, 76 eggs, and fifth contest, 81 eggs.

The weather is too cold for young chicks to do well. Let us hope we will have a warm spell before long.

If you are compelled to keep your young chicks shut up, remember that they will need more meat and more green stuff than when they have free range.

It is a hard proposition to have heavy egg-producing hens and a house full of lice at the same time. Get rid of the lice and you will soon notice the difference in the laying of the hens. Hens will not lay well when they are troubled by vermin. Get down to business and clean house.

If you have no shade in your poultry yards, it would be well to be thinking about the matter in time. Sow some Russian sunflower seed and you will have shade by the time hot weather comes, besides something in the shape of feed when the seeds get ripe, for hens are very fond of sunflower seed. Another quick growing plant that would make good shade is the castor bean. It grows into a fine large bush in a short while.

Chickens are not given enough water, as a rule. They are usually watered once a day, in the morning, and by the afternoon are out of water. After heavy feeding of grain, hens must have water to soften and assimilate it, and especially should they have plenty of water before they go to roost. An egg contains 85 per cent water, so if a hen is deprived of a sufficient quantity of this necessity, she cannot lay as many eggs as she otherwise would.

You will always find a few weakling chicks in almost every hatch. They seem to lack vigor and vitality. The cause of this cannot always be laid to the parent stock, but to wrong conditions somewhere along the line. While it may seem cruel, the best thing to do is to get rid of them in the easiest way possible. They will never amount to anything, and even though you manage to carry them along for a time, they will eventually die or become dwarfed and stunted chicks. We believe the cold weather we have been having this spring has impeded the growth of a great number of chicks, so that they will never recover from it.

Many people who are reasonably intelligent have a wrong impression about hatching eggs. When they find a rotten egg in a batch of eggs they have bought for hatching, they feel quite sure that the eggs were not fertile and complain about it. The fact that the eggs spoil is evidence that they were once fertile, and every rotten egg at the end of the week's incubation indicates a fertile egg. The infertile egg, on the contrary, at the end of the hatching period, shows but little sign of being stale, and is only hurt by the process of time. While it is not as good as a fresh egg, still it is eatable, and if used in cakes or puddings cannot be told from a fresh one. It is in about

the same condition as it would be if kept in a hot kitchen for three or four weeks. Poultry raisers usually boil these infertile eggs and feed them to the young chicks. So if you get a poor hatch from eggs that you have bought, don't tell the breeder that the eggs were rotten and therefore infertile, for that would be a contradiction of terms in itself.

A correspondent wishes to know what to do when the shells of eggs are so hard that the chicks cannot break them. Also whether he is feeding too much grit and oyster shell and so making the shell too hard. We would not advise the curtailing of the grit supply, for we hear more complaints of soft-shelled eggs than hard-shelled ones, and think probably there may not be energy enough in the chick to break its way out, and if it has not stamina enough to do that it will not thrive anyway, even if helped out of the shell. It would not be a bad plan, however, to sprinkle the eggs during the last few days of the hatch with warm water, so as to rot the shells and make them more brittle.

Color of Newly-Hatched Chick

People who buy pure-bred eggs for hatching the first time, are much surprised, when the young chicks come, to find that they are not all of a uniform color. Two or three parties have written to us complaining about the matter, and saying they had been swindled by having common eggs thrust upon them in place of pure-breds. One of them had bought White Wyandotte eggs and some dark-colored chicks appeared. Another purchased Rhode Island Red eggs and various colored chicks came. Both believe they have been swindled out of their money. But the fact is that there is uniformity in color in but few of the pure-bred chicks when first hatched. Hardly any of them look like their parents or like they themselves will look when they get their adult feathers. White fowls such as White Wyandottes and White Plymouth Rocks throw chicks that are sometimes decidedly dark in color, but they will change and in six weeks' time they will be altogether different in color and eventually will become pure white. Black fowls, on the other hand, such as Black Langshans and Black Cochins, throw chicks that are light in color, but when they get their adult feathers they are perfectly black. Barred Plymouth Rocks throw chicks that are black and white and show no sign of the barring that they will certainly have when they are full grown. The longer a breed is established, the more likelihood of uniformity in the color of the progeny. But the newer varieties, such as Rhode Island Reds, Columbian Wyandottes, etc., throw chicks of a decided off color, but are nevertheless pure-bred stock. So do not complain of the color of the chicks until they are two or three months old. The chances are that by that time you will be satisfied with the color.

