

KANSAS FARMER

For the improvement of the Farm and Home

Volume 57, Number 22.

TOPEKA, KANSAS, MAY 31, 1919.

Established 1863. \$1 a Year

MECHANICAL FARM POWER

Draft Horse Breeders Must Recognize and Meet Tractor Competition

THAT the farm tractor will become a permanent factor in modern farming is the prediction of W. F. Handschin, professor of farm organization and management at the Illinois University. This belief was expressed by Professor Handschin in addressing the annual meeting of the Illinois Draft Horse Breeding Association, a portion of this address being given in a recent issue of KANSAS FARMER. In speaking of the development and place of mechanical power in farming, Professor Handschin said:

"I cannot discuss the question of economic farm power in this day without touching briefly upon the tractor. While the tractor is, as yet, in its formative development, those of us who have been studying the question are satisfied that it has come to stay. It is only a question of how large a place it will occupy in our farming affairs. Up to date the tractor has been much lacking in standardization. Design, in general, has been unsatisfactory from the standpoint of the best engineering requirements. Rapid strides have been made, however, during the course of the last year or two, and it is only a question of time when the tractor will be perfected to the point where design will be standardized and durability very greatly increased."

"It has always been my opinion that the tractor never would be a permanent fixture in our farming, unless it was so designed as to wear practically as many years as a horse. In general, tractor wheels secure from twenty-five to forty days of work per year; that is, from 250 to 300 hours per year as an average. Assuming that the tractor must last eight years, this would mean from 2,000 to 2,500 hours. When we keep in mind that the Liberty motor, which weighs 400 pounds and produces 440 horsepower, is designed to run fifty hours under maximum load before it is overhauled, we get some idea as to the possibilities of mechanical motors. Frequently these motors run as high as 50 hours before being overhauled. All this you will note on the basis of two pounds per horsepower. When we take into consideration that tractor motors weigh from twenty-five to fifty pounds per belt horsepower, it would not seem difficult to design such a motor which should last from 2,000 to 2,500 hours with reasonable usage. In fact, I believe, just as soon as tractors are handled rationally and not loaded to their maximum capacity for ten or more hours a day, we shall find them very much more durable. This will be especially true as the design is improved. While I have no good engineering basis for assuming that the farm tractor will, under intelligent use, last as long as the horse, I feel fully satisfied that such will be the case in the relatively near future, and feel that the horsemen must be in a position to meet this competition."

"I am more and more impressed with the increased intelligence with which the tractor manufacturer and the tractor salesman is tackling the problem. His competition is becoming more intelligent each year. He is claiming much less than when he started out, but is making good in a much larger way on his

claims. I feel confident that the horseman must be ready to meet his competition largely on the basis I have outlined, if he is to meet it at all. That is, he must improve his power unit, and he must so organize his farming as to make possible the most efficient application of his power whether this be one horse or ten."

Average Farm Power Requirements

"On the basis of extensive studies made on many hundred farms in Illinois, as well as other corn belt states, the farm power requirements of representative farms are about as follows: On well organized farms with average horses, from twenty to twenty-five crop acres are worked per horse. With especially good organization and good management this figure is sometimes increased, even beyond twenty-five crop acres per horse. However, where more than twenty-five crop acres are worked per horse, it is usually done at the expense of good farming. Many farmers work only fourteen to twenty acres of crop per horse. This is true, not because they are raising foals and thus carrying a somewhat larger horse equipment, but merely on the basis of poor farm organization or operation."

"In order to determine somewhat more definitely the economy of the horse in performing farm work, we must analyze the various farm operations with a view to learning how well the horse is adapted to performing them. On the basis of careful analysis made of our cost accounting records, farm work divides itself somewhat logically into two classes, entirely on the basis of the character of the work itself. Some work is of such a nature that it is practically confined to the horse. In fact, a surprisingly large part of our farm operations fall into this class. This we might call strictly horse work. Other work is such in character as to lend itself very well to the use of mechanical power. Still another class may be either horse work or tractor work, or it may be horse work at one time and tractor work at another, depending on

the circumstances. This latter class of work, however, as compared with the other two classes, is relatively unimportant and for our purpose may be disregarded."

"In analyzing farm operations with a view to deciding whether they are tractor or strictly horse operations, the following illustrations will indicate the methods used in making classifications: Plowing, disking, harrowing, and rolling and harrowing combined, are classified as tractor operations. Also, pulling hedge, grading roads and belt work. Strictly horse operations include: Cultivating corn, cutting hay, planting and husking corn, hauling manure, and raking hay. Naturally, we might classify corn plowing as a tractor operation, if we include power corn plows in our tractor equipment. I do not regard it as advisable, however, to consider corn plowing as coming within the range of tractor operations on farms of ordinary size."

"Naturally in the corn belt, we shall have a large proportion of the crop acreage in corn, and therefore, a relatively large amount of corn plowing, which means a fairly heavy horse equipment. This is true, regardless of whether the farmer owns a tractor or not, because when we introduce the tractor, corn plowing, rather than spring planting, becomes the 'peak load' period for horse labor requirements; i. e., the period when the greatest amount of horse labor is needed. In good systems of farming, where fall wheat takes the place of corn to some extent, the number of horses required may be considerably reduced. In general, however, corn-belt farmers will not grow less than 40 per cent of their crop acreage in corn. Under these conditions corn plowing is bound to represent, by a considerable margin, the 'peak load' of horse labor requirements when the farmer uses a tractor. The amount of horse power required on a farm is determined by the amount of work to be done during the 'peak load,' or busiest period. On non-tractor farms the number of horses

required is determined by the spring planting work. On tractor farms it is determined by the amount of corn cultivation."

When to Buy Tractor

"In determining under what conditions a farmer may logically consider buying a tractor, a number of factors must be taken into account. All investigations to date, both on the basis of detailed farm cost accounting, as well as studies made on a large number of farms actually using tractors, indicate that a farm must come within a certain size range in order to lend itself economically to the use of mechanical power. Since a large part of all labor performed on the farm is practically limited to the horse, the farmer is justified in considering a tractor only when the possible tractor labor becomes large enough in amount to warrant the expenditure. In actual practice he must keep a certain number of horses, even when he has a tractor. He will, therefore, probably not be justified in buying a tractor until the amount of work which can not be done by the additional horses necessary becomes large enough to justify the expenditure. Practical farmers have discovered pretty generally that it does not pay to use a tractor to any great extent when their horses are standing idle. All of the information gathered to date indicates that in general corn-belt farming, farms must produce 240 or more acres of crop to be well adapted to the tractor. In fact, farms ranging in size from 300 acres up seem to be best adapted to the use of mechanical power."

"Fortunately, the census figures give satisfactory information as to the number of farms of this size. Farms ranging in size from 200 total acres to over a thousand acres, make up 91 per cent of the total number of farms in Illinois. That is, out of 251,000 farms in the state, 21,485 have a total acreage of 260 or above."

"Two hundred sixty acres corresponds almost exactly to the minimum size farm which experience indicates is fairly well adapted to the tractor. That is, somewhat less than 10 per cent of the farms in the state might consider using a tractor on the basis of their size, providing they were otherwise adapted to tractor farming. In the state of Iowa the percentage runs 13.1, while in the state of Wisconsin it is 5.84. Thus on the basis of size alone it is evident that a relatively small proportion of farms in the states mentioned may logically consider the tractor as an economic source of farm power."

"Naturally, some farms below the 260-acre size may use tractors successfully. Such farms, it must be kept in mind, however, will in general have less than 200 acres of crop, in which case the use of the tractor is doubtful economy. This is especially true of the most popular corn belt size tractor, e. g., three-plow or over. There will also be a considerable number of the farms above the 260-acre size which for one reason or another are not well suited to tractor farming. In general, however, the 10 per cent of Illinois farms which are more than 260 acres in size will be the

(Continued on Page Nine)



MECHANICS ON THE FARM

Items of Interest About Automobiles,
Engines, Tractors and Motorcycles

Reliable Information on Tractors

MUCH has been said and written as to what the tractor can do, and should do, in farming operations. As yet, however, there is not enough reliable data at hand to permit the tractor user, or prospective purchaser, to form an idea as to what can and what cannot be done with a tractor. Too much reliance has been placed in rosy forecasts of dreamers, and sales orations of those peculiarly interested in getting a farmer's name on the dotted line. It is not to be understood that the tractor of the proper sort, handled by the right man, cannot do each and every thing either the dreamer or salesman says, but information on what average men really do with them under general farming conditions should be used by the prospective buyer in forming his decisions.