Incubators vs. Hens

The old question, which hatches the stronger chicks, the incubator or the hen, comes bobbing up again. A correspondent is certain that the hen hatches stronger chicks than the incubator, because his machine has happened to hatch out a weak batch of chickens. From several experience with hatching, both hens and incubators, we are satisfied that there is no difference between the two, provided that all things are equal between them to start with. As far as we are able to discern, there is no difference, in strength, vigor or vitality between a properly machine-incubated chick and one right from the mother hen. We don't see any reason why the hen-hatched chickens should be stronger than the others, because the only element that enters into the question is the one of heat. Let the same heat be applied to the one as the other and the results are the same. Of course there are times when an incubator is not properly handled, with the result that the chicks do not come out strong and vigorous. The machine may have been run at too high a temperature, with the result that the chicks are weak and enervated. It may have been kept too low, with the result that the eggs were two or three days late in jupping, and the

chicks were delayed until they had lost a lot of vitality in endeavoring to get out of the shell. Such conditions make it impossible for the machine to do its best work and to give forth a healthy, strong bunch of chicks. If you will give the incubator every working chance to produce results, you will not be able to tell the difference between the chicks which come from it and those taken from under the mother hen. Now and then conditions are not ideal for the hen to produce strong, livable chicks. The place where she is located may have been too dry, too hot or too cold. She can regulate certain changes of temperature, but place her during the summer time in an exposed place and she will not bring off a good hatch. On the other hand, if you have her in an extremely cold place she will not be able to provide sufficient heat so that the chicks will come off at the proper time, an din good condition. It is easy to be seen that conditions must be right both for hen-hatching and incubator-hatching, and if they are not right bad results are sure to happen. However, place both methods side by side, and give each the most favorable chances, and you will not be able to tell the difference when the chicks are several weeks old, or even older for that matter. When it comes to raising the chicks there may be a question as to which is the better mother, the hen or the brooder. Where the hen has only about a dozen chicks, it is a difficult matter to find a better provider and protection for her flock than the old hen. But where you raise a large quantity, you must have a brooder, and the keeper must provide the brains that the brooder lacks, or the hen will beat him in raising the chicks. He must have a good brooder and these are comparatively scarce when compared to good incubators. He must provide the right kind of food, at the right time and regulate the heat and take care of the chicks as the mother hen does.

Poultry Station Work

"What is the work of a poultry experiment station?" This question is often asked by people who visit this station. This would lead one to believe that because of a lack of knowledge concerning the work done, the people do not get the full benefit of the experiment station.

To give it in as few words as possible, we might say the work of a poultry experiment station is to find out the things we don't know about poultry, then give this information to the public through the press, in bulletins, in lectures, correspondence, etc.

Is there any question concerning poultry you want to know? Is there any experiment you would like to see tried? If so, you should write it out and send it to an experiment station where the officials in charge will be glad to conduct the experiment or secure the information of whatever nature it may be, and report the same to you. Where people make use of experiment stations properly, they are of immense value as well as a point of economy to the entire state. To illustrate, if 5,000 people wanted to know the results of some one experiment, it is more economical to support an experiment station to conduct the experiment than for each of the 5,000 people to conduct the experiments separately, for that would mean 5,000 experiments tried. Then, too, the men in charge of these experiments at experiment stations devote their entire time to the experiments while others have other duties to perform which often makes a difference in the results observed.

The cost of the many experiments with poultry is therefore much less if conducted by an experiment station than by the people.

Missouri is perhaps as generous as any state in the support of its poultry experiment station, yet one egg per year at market price for each person in Missouri will more than support the institution, and every one is cordially invited to send his problems to be worked out, whether he is a producer or consumer. It is not necessary that it be a deep problem with a big name, for some little problems are just as interesting and instructive. An example of a simple problem is, "how to boil an egg so it will peel smoothly." It has been found by experimental work that the age of the egg is the principal factor which determines whether the white sticks to the shell or not, for if the egg is less than two days old, the shell does not come off satisfactorily, while an egg three or more days old, the shell comes off easily. Taking the eggs out into cold water perhaps assists some.

There are many experiments in progress at all times at this experiment station, the one which is perhaps best

known being the egg laying contest from which many observations are made. This test begins November 1 of each year and continues for one year. Other experiments such as breeding, etc., continue for a number of years, while many experiments are determined in a few days or weeks, all tests being tried in season as near as possible; i. e., incubation and brooding tests are made in the spring, moulting tests in the fall, while other tests are made any time.—Missouri Experiment Station Bulletin.