With this belief and with the hope of being of real service to all parties concerned in the tractor game, including present and prospective owners, the manufacturer and his sales and service cohorts, and last but not least the long-suffering public who after all furnish the sinews of war and should therefore have some voice in the matter, the farm engineering department of our agricultural college has begun gathering information along the lines indicated. This kind of information can only be obtained from men that have owned and used tractors and are therefore in position to answer from actual experience.

A questionnaire to tractor owners is being prepared for immediate mailing, having in view a determination of the chief factors of tractor farming, such as relative size of tractor to size of farm and kinds of crops grown; relatively decrease in number of work horses on motorized farms; cost data of operation by acreage, by days work, better work and increased yields; factors considered in figuring costs; number of days tractor can be, and now is, used yearly; different classes of work to which it is easily adaptable; repairs, lost time, and expert service; life of tractor, etc. These and other items are included in the questions asked.

The value of a summary compiled from information furnished by a large number of tractor owners is scarcely to be estimated. Hints and suggestions furnished by one man would serve as valuable educational matter to the next man, while many questions now in the minds of possible prospects would find very definite answers from the actual experience of men doing the very things about which they need information.

Every tractor owner receiving such a questionnaire is urged to take time to answer as fully as he can every question pertaining to his own experience and mail it back to his local county agents. All co-operators will be supplied with a summary of the findings at an early date.

One of the chief objects of the college is to get into working touch with all tractor owners and act in as large a way as possible as a sort of clearing house on power farming machinery and its operation; to give up-to-the-minute instruction to all students attending short or special tractor courses, and to foster a spirit of high efficiency in operation and management.

There are not less than 7,000 tractors in the hands of the farmers of Kansas today. The college is in possession of the names and addresses of owners reporting tractors to the local county assessors on March 1, 1918. No list of owners buying machines within six months prior to that date, and since, is available.

There are doubtless many such that would be pleased to co-operate by answering such a questionnaire. The college will be very glad to send them one on receiving their names and addresses. Send your names to W. H. Sanders, Department of Farm Engineering, Kansas State Agricultural College.

Testing the Fuel System

When an examination has shown that a good spark is being obtained at the right time, the next step is to see

whether the engine is receiving the proper mixture of fuel and air. Many carbureters are made so that it is easy to remove the cover and see whether there is gasoline in the bowl, and where this is possible it is the easiest way to determine whether the fuel supply is all right up to that point. Other types of carbureter have tight covers, but are equipped with small petcocks, by opening which one can determine whether a supply of fuel is available.

If there is no fuel in the carbureter, either the tank is empty or there is some obstruction in the pipe line between the tank and the carbureter.

To see that the carbureter contains a liquid which looks like gasoline, however, is not enough, as water and gasoline look very much alike, and it is not at all uncommon for water to be present in the gasoline system. Neither does this water always enter the system when it is being filled, as is generally supposed. It is often the result of condensation of moisture on the sides of the gasoline tank, which runs down and settles at the lowest points in the system. This may be in the bottom of the carbureter, in the supply pipe, or in the strainer or settling chamber. Where strainers or settling chambers are provided, these should be drained and cleaned frequently, especially in cold weather, when any water present may cause considerable trouble by freezing.

A petcock on the carbureter is a good means for removing any water which may have settled at the bottom of the bowl of the carbureter, and which when present will cause difficulty in starting. When making a test in this way it is usually advisable to allow enough gasoline to run through to make sure that the carbureter has a full supply, as sometimes a partial stoppage of the pipe will allow a small amount of gasoline to get by into the carbureter, but not enough to allow the engine to start easily. Allowing a half cupful of fuel to run through it eliminates this possibility. It is easy to ascertain whether water is present in the carbureter by catching in a glass bottle or tumbler the liquid which runs through when the petcock is open. Any water present will settle at the bottom of the glass and a thin line will be visible between the water and the gasoline.

It is not enough merely to have fuel in the carbureter; it must be mixed with the proper amount of air as it is drawn into the combustion chamber. It sometimes happens that the needle valve is closed or stopped with dirt, and that while there is fuel in the carbureter none can get into the combustion chamber. If the engine has a petcock leading into the combustion chamber, by opening this and cranking the engine a few times one can tell by smelling the escaping air whether gasoline is entering the chamber. The same result can be obtained by smelling the exhaust when the engine is turned over, or by removing a spark plug, closing the hole during the suction stroke and opening it during the compression stroke.

By alternately opening and closing the needle valve, first being careful to note the original position so that it will be possible to readjust it if necessary, it is easy to see whether a different mixture will make the engine start. Or, when there is doubt whether enough fuel is entering the cylinder, a small quantity of gasoline—about a teaspoonful—may be poured into the combustion chamber through the priming cock or spark-plug hole and allowed to stand for a minute or two to vaporize and mix with the air before cranking the engine. If then one or two explosions occur and no more, it is an indication that only the priming has burned, and that fuel is not being furnished in sufficient quantity through the carbureter.

It sometimes happens that too rich a mixture of fuel and air enters the combustion chamber, which is practically as bad as no fuel at all, as the rich mixture cannot be exploded by the spark. This does not often happen with a cold engine and with the grades of fuel now on the market, but it is not at all uncommon with a warm engine. There

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are several ways of overcoming this difficulty. Closing the needle valve by cranking the engine a few times will move the rich mixture quickly and place it with practically pure air. Moving a spark plug or opening a petcock leading into the combustion chamber and then cranking the engine a few times may answer the purpose, though as long as the needle valve open some fuel will continue to be drawn into the cylinders. — Farmers' Bulletin No. 1013.

Handling Gasoline

Gasoline is like a mule. Learn to handle and then keep your eye on it. The man who looks for a gasoline with a match will always remember—or his heirs will.

One pint of gasoline will improve two hundred cubic feet of air and make it explosive. Never leave an open container containing gasoline in a room.

Water will not put out a gasoline fire, but will spread it. Smother fires with sand. If in a building with small grain is stored and nothing is at hand, try smothering with grain and then wet it.

Always handle your gasoline by light. This will avoid the collection of your life insurance and reduce your hazard.

Gasoline tanks, whether above or below ground, should be housed so they can be locked up to prevent inquisitive persons with cigars or matches causing trouble.

Exhaust pipes or pots should not be allowed in contact with woodwork. They carbonize the wood and pave the way for a fire.

Editorial, Advertising and Business
Offices, Topeka, Kansas

Entered at Topeka Post Office
as Second Class Matter

Published Weekly by The Kansas
Farmer Company, at Topeka

KANSAS FARMER

THE FARM PAPER OF KANSAS

G. C. WHEELER, EDITOR

REPRESENTATIVES: E. KATZ SPECIAL ADVERTISING AGENCY

New York: 15 Madison Square, North

Chicago: Harris Trust Building

Kansas City, Mo.: 1402 Waldheim Building

San Francisco: Monadnock Building

SUBSCRIPTION RATES: One Year, \$1.00; Three Years, \$2.00.

Established by First State Board
of Agriculture, 1863

Member Audit Bureau of
Circulations

Oldest Agricultural Publication in
Kansas

FARMER NOT SUBSIDIZED

The consuming public in the cities and towns persist in looking upon the wheat grower as a subsidy, or bonus, to the farmer. Hardly a day passes but some newspaper expresses that view to us in speaking of the government guaranteeing the price of \$2.26 a bushel for his wheat. When the price of \$2.20 a bushel was paid in 1917, wheat under a free market was selling for considerably more. The welfare of the consuming public has been an important consideration all through in fixing wheat prices, even in guaranteeing a price for a crop not yet produced. There was no thought of a bonus. It simply was a guarantee against loss so that the wheat grower could with safety increase his acreage and live normal without facing the possibility of disaster. The world needed the wheat which only America could supply. As shown by the production cost figures of our experiment station on the 1918 crop, the guaranteed price comes far short of affording any bonus to the producer. From the standpoint of economic consideration, farmers as a class have received less consideration during the war than any other class of our population. In no other industry are the losses so great. Agriculture furnished a fourth to a third of the fighting men and those who were left, including women and children, cheerfully shouldered the burden of increased production in order that our fighting men, armies of our allies, and the starving millions in Europe might have food. The price guarantee is in no sense a bonus and farmers are moved to resentment when city people persist in considering it as such.

KANSAS CROP CONDITIONS

Perhaps no other occupation are there so many uncertainties or so many controllable conditions as in farming. Farmers are not given to counting their chickens before they are hatched and do not view flattering prospects of big yields with as much enthusiasm as their cousins, but no one can deny that conditions at the present time point to a banner year in Kansas from an agricultural standpoint. It seems incredible, but based on the reports of 1,200 correspondents in all parts of the state, Secretary Mohler of our State Board of Agriculture estimates a possible wheat yield of 218,590,000 bushels for the state, 20.1 bushels to the acre. This would be 83,000,000 in excess of the crops of 1917 and 1918 combined, and nearly 39,000,000 bushels more than the state's greatest crop on record, that of 1914, which stands as the record production of wheat for any state in the Union.

This prospective yield is based on conditions May 17 and on the acreage estimates of the board's correspondents last fall, and may be revised up or down when the official returns of the assessors come in. In the eastern counties, at least, semi-official reports indicate that the acreage planted to wheat is in excess of the correspondents' estimates made last fall. Mr. Mohler is looking for official reports to show a larger rather than smaller acreage for the state.

We hear a great deal of talk about wheat being too rank and lodging as a result of failing to fill. Special inquiry has been made on this point and the results show that only 12.4 per cent of the total acreage of the state is reported as "too rank." This condition is largely confined to the eastern third of the state, Antauqua County reporting 34 per cent of its wheat as "too rank." Out of about a dozen counties very few correspondents believe there is any likelihood that any considerable proportion of the rank wheat will prove worthless. Seventy-three of the 105 counties in the state have promise of a million or more bushels to the county. Barton County leads with 6,172,000 bushels, next comes Pawnee with 5,948,000; third, Ford; fourth, Reno; and fifth, Sumner. Even other counties report probable

HIGH SPOTS IN THE PEACE TREATY

Alsace-Lorraine goes to France.

The Saar Valley will be temporarily internationalized.

Danzig will be permanently internationalized.

Germany renounces all territorial rights outside of Europe.

Germany recognizes the independence of Poland and Czecho-Slovakia.

The German army is reduced to 100,000 officers and men, and conscription within Germany is abolished.

The German navy is reduced to twenty-four warships and no submarines.

Germany may have only 100 unarmed seaplanes, to search for mines off her coast.

Germany will pay an indemnity, the amount of which is not yet fixed, the initial payment to be 25,000,000,000 marks—about \$6,000,000,000.

Germany cedes a large part of her merchant fleet to the Allies.

Germany agrees to the trial of the ex-kaizer.

The disposition of the surrendered German fleet, the German colonies and the German cables is left to future action.

The League of Nations becomes a permanent organization.

yields of between four and five million bushels to the county.

The estimated corn acreage for the state is 4,358,000, or about 30 per cent less than last year. This is the smallest acreage of corn in Kansas in thirty-eight years. There has been considerable delay in planting, caused by too much rain and cool weather. On the date of the report, May 17, less than 60 per cent of the estimated corn acreage of the state had been planted. The average condition of the corn that is growing is given as 84.9, based on 100 as a satisfactory condition.

The cutting of the first crop of alfalfa is well under way and will probably be over by June 1, even in the northern counties. The estimated yield of the state's 1,228,000 acres of alfalfa is 1,674,000 tons of hay.

Correspondents report the acreage of oats as two million, the general condition averaging 91.2 per cent.

Pastures are reported to be in unusually good condition with prospects of a big prairie hay crop. It seems probable that some grazing land used for pasture last year may be held for hay this year.

There is a falling off in the number of pigs farrowed, according to Mr. Mohler's correspondents, amounting to 21 per cent as compared with the number farrowed in the spring of 1918.

In all but twelve counties the present supply of labor is reported as sufficient. Considerable concern is expressed, however, regarding the possibility of enough help to harvest the wheat.

LIQUOR INTERESTS ENCOURAGED

The liquor interests of the country have been conducting a "most subtle propaganda in order to defeat if possible the expressed will of the great majority of the people of this country. We cannot settle back assuming that booze has received its death blow and need give us no further concern. The announcement that President Wilson favors a partial return to pre-war conditions as regarding the sale of beer and wine is a sweet morsel to the brewing interests. The prejudices of laboring men are being exploited and a gigantic spectacular parade and demonstration is being planned to take place in Washington June 14, the purpose being to impress the President and Congress with the idea that nationwide prohibition is not a popular demand.

The liquor propaganda has been insidiously working through the press, conveying the impression that our soldiers in France are against prohibition and resented the action taken in their absence. The big men of our army—men like General Pershing and General Wood—have been outspoken in their attitude toward the liquor evil, and army men generally know that booze is the greatest menace to military efficiency. Gen-

eral Wood has time and again spoken of the splendid efficiency of the men of the Eight-ninth Division and attributed it to the fact that they came from states largely free from the liquor evil. He has stated that the enforcement of prohibition eliminated fully 75 per cent of the troubles of the training camp.

The people of the farms have always been lined up against booze, and we should not relax our efforts until the fight is absolutely won and we have a nation free from this great evil. Every agricultural organization of any consequence has fought insistently for prohibition. The influence of the agricultural interests of the country, if effectively brought to bear, would turn the tide against the infamous liquor interests in this last fight.

STEERS TO PACKING HOUSE

The experimental cattle reported on at the cattlemen's meeting in Manhattan May 13 have been followed to the packing house coolers by Doctor McCampbell and Mr. Winchester of the experiment station, and the dressing figures show that the best beef for high-class trade came from the lot fed a full grain ration with the silage and alfalfa. These ten steers dressed 61.05 per cent beef, Lot 3, which received the half grain ration with alfalfa and silage coming second in dressing percentage. The lot fed silage without grain other than the linseed oil meal dressed 56.8 per cent beef and from the dressed beef standpoint were the poorest in the lot. These steers brought \$15 a hundred on foot, while the remaining thirty head brought \$15.75. The shrink of the silage-fed lot from Manhattan weights to the weights in the stock yards as they were driven over the scales to the packing house buyer, was 5.4 per cent, the heaviest of the lot. These results were to be expected, but even so the possibilities in making beef more largely from high class roughage are being generally recognized. Lack of space prevents our giving at this time more details of the killing results.

THISTLE SEED NOT FOR SALE

The publicity given the favorable returns from feeding Russian thistle hay at the Fort Hays Experiment Station has resulted in the erroneous idea, in some quarters at least, that this is a new farm crop to be exploited, and alert seedsmen on the lookout for new varieties have been writing to Superintendent Weeks regarding obtaining supplies of Russian thistle seed.

To those who know something about this crop, this seems positively ridiculous. It is the last thing anyone would recommend as a forage crop. The facts are, however, that this pest has become so universally spread over Western Kansas, and particularly wherever wheat is grown extensively, that in spite of every-

thing that can be done to keep it in check the thistles take possession of the land after the wheat is cut. The experiment was simply to show that in view of this fact the farmer short on forage crops could cut and use this Russian thistle hay to tide over the short feed period. The Russian thistle is a weed pest, and should be considered as such.