Treatment for Roup

Roup is a germ disease originating in the poultry flock either through bringing infected birds in contact with the others, or by means of bacteria carried by the wind. The general impression among almost all poultry raisers that any affection of the mouth or breathing organs of a fowl is a form of roup is incorrect.

One should exercise care and intelligence in diagnosing cases of suspected roup, especially at long range. The trouble may be mechanical. Sometimes foreign substances, such as small bones, become lodged in the throat. A brief examination will aid materially in determining the character of a respiratory malady.

Because of the general impression regarding roup preparations prepared and manufactured for diseases of the respiratory organs are classed as roup remedies. Drafts, dampness, and exposure are conditions that promote the development of roup germs. They are factors which tend to reduce the vitality and establish inflammatory conditions, enabling germs to gain entrance into the system and to thrive, whereas in good health the effects might be slight and of short duration, due to the prompt resistance offered by a well fortified system.

To effectively combat this disease, sick fowls must be completely separated and kept at some distance from the others. Treatment must be regular and frequent, as often as three times daily in severe cases. Mucous plugs, patches, and incrustations should be removed with a toothpick, splinter, or cotton swab, care being taken to destroy or disinfect all such material. A number of reliable remedies may be applied afterward.

The remedies:

Hydrogen peroxide and water, equal parts.

Potassium permanganate 2 per cent, or one-half teaspoonful to one teacupful of water.

Boric acid 4 per cent, or one teaspoonful to one teacupful of water.

Coal tar disinfectants 2 per cent, or one-half teaspoonful to one teacupful of water.

Carbolic acid 5 per cent, or one teaspoonful to one scant teacupful of water.—R. H. NEEDHAM, K. S. A. C.

Roosters Cause Big Loss

It is costing the farmers of this country \$15,000,000 a year to let the rooster stay around the barnyard after the hatching season is over, according to a bulletin issued by the Secretary of Agriculture. The mere presence of the rooster in the barnyard exerts a bad influence on hen's eggs and causes them to spoil on the way to market. The strutting of the roosters distracts the hens and they cannot lay "good keepers," which means eggs that will stand the journey to the consumers or to the cold storage warehouses.

The Secretary recommends that roosters be killed and sold for consumption as soon as the hatching season is over. We have often, in these columns, called attention to the fact that the keeping of surplus roosters on the farm is a dead loss to the farmer, but had no idea that it amounted to the stupendous sum of fifteen million dollars a year. When the drones in a bee-hive get too many, the worker bees kill off the surplus. Too bad the hens cannot kill the extra roosters, for the farmers do not seem to do it.

Years ago one got only about fifteen cents for an old rooster, and probably the farmer thought the price was not worth the trouble, but it is different these days, for any kind of an old rooster will bring fifty cents and upwards. We notice that roosters are quoted at eleven cents a pound in Topeka and eighteen cents a pound in the New York markets. So it pays to market them these days for the money you get for them, besides the saving you make by getting better prices for your eggs on account of the absence of the roosters. Swat the rooster.

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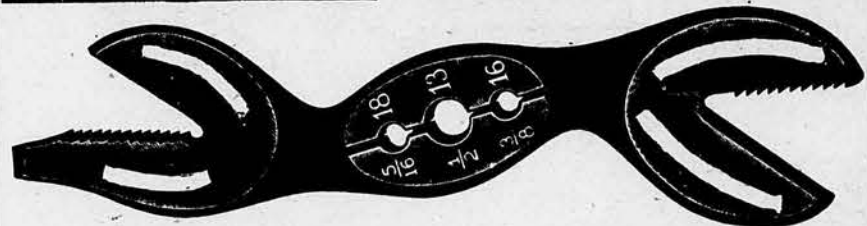
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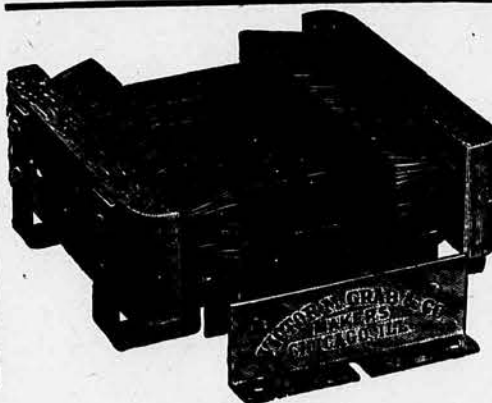


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CLAIM SALE DATES.