KILL THE GRASSHOPPERS

Preventing grasshopper damage by systematic poisoning is no longer a theory or experiment. For six years the poison bran mash flavored with fruit juice has been extensively and successfully used over the state. It is the one practical method of grasshopper control recommended by our experiment station.

In the western third of the state an unusually large number of grasshoppers are now hatching from eggs that lived over the winter. These young hoppers will do serious damage to alfalfa and other crops unless prompt and vigorous action is taken to destroy them. On another page of this issue we give the method of preparing and using the poison bran mash. It is thoroughly practical, and considering the saving accomplished in preventing damage, it is inexpensive.

CANE SILAGE PROVES VALUE

Evidence continues to accumulate showing the value of cane as a silage crop, particularly in sections where it will outyield corn, which is true of the greater portion of Kansas. Even on the agronomy farm of the experiment station at Manhattan corn made but three and a half tons of silage to the acre in 1918, while cane made nine tons and kafir seven.

Over a large portion of Kansas cane or kafir should become standard silage crops. Stock farming can be made more safe and the capacity of the farm to handle stock greatly increased by putting up silos and growing cane or kafir as silage crops. These crops are far more sure than corn and can be depended on to outyield corn in almost any year.

The feeding tests made at the Manhattan Experiment Station last season, results of which are given in this issue, prove that even a poor crop of cane makes silage that will give good results in feeding. There is no excuse for wasting any effort in growing corn as a silage crop in the face of such convincing evidence as has been presented showing the value of cane silage. By widely adopting the policy of growing cane and kafir and storing the crop as silage, we can make Kansas famous as a beef-producing state, and the state is close to the top now in beef production.

Possibilities open in South America for pure-bred live stock from this country are to be investigated by a commissioner of the Bureau of Markets of the Federal Department of Agriculture. The purpose is to stimulate interest in importations of pure-bred stock from the United States. David Harrell, of Austin, Texas, who until recently was a representative of the War Trade Board in Spain, has been appointed to this work. He expects to sail about the middle of June and will be accompanied by H. P. Morgan of the Bureau of Markets as an assistant. Mr. Harrell has had long years of experience in the live stock business in Texas and Mexico and for several years was president of the Texas Shorthorn Breeders' Association, doing important trade promotion work in Mexico for both the Texas and the national associations.

Extra work killing weeds and testing seed before planting sorghums pays so well that some good farmers put off planting a few days for these reasons.

Hygiene can prevent more crime than any law.—HUGO MUNSTERBERG.

FALL PIGS MAKE PROFIT

Shelled Corn, Shorts, Buttermilk and Oil Meal Give Largest Returns

A BUNCH of fall pigs fed shelled corn supplemented with tankage, shorts, and semi-solid butter milk, made the largest gains and the second largest profit in a recent pig-feeding test at the Kansas Experiment Station. The results seem to indicate that there is some advantage in a variety of feeds, for the lot in which the pigs were fed shelled corn, shorts, semi-solid butter milk, and linseed oil meal, were only slightly behind the ones first mentioned in total gains and made a few cents more profit to the pig. This test was conducted under the supervision of Associate Professor E. F. Ferrin and H. B. Winchester of the agricultural college. It began January 15 and ended September 15, a period of ninety days. Its primary purpose was to get some information on the best methods of feeding fall pigs. Are fall pigs profitable or not? What feeds will give the best and most profitable gains in handling fall pigs? A desire to answer these questions prompted the planning and carrying out of this test in feeding fall pigs.

The pigs fed were only average as to individuals and lacked some in thrift and general health. About half of them were farrowed late during the month of October and therefore did not get a good start before the winter weather came on. To succeed best with fall pigs they should be farrowed in September so that they will be weaned and accustomed to shift for themselves before winter weather begins. Pigs weighing thirty-five or forty pounds by December 1 are not nearly so apt to become runty as the little fellows just weaned and forced to look out for themselves just at the beginning of severe weather.

To insure freedom from worms these pigs were treated at two different times with santonin capsules. They were kept in warm houses with dry floors having the beds free from dust and other conditions likely to cause disease. Ventilation was also provided for, as a close house is apt to get damp during the time the pigs are sleeping. The ventilation must also be provided for without causing direct drafts.

Six lots were included in this test, five pigs being fed in each lot. The rations were as follows: Lot 1, shelled

Summary of a Ninety-Day Experiment with Different Combinations of Feeds

Lot Number—	1	2	3	4	5	6
Average initial weight	53.5	56.06	55.34	56.4	50.3	56.4
Average final weight	126.6	152.26	184.34	121.74	139.86	174.66
Daily gain .....	.81	1.07	1.43	.73	.99	1.31

FEED TO MAKE 100 POUNDS GAIN—

Shelled corn	364.67	297.87	243.06	407.1	269.76	224.21
Tankage	47.20	25.36	19.38	.....	.....	.....
Wheat shorts .....	.....	90.07	94.77	.....	82.4	79.95
Semi-solid buttermilk .....	.....	.....	53.02	.....	.....	59.19
Linseed meal .....	.....	.....	.....	65.58	52.03	25.83
Total feed for 100 lbs. gain.....	411.87	413.30	410.25	472.68	404.19	389.18
Cost of 100 lbs. gain	\$12.63	\$11.61	\$11.78	\$13.33	\$11.41	\$11.17
Final value per pig	\$22.78	\$27.40	\$33.18	\$21.91	\$25.17	\$31.44
Feed cost per pig	9.25	11.17	15.20	8.71	10.22	13.21
Initial cost per pig	9.59	10.09	9.96	10.15	9.05	10.15
Margin over initial cost and cost of feed	3.94	6.14	8.02	3.05	5.90	8.08

VALUATION OF FEEDS.—Shelled corn at \$2.75 per cwt.; tankage, \$5.50 per cwt.; wheat shorts, \$2.25 per cwt.; linseed oil meal, \$3.25 per cwt.; semi-solid buttermilk, \$4.00 per cwt.

corn and tankage; Lot 2, shelled corn, tankage and wheat shorts; Lot 3, shelled corn, tankage, wheat shorts, and semi-solid buttermilk; Lot 4, shelled corn and semi-solid butter milk; Lot 5, shelled corn, wheat shorts, and linseed oil meal; Lot 6, shelled corn, wheat shorts, semi-solid butter milk, and linseed oil meal. All the feeds were given in self-feeders, each feed being in a separate compartment with the exception of the semi-solid butter milk, which was fed by hand to the two lots receiving it night and morning. This butter milk is a creamery by-product and is partially solidified in order to facilitate economical shipping and handling. The pigs were given all they would clean up, mixing it with water, but not using any feed with it to form slop. The five pigs in each of the two lots getting butter milk consumed as a rule about four pounds of it daily with the exception of two periods of three or four days each when Lot 4 would not take more than two pounds a day. These periods were from January 29 to 31 and March 19 to 22. At no time did the pigs in Lot 6 show any loss of appetite for the butter milk.

In commenting on this experiment, Professor Ferrin called attention to the fact that weather conditions have a marked influence upon the gains made

by fall pigs. During the most severe weather they made little increase in weight, making good gains when the temperature was moderate. For example, Lot 1 gained but four-tenths of a pound daily to a pig during the first thirty days, improving to 1.12 pounds to the pig daily during the last thirty days, or the period from the middle of March to the middle of April. The pigs in this experiment were sheltered in a tile block house placed in a protected location. Plenty of windows were located on the south side and each lot of pigs had a small yard.

The results of this test are shown in some detail in the table on this page. They should not be considered as final by any means, being more in the nature of a report of progress. It is planned to repeat the experiments another year, using the same feeds, and average the two years' results.

In studying the figures in the table it is noted that in comparing tankage and linseed oil meal as protein supplements the tankage in each case gave greater gains, and although tankage was higher in price, its greater protein content resulted in a smaller requirement of the supplement for each hundred pounds of gain, the margin in favor of the tankage being sufficient to more than

counteract its greater cost. It was rather interesting to note the effect of a variety of feeds. In Lots 3 and 4 the average daily gains were considerably more than in any of the other lots. The pigs in Lots 2 and 3 received the same rations with the exception that Lot 3 had buttermilk extra, and the daily gains to the pig were over a third of a pound greater. Lots 5 and 6 received identical rations with the exception that Lot 6 had butter milk extra and hence also the average daily gain to the pig was about a third of a pound greater where the butter milk was added. Rapid gains usually mean cheap gains if too much high priced feed is not used, and in this case the butter milk, costing 4 cents a pound, more than paid for itself, as will be seen in comparing the figures in the last column of the table showing the margin over the initial cost and cost of feed. In fact the pigs in these two lots had a margin greater by two dollars a head than the pigs in Lots 2 and 5.

There was very little difference in the amount of feed required to each hundred pounds of gain with the exception of Lot 4, which required more than any of the other lots. It was noted all through the test that these pigs were not doing as they should. Their coats were harsh and there seemed to be something lacking in their bill of fare. As they were being fed in a free choice self feeder and had a chance to eat all the oil meal they cared for, the quantity of protein should have been ample. The high feed requirement to the hundred pounds of gain was perhaps due to the fact that the corn and linseed oil meal combination was deficient in some necessary protein. It is known that corn is lacking in some of the most essential proteins and it is Professor Ferrin's belief that the linseed meal probably can not by itself make up these deficiencies.

The financial statement shows that each lot the returns were satisfactory. The experiment closed at the beginning of the grazing season, since it was planned to test out these feeds for winter feeding only under dry lot conditions. Pigs running on alfalfa pasture should make considerably cheaper gains than if continued in dry lot, and thus be finished for market more economically.

Growing into Dairy Farming

FINDING that conditions in Kansas made cow feed more sure, year in and year out, than hog feed, changed the plans of two Iowa farmers who came to Kansas in 1910 from specializing in hog production to developing a high class dairy herd as their main farm project. When the Appleman Brothers came to Sedgwick County nine years ago it was with the expectation of making hog growing their principal live stock project, but they soon found that corn was by no means a sure crop, or at least the grain. A field could present a fine prospect and represent in work and other items considerable expense and then fail to produce a good crop of grain, and yet a great deal of feed value had been produced. The only way to cash in on that kind of a crop is to use cattle, for they are by nature adapted to converting bulky feeds into meat or milk.

We visited the Appleman farm a few years ago after it had been well started on the road to becoming a dairy farm and out attention was attracted to the fact that most of the females in the dairy herd had come from two foundation cows, these cows being still alive and still breeding at that time. It will be interesting to those who plan to grow gradually into the dairy business to trace the history of this herd. In 1911 the Applemans made themselves a Christmas present of three cows and two heifers, pure-bred Holsteins purchased from a breeder at Arkansas City. The cows were bred by M. E. Moore, Cameron, Missouri, one of the pioneer breeders of Holstein cattle. He has been dead some years and his herd, once famous on the show circuit, is now

dispersed. The selections made in his initial purchase were most fortunate, for from two of these cows has sprung practically the whole present herd. The original cows differed somewhat in type, one being rather low and compact while the other was large and growthy.

These two cows, Zwingara Parthenia and Anzoletta De Kol II, had never been tested when they were purchased, but plenty of records have since been made by them and their descendants. The first named cow was fifteen years old, but when tested two months after freshening made fifteen pounds of butter a week. The second cow, after losing half of her udder, was put on A. R. O. test and made sixteen pounds of butter in a week. There are now twelve daughters and granddaughters of this second cow giving milk, and every one of them is in the advanced registry class. The Applemans are looking forward to making records with twelve other granddaugh-

ters as soon as they come into production. One of the daughters of Anzoletta De Kol II, Lady Anzoletta De Kol, finished a week's record in January of 721 pounds of milk and 29.22 pounds of butter. Anzoletta De Kol II produced four heifers in succession after coming to the Appleman farm. This was particularly fortunate, as it increased the producing side of the herd very rapidly. Until recently no additions to this herd were made by purchase except two heifers and four herd bulls, each one a little better than the one preceding.

The Appleman herd is a real producing herd. E. J. Macy, county agent of Sedgwick County, states in his May news letter that twenty cows were being milked during the month and that during the year the Applemans had realized \$4,500 from the sale of milk to the Mulvane condensery. Last year twenty-four animals were sold from the herd, the price received being \$7,500.

The year before thirty-three head were sold for about \$4,000 and all of these descending in seven years from the original cows and heifers purchased in 1911.

The lesson in this recital is the rapidity with which a high class herd can be acquired, providing right choices are made in the foundation stock and careful breeding methods are followed later. Any man who really desires to develop a high class dairy herd can make a start just as it was made on this farm.

The Applemans have become very enthusiastic in the use of sweet clover as a pasture crop, and the cut shows some of their cows grazing on a sweet clover pasture. The cow testing association has been of great value to this community. The Applemans state that they did not know exactly which cows were making the most profit until the testing association was organized and the tester began his work.

No man really climbs who climbs alone. No man wins the heights unless he carry life with him. To press forward a little, bearing friends and family in one's arms; to share those vast, common experiences of mankind which keep one's heart fragrant and give him a sense of brotherhood to all the world; to live so that the common level of humanity is lifted even ever so little by one's having lived; this, with a reverent gratitude, is success. At the end of the road lie the heights of glory. This is the pathway up.—BRUCE BARTON in "The Making of George Groton."

You never saw a cow that would not do better work on good silage than without it.



COWS ON APPLEMAN FARM IN SWEET CLOVER FIELD

CO-OPERATIVE SELLING WINS

Texas Producers Reap Rewards of United Efforts in Marketing

By CHILTON GANO

In July, 1916, the honey producers of Texas had known that within a year their country would be at war, they might have said: "This is no time to experiment with organization." But they would have been wrong, as their war-time record proved in a really spectacular way. The association has never until this season experienced a period of normal, untroubled commerce. It was organized in the time and on the scene of the Mexican disturbance. The European war had been in progress two years and was most decidedly reacting on American business. Within a year after the beekeepers organized, our own country entered the conflict. But despite all this turmoil the association has thrived, has completely revolutionized the Texas honey industry and has materially increased the incomes of its members. That honey was a sugar substitute was not the explanation of the success achieved. The association's most spectacular achievements were recorded in the first year of its existence, before the sugar shortage began to be felt.

Abnormal times indeed afforded it exceptional opportunities to prove its value. For instance there was the matter of the army ration. During the mobilization of the army on the Mexican border many Texas firms enjoyed increased trade as a result of the presence of this large body of newcomers. To the beekeepers it seemed that to them also was afforded a legitimate selling opportunity, but when they tried to interest army officials it was learned that these latter were powerless to act, as honey was neither on the regular army ration nor on the conversion tables of the War Department.

The association, then only a few months old, promptly took the matter up with the War Department, and in less than six weeks permission had been granted to add honey to the bill of fare of the Texas troops. Thousands of pounds of Texas honey were soon being consumed and enjoyed by the boys in khaki.

Another wartime emergency developed when the authorities at Washington were taking steps to avoid a tin shortage. The association was "right on the job" and discovered early that the committee at Washington had failed to list honey as a perishable food product requiring a supply of tin cans. In promptly taking the matter up with the authorities the Texas association performed a service not only to Texas beekeepers but to the honey industry of the nation.

Then, finally (honey seems to have been a sort of step-child among the nation's industries), when sugar rationing began, it appears that nobody looked out for the beekeepers' sugar requirements in bee feeding. Beekeepers throughout the country took the matter up with their local food administration boards. In Texas the association acted promptly, wisely and without lost motion for the entire state industry, with the result that the matter had been completely adjusted in Texas at a time when negotiations were barely beginning in many other states.

Stabilizing an Industry
But the greatest success of the association has been achieved in the performance of its routine work, the work of buying supplies for its members in quantity and standardizing the marketing end of their business.