Herefords.

Oct. 7—J. O. Southard, Comiskey, Kan.

Poland Chinas.

Oct. 10—Sigel Brown, Reeds, Mo.

Oct. 16—W. B. Brown, Perry, Kan.

Oct. 18—Dr. J. H. Lomax, St. Joseph, Mo.; sale at farm near Leona, Kan.

Oct. 19—H. B. Walter, Effingham, Kan.

Oct. 24—Leonard & Russell, St. Joseph, Mo.

Oct. 26—U. S. Byrne, Saxton, Mo.

Oct. 26—Walter W. Head, St. Joseph, Mo.

Oct. 20—James Arkell, Junction City, Kan.

Nov. 1—Fred B. Caldwell, Howard, Kan.

Nov. 4—L. R. Wiley, Sr., Eimdale, Kan.

Durocs.

Nov. 2—Lant Bros., Dennis, Kan.

Higginbotham Bros., of Rossville, recently shipped a good lot of Holstein cows and heifers to Kentucky.

H. B. Cowles, the Topeka Holstein breeder, recently sold young bulls from Braeburn herd to go to herds in Ford, Pottawatomie and Shawnee counties. They have had a good trade on bulls and have sold out of bulls of serviceable age. Last year he leased their great herd bull, Korndyke Butter Boy Jr., to a number of Holstein breeders. He is for lease again this year.

J. R. Smith, of Newton, Kan., is one of the successful breeders of Duroc Jersey swine and Holstein cattle. This year he has saved 130 spring pigs and has twenty to twenty-five sows bred for June and July litters. He grows his hogs in a way that they always make good as breeding stock. One feature of his herd at this time is a number of large fat boars that are good prospects.

M. E. Gideon of Emmett, Kan., a well known breeder of Hereford cattle and Percheron horses, reports the sale of a fine four-year-old Hereford bull weighing near a ton to J. S. Mowatt of Arkansas City. He has a fine lot of young stock, including a choice two-year-old bull and one of the best lots of calves ever raised on the farm. They are by his great young herd bull, Donald.

C. E. Cashatt of Oskaloosa, Kan., is one of the successful Shorthorn breeders and owns one of the good herds of that popular breed of beef cattle. His herd is made up of representatives of the popular Shorthorn families. At this time he has a choice lot of young stock, including a number of young bulls that are excellent prospects.

The Holstein-Friesian Association of America has announced a schedule of prizes to be added to the prizes offered by the various state fairs. For the Kansas State Fair, Topeka, the association will add 25 per cent cash to be paid on the general classification. The term general classification covers the following classes: Bull 3 years and over; bull 2 years and under 3; bull 1 year and under 2; bull calf 2 months and under 1 year; cow 5 years and over; cow 3 years and under 5; heifer 2 years and under 3; heifer 18 months and under 2 years; heifer 12 months and under 18 months; heifer 2 months and under 1 year. And the following herds or groups: Exhibitor's herd; breeder's young herd; calf herd; get of one sire; produce of one cow. Slight modifications of this classification will, however, be accepted.

George McAdam of Holton, Kan., reports his herds of Angus cattle and Berkshire hogs doing fine. The Angus calves now on the McAdam farm are the best lot in years. Blackcap Lady B, the cow bought in the Caldwell sale for \$825, has a very fine bull calf, Miss Pride, sister to Pride Petite, champion cow of the breed the last two years, has a fine heifer calf.

Sam Jones & Son, of Juneau, Wis., are among the dairy cattle breeders that have contributed largely in making that state famous for fine herds of dairy cattle. Their Ayrshire herd is one of the best. They have built up a herd that has few equals for production records. The number of cows in the Ayrshire herd at the Kansas Agricultural College that were from this herd have made splendid records. Among them is Canary Bell with a year record as a five-year-old of 15,252.3 pounds milk, 558.71 pounds fat, and 669.71 pounds butter; Elizabeth of Juneau as a four-year-old, 14,953 pounds milk, 480.97 pounds fat, and 577.97 pounds butter; Fernot of Oak Dale, five years old, 10,858.4 pounds milk, 426.94 pounds fat and 513.95 pounds butter; Johannah of Juneau, five years old, 11,567.3 pounds milk, 421.57 pounds fat and 509.57 pounds butter; Rose of Oak Dale, five years old, 6,621.7 pounds milk, 319.09 pounds fat, and 384 pounds butter. This herd has supplied breeding stock for many of the best Ayrshire herds now in existence.