The experts tell us that necessity is the mother of successful co-operative marketing. In July, 1916, Texas honey was in bad repute. As a whole it reached the market badly packed. It was not dependably graded so that a grocer in asking for a certain grade could be sure of getting it. It was sold to the trade at any and every price except a satisfactory one, so that one grocer buying at one figure could not be certain his competitor was not buying just as good honey 2 cents cheaper.

It is not altogether surprising, therefore, that Texas wholesale and retail grocers wished the honey producers would get on the job and correct their methods, even if it should mean a considerable advance in wholesale honey prices. When the producers met and decided to organize, Texas honey was

selling at 5 cents, whereas in California and Colorado honey was bringing 7½ to 8½ cents. The Texas producers knew they had been making no money, and they knew an industry that makes no money can't deliver a satisfactory product. They announced that the minimum price for honey must not be below 7 cents if the industry was to make any headway.

The trade cheerfully acquiesced. Several jobbers even were so interested in the new plan that they tendered assistance in financing it in order to guarantee its being carried out. Very different was the attitude of the trade toward farmer co-operation in the old days—but times are changing. Comprehension is increasing.

Within six weeks after the association was formed the market price for honey was 7 cents instead of 5. Yet the consumer price had not advanced. The trade had investigated the intentions of the producers and were confident that under the new regime they could handle honey on a smaller margin and yet more profitably.

Within six weeks the association had put the honey industry on a paying basis. It had thus encouraged investment in the business, had given it impetus, had substituted enthusiasm for discouragement. That this was incidentally war service, in the light of the sugar situation, will be realized. It put the industry in prime condition so that it was prepared to aggressively manufacture a sugar substitute when it should be badly needed, a little later.

In the nature of an embryonic war service, also, was an ingenious feature of the association's plan which concerned transportation and storage. In place of delivery being made to the wholesaler who in turn would redeliver in smaller lots to the retail trade, the association decided it would prevent much loss from leakage of comb honey and would save shipping and storage expense if ship-

ments were made from the association's loading points direct to the retailers. However, they did not intend to eliminate the wholesaler, who still sells honey though he does not actually handle it. The association has not the selling machinery for approaching the retailer direct. The jobber has. This plan is especially salutary for a product like honey, which is heavy, fragile in comb form, and subject to leakage, and thus suffers from rehandling. This feature alone has accounted for a saving in distribution cost that probably equals the initial 2-cent price advance. The trade is highly pleased with the new plan. The honey arrives in prime condition and its turnover is consequently accelerated.

A "Spy System" Helps

If the man who first said "Knowledge is power" was not a salesman, he might as well have been. In no field of activity is accurate knowledge more needed than in marketing, and this fact explains the value of the co-operative method. Instead of each farmer trying to be a market expert in addition, all of this responsibility is delegated to one man and he devotes his whole time to knowing the market, studying its history, and watching the growth of supply and demand and the trend of prices.

E. G. LeSturgeon, general manager of the association, is the brain of the association officially, as well as part of its brains personally. The nerves of the office radiate out into each honey-producing district. Every member must make a crop report periodically on a special blank, letting him know just how much honey is in prospect. Every local association keeps him informed regarding cars ready for market. His correspondence with buyers and his general study of market conditions keep him posted on where to seek orders. Texas honey no longer goes haphazard to this market and that. It is sold before it is shipped, meaning that it goes only

where demand is prime. While members are not obliged to sell through the association, outside sales are rare. Honey not sold through the association cannot carry the "Lone Star" brand nor the association guarantee, and as these two distinctions are rapidly becoming established assets, outside sales will soon be as rare as the "Dodo" no doubt.

The association of course adopted strict grading and packing specifications at the start. In place of maintaining an expensive corps of inspectors, however, it has a fining system which has operated admirably in making members observe the rules. The association mails checks to members for 50 per cent of the amount due them on the day bills of lading are received. Thirty days later an additional 25 per cent goes forward. But the final 25 per cent is retained ninety days pending possible complaints by the purchaser regarding grading, packing, etc. If the complaint is traceable to a producer's error, the producer is penalized accordingly and a financial settlement is made with the purchaser.

The authority for penalizing the producer resides in a statement which he has signed in triplicate at the time his honey is delivered to the association, stating that his honey is packed in accordance with association rules and that he will be responsible for any loss occasioned by failure to put up a standard product.

A Public Spirited Group

The remaining important function of the association is educational, and in this department it has earned laurels just as definitely as in the buying and selling departments. At the time of organization there was a vast educational work to perform. To standardize an industry which had never possessed fixed standards meant to in some degree revolutionize individual methods all the way from hiving to loading on the car. The information department has combined this task with that of keeping the members generally informed on matters of importance in connection with the industry and the market.

It is indicative of the organization's public spirit that its information bulletins can be had by any Texas beekeeper who will take the trouble to ask for them, whether he be a member or not. It is desired to be helpful to the entire industry in as full a measure as possible, and the influence of the organization on the industry has necessarily been great in every way, while some of its special activities, as has been mentioned, have even extended their beneficial effect beyond the borders of the state. Influence on honey prices has been direct and almost as beneficial to outside producers as to members. The association's superior facilities for knowing the market, however, have enabled it to obtain generally higher prices for its members than outsiders could secure. A number of instances are on record where producers about to sell at a certain price, on being advised by the association that the association could probably secure one, two or three cents more per pound, turned their honey over to the association and eventually secured the higher price.

Texas beekeepers claim with reason that their association has accomplished wonders in securing right prices by selling where the supply is shortest.

All in all, this industry's experience in organizing and developing a co-operative marketing association would seem to suggest that any time is a good time to introduce efficiency into a business, since even in the midst of a great war the step may be taken with advantage to producers, consumers and the nation.

When the farmer's wife went "to the store" in 1918 she paid, according to the United States Department of Agriculture, 178 per cent more for sheeting than she did in 1914, 176 per cent more for brooms, 257 per cent more for calicos, 121 per cent more for dinner plates, 150 per cent more for dish pans, 49 per cent more for fruit jars, 94 per cent more for kitchen chairs, 77 per cent more for lamps, 210 per cent more for muslin, 108 per cent more for stoves, and 99 per cent more for wooden wash tubs.

AGRICULTURE AND NATIONAL WELFARE

MEN everywhere are beginning to realize that we must have a better agriculture if we are to meet the demands for food which are already upon us. We, at last, are learning that you cannot forever subtract from the soil, adding nothing to it, without having impoverished fields. We used to feel that a man's land was his own, to do with as he would. We begin to see that there are limitations upon this right. Land does not belong to one generation alone. It belongs to all the generations of men. We have no right so to farm our own land as to pauperize the generations to come. No farmer can feel that his life has been rightly lived unless at its end he can feel that the land he has held is the better for his kindly care.

Any system of farm tenantry which results in the depreciation of the soil will have to go. In the future no form of farm tenure will be permitted unless that form insures the highest possible production of food. Great nations have sunk to decay because of the neglect of their land. Of all forms of conservation, conservation of the soil is the most important. A permanent agriculture so planned as to maintain indefinitely the fertility of the soil is demanded, if the nation is to endure.

The surest and easiest way in which we can maintain, and even improve, the productiveness of our lands is by turning more and more to live stock. The breeder of good cattle, therefore, helps to a permanent agriculture, and is among the most useful of men. Go wherever you will, the most prosperous communities with the best homes and best farm improvements and the largest production of the fields are found where live stock has received the greatest care. We have a heritage rich beyond compare. Unless we shall hand down our farm to our successors unimpaired in their richness, we shall have lived at the expense of our children, and all who come after us. Unless, too, we shall preserve an orderly government, based upon the principle of equal opportunity to all, our rich fields, our increased flocks, will be of no value.—Gov. FRANK O. LOWDEN, of Illinois.

GENERAL FARM AND STOCK ITEMS

Something of Interest for All—Overflow from Other Departments

ONE of our readers is planning to paint his house, and wishes to know how to figure the amount of paint he will have to buy. A good grade of prepared paint should cover from 200 to 350 square feet to the gallon with two coats. Of course the quantity will vary somewhat according to the nature of the surface to be painted, and the kind of paint used is also a point to consider. Different manufacturers usually furnish information as to how many square feet a gallon of the brand they are offering will cover. In order to calculate the number of yards to be covered, measure the distance around the house, multiply this by the average height to the eaves, and divide by the number of square feet one gallon will cover. This will approximate the amount of paint required. If a different color is to be used for trimming cornices, window frames, etc., allow one-fifth of the total quantity for the trim.

Bone Weakness in Hogs

M. T., Harper County, writes that he has had some trouble from hogs breaking down in shipping and also that a brood sow suckling pigs has broken down in her hind quarters. We can only make a guess as to the difficulty. Strong bone in hogs is of greatest importance and is dependent to some extent upon heredity. Every experienced hog breeder recognizes the fact that he must breed hogs strong in bone.

A lack of mineral matter in the feed is also a frequent cause of bone weakness. Sometimes serious losses occur in shipping hogs through the fracture of these bones which seem to be normal in size but lacking in strength. Experiments have shown that a deficiency in bone-making material in the feed of growing hogs may reduce the actual breaking strength of the bone by one-half without restricting its growth to a noticeable extent.

Calcium and phosphorus are the most important minerals required by hogs. These two elements are especially deficient in corn and many of the grains and cereal products. Skim milk and tankage are important sources of mineral material for the corn or kafir-fed hog. An abundance of forage, such as alfalfa or other legumes, during the growing period help out in supplying mineral matter. These two important minerals, calcium and phosphorus, can be supplied by feeding bone flour, wood ashes, corn cob charcoal, and lime. Raw rock phosphate is sometimes given to hogs.

Oat Hay

A reader asks if an oat crop can be profitably used as hay, or whether it will give the largest returns by allowing the crop to mature grain.

Oat hay is a fine feed for horses, milk cows, or any other farm stock. It is our belief that on many farms where only a small acreage of oats is sown the crop would make a larger net return if cut in the dough stage and cured and fed as hay than if allowed to ripen grain and be harvested and threshed. The nutrient value of the grain at this stage will largely be in the straw, and there is considerably less labor and expense attached to handling a crop in this way.

Good oat hay, properly cured and stored, is almost equal to clover hay as a roughage for milk cows, and probably no better roughage feed could be fed to work horses. Experiment station tests have shown that average oat hay contains 4.5 pounds of digestible protein, 38.1 pounds carbohydrates, and 1.7 pounds fat to the hundred pounds.

Pink Kafir

We have been asked by an Osborne County reader as to the comparative merits of dwarf kafir and pink kafir. The pink kafir is a strain which is now being grown quite extensively and has given excellent results in various sections of the state. It seems a little more hardy and sure than the standard variety under adverse soil and conditions. In the section from which our correspondent writes, the dwarf kafir of the strain developed at the Hays Experiment Station is a little safer as a

grain crop, although the pink kafir will yield a larger amount of forage. According to the results at the Hays station, pink kafir as a forage or silage crop is a close second to red amber cane, which has been found to be the highest-yielding silage crop for that section of the state.

Movable Hog Houses

On many farms where hogs are grown no large central hog house has been built. It is perhaps an open question as to whether the man growing a few hogs only is justified in putting up such a house. Practically every man growing hogs, however, must have suitable shelter for the brood sows and litters, and can profitably use one or more of the movable hog houses. These movable or colony hog houses are especially suited to the needs of those beginning in the business. Boys and girls doing the pig club work will find these movable houses well suited to their needs. They can be moved from field to field as the pigs are changed from one grazing crop to another. The use of these

small houses makes it much easier to keep the hogs healthy, for they can be moved to a fresh location when conditions become unsanitary where they have been standing for any length of time. Such houses can be quite cheaply built, and the farmer who rents can properly house his hogs and take the small houses with him when he moves to another farm. In the hog book just published by the Kansas Board of Agriculture, plans and drawings are given for a number of different types of these colony houses. They are given in such detail that anyone can build them from the instructions furnished.

More Milk in Winter

A beginner in dairying asks if it is true that a fall-freshening cow will give more milk in a year than one freshening in the spring.

It has been quite conclusively demonstrated that a well bred dairy cow freshening in the fall can be made to produce a larger amount of milk in a year, providing she is given proper care and feed, than if she freshens in the spring.

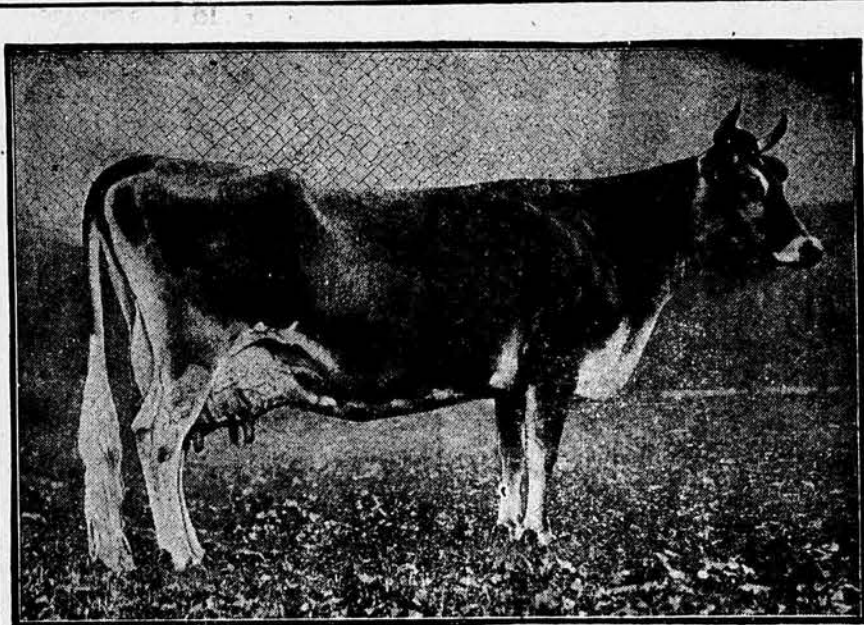
Vive la France, a 1,031-Pound Jersey

A JERSEY world's record has recently been made by a cow on the Pacific Coast. It is rather significant that the owner of this cow is not a wealthy man and does not even own the farm on which he is working. At the outbreak of the war Ovid Pickard, an Oregon farmer of French descent, named a baby heifer calf of the Jersey breed Vive la France as an evidence of his faith in his ancestry. Mr. Pickard always cherished the desire to own a great cow, but supposed that a poor farmer who rented his place had little chance against the hundreds of men who had money and animals of seemingly better breeding. But Vive la France finished a three-year-old record when the Germans made one of their final drives on Paris, though not much publicity was given to her first effort in those dark and doubtful days. Her first trial assured Mr. Pickard that he had a wonderful cow and he set out after a world's record. He has only fifteen cows, but four of them are as good as any man can own. One of these is Old Man's Darling 2d, and she holds the junior four-year-old record of the Jersey breed by having produced 985 pounds of butter fat in one year. Vive la France, her stable mate, has just completed her record as senior four-year-old, which breaks by nearly 100 pounds a record made many years ago by Olympia's Fern.

Vive la France produced 14,925 pounds of milk and 1,031 pounds of butter fat in 365 days. The average percentage of

butter fat was 6.91. Her age at the beginning of the test was four years seven months. She also holds the junior three-year-old championship made a year ago—12,744 pounds of milk and 892 pounds of fat. She has a two-year-old record of 9,210 pounds of milk and 633 pounds of fat. In her first test she produced 6.88 per cent milk and in her second it tested 7 per cent. Her average test of 6.91 per cent in the latest test is not in the least abnormal, although she tested high in the eleventh month. Her four-year-old record also makes her champion cow of the Jersey breed at all ages, as she surpasses the record of Sophie's Agnes, the first 1,000-pound cow of the breed.