One of the good effects of the Kansas Farmer Dairy Club is the renewed interest among the farmers of Kansas in dairying as a profitable part of diversified farming. Inquiries for dairy cattle by farmers other than those having sons or daughters in the dairy club, coupled with requests for information as to conducting dairying in connection with general farming, is one of the first results of the inauguration of the dairy club. The hearty co-operation of over a hundred banks in the state that are selecting club members and furnishing them the money with which to buy dairy cows, has aroused interest among the farmers all over the state. This is not unexpected. It is only the natural result. When over 100 banks in the state, after a thorough investigation of a certain line of business, co-operate in building up the business, as they have done in the case of the Kansas Farmer Dairy Club, it simply means that it is a business that is safe and profitable.

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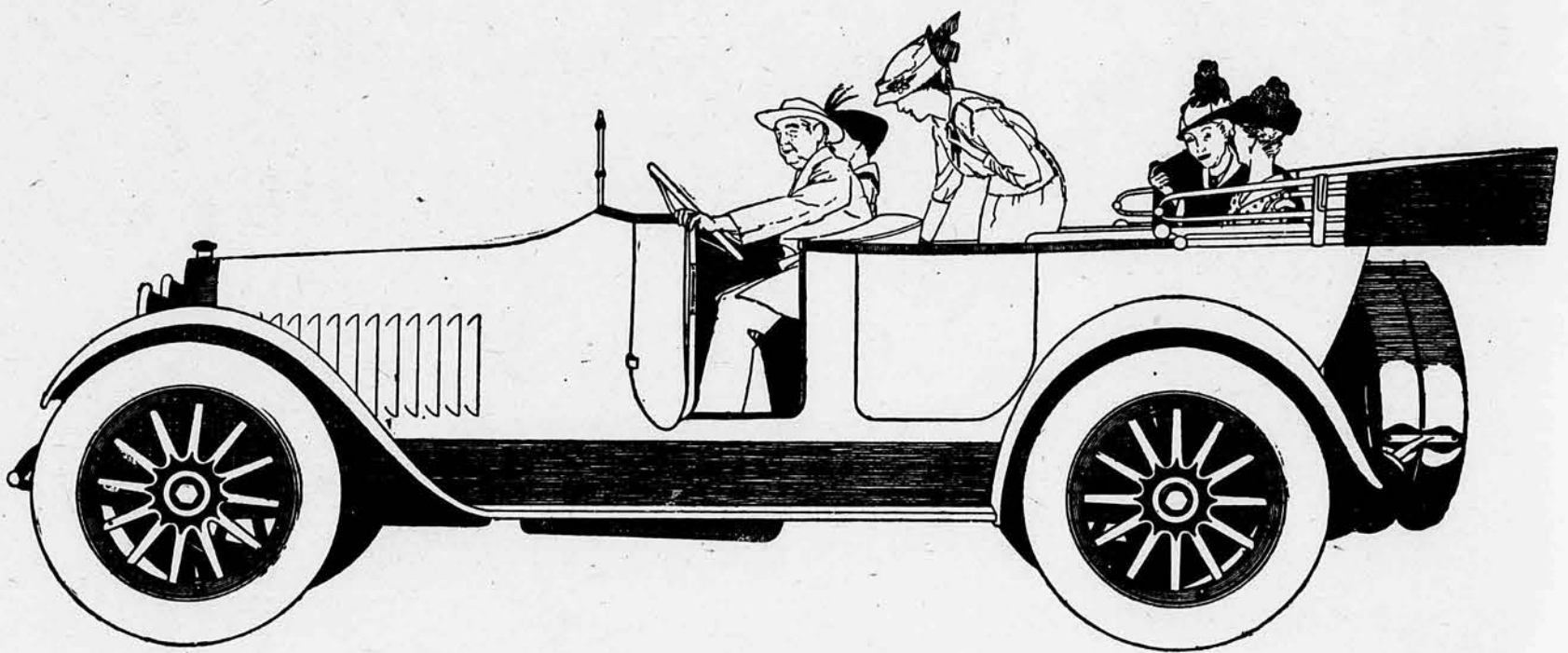
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