Vive la France is a daughter of the western bull Golden Glow's Chief, sire of thirty-eight Register of Merit daughters and of Old Man's Darling 2d, holder of the junior four-year-old record. On both sides of her pedigree there are records of high production. Mr. Pickard thinks that record-making is great sport. He himself fed Vive la France and milked her four times a day. She has an appetite in keeping with her productive capacity. High salaried farm managers, fifty-seven varieties of feed, and an unlimited expenditure in barn comforts are not necessary to produce great cows and great records, as many imagine. What has been done with this Jersey can be done with other working cows. It is up to the men who work with them to take a keen enough interest in getting every animal to do its best work.



VIVE LA FRANCE, FOUR-YEAR-OLD RECORD 14,925 POUNDS MILK AND 1,031 POUNDS BUTTER FAT IN 365 DAYS

It might not be true of the cow with a lactation period of only four or five months. Such a cow when freshening in the spring would of course make a large portion of her year's production during the flush pasture period. A real dairy cow, however, is a persistent milker and will give milk for a long period following freshening. By supplying plenty of the right kind of feed and care including silage if possible, a good milk cow freshening in the fall will produce a heavy flow of milk through the winter and then when the fresh pasture season comes on will receive an added stimulus and continue heavy production through this season of the year, making for the whole year a larger production than if she had freshened in the spring and started off her lactation period on grass.

Of course there are other reasons for having the heavy end of the milking business come during the winter, the most important being that it is the season when more time can be devoted to milking and feeding cows and calves. The dry period will come during the late summer season when the farm work is pushing and also when it is most difficult to keep cows up in their milk.

Destroying Grasshoppers

Prof. G. A. Dean, entomologist of the Kansas Experiment Station, writes that reports coming in from the western third of the state indicate that an unusually large number of grasshoppers have hatched from the eggs that survived the winter and in many districts in this section of the state the hoppers are seriously injuring alfalfa and later in the season will injure other crops unless prompt and vigorous efforts are made to destroy them now.

During the past six years the poison bran mash formula which is given in another article in this issue relative to controlling cutworms, has been extensively used in controlling grasshoppers. Professor Dean states that he does not hesitate in recommending it as the most effective and most practical method of control. Tons of it have been used in the years past, many counties organizing co-operatively to poison the grasshoppers in the whole county.

The twenty-pound formula makes enough of the bait to cover four or five acres. It should be scattered broadcast and never placed in piles. Scattered in this way, it is impossible for birds, chickens, or other farm stock to get enough of the poison to injure them. In alfalfa fields the best results will always follow scattering the bait after a crop has been removed just before the new crop starts. Material and labor can be saved by scattering it in strips, leaving twenty or thirty feet between the strips. This seems to get the grasshoppers fully as effectively as when the whole field is covered, since they will crawl some distance to get it. Another good plan is to leave a narrow strip of alfalfa standing in the center of the field. In mowing a field the hoppers are always driven toward the center of the field and when concentrated in close quarters considerably less poison will be required.

This poison bait will not stick on the alfalfa after it has been cut and raked, so there is no danger of the hay poisoning stock. If grasshoppers are moving into a field of alfalfa or corn, or into a garden, a strip of the poison bran mash should be scattered early in the morning along the edge of the crop into which they are moving. Sometimes two or three applications are necessary at intervals of three or four days, since grasshoppers keep coming in.

To be most successful in destroying grasshoppers it is necessary to begin promptly, as soon as they seem to be present in sufficient numbers to do damage, and to keep up the fight vigorously as long as any grasshoppers are left.

Time to Mow Sweet Clover

J. F., Morris County, asks for information regarding the proper time to cut sweet clover for hay. There are some very important points in handling this crop as a hay crop. It is normally a biennial, the plants maturing seed the second year and then dying. The best hay from sweet clover comes from the

first year's cutting. It can be cut as low as alfalfa or clover hay this first year without injuring the stand. The plant should always be harvested for hay before it gets too rank and woody. It should not be cut, however, until the brown sprouts have started and show about an inch above ground.

By proper handling, two or three crops of hay can frequently be harvested the second year. The first cutting should be made just before the blossom buds appear, and in cutting at this time the sickle bar must be set high enough to leave a few branches and leaves on each plant. We have visited the experimental plots on the agronomy farm at Manhattan during July the last few years and have noted that strips of sweet clover the second year from seeding had been almost entirely killed by cutting low at this time. The second cutting should be handled in about the same way. As the second cutting comes on, sweet clover will be almost continually in bloom. As a general rule it should be cut when about twenty inches high. The third or last cutting, if there is one, may be mowed close to the ground. The tall stubble interferes with the raking and handling of the crop, but this point of high cutting must be observed or the clover will be practically all killed the first time it is cut.

Control of Cutworms

L. F. A., Pawnee County, asks what he can do to keep the cutworms from working on plants, and also how to kill the molds.

Cutworms are very voracious feeders and a single worm is capable of destroying several plants in one night. They cut the plants off near the surface of the ground. They can be pois-

vessels. The blue vitrol will dissolve more rapidly if warm water is used. As soon as both preparations are ready, add enough water to the blue vitrol solution to make twenty-five gallons, and the same to the milk of lime. For use combine the two solutions in equal quantities. If to be used with a spray pump, it must be carefully strained in order to prevent clogging the spray nozzles. To make smaller quantities, simply reduce proportionately the different ingredients.

Circular No. 65, published by the Kansas Experiment Station, gives in very convenient form the best methods to follow in controlling various insect pests and plant diseases. We would suggest that our correspondent and others interested write to the experiment station at Manhattan for a copy of this valuable pamphlet. It will be sent free on request.

Calf Meal Formula

B. M., Bourbon County, asks for a calf meal formula. He is anxious to raise his heifer calves with a minimum of milk without retarding their proper development.

The problem of how to raise calves to keep up and improve the herds is apt to come up wherever milk is sold for city trade or to a condensery. It is one of the drawbacks of selling whole milk. It is practically impossible to get along without using some milk and well bred heifer calves should not be spoiled in the raising by pinching them too much on milk. It is a short-sighted policy to stunt such calves in the desire to market all the milk produced. Heifers must be raised, and well raised, if any progress is to be made in building up the better herds, for the average dairyman

A PROSPEROUS and progressive agriculture, with an independent, self-respecting citizenship in the open country, is the surest guarantee of an enduring national life. Farming must be made as profitable as any other occupation involving the same amount of investment, business ability and hard work, or our democracy must fail, and our people go hungry.—National Grange.

med by the use of the poison bran mash mixture, which is made as follows: Bran, 1 pound; paris green or white arsenic, one ounce; syrup or molasses, 3 ounces; one-fourth of a lemon or orange, including the peel, and 1½ pints of water.

In preparing this, mix the bran and poison thoroughly in the dry form. Add the syrup or molasses and the finely chopped lemon or orange to the water. Pour this liquid over the poison bran mixture, stirring thoroughly so as to wet it evenly. The poison should be put out in the evening, since the cutworms work at night, scattering it thinly along the rows near the plants to be protected. This bait is always more attractive when fresh, so a new supply should be put out each night as long as there are any indications of cutworm damage.

To prepare this poison bran mixture in large quantities for poisoning grasshoppers in the field, the following formula may be used: Bran, 20 pounds; paris green or white arsenic, 1 pound; syrup or molasses, one-half gallon; lemons or oranges, including the peel, 3; and water, 3½ gallons. This larger quantity is prepared in the same way as the small quantity formula given above.

The inquiry regarding molds is too indefinite to answer specifically. There are a number of plant diseases which might be included under this general term, molds. The usual treatment for fungous diseases of plants is applications of Bordeaux mixture or solutions of formaldehyde. For example, the pod spot or anthraxnose in peas and beans, which causes reddish brown sunken spots on the pods, can be treated by spraying at intervals of ten days throughout the rainy season with bordeaux mixture 4:5:50. This means that the formula used is: Copper sulphate or blue vitrol, 4 pounds; fresh unslaked lime, 5 pounds; water, 50 gallons.

To prepare this, slake the lime carefully, gradually adding water to make the milk of lime. Dissolve copper sulphate by suspending in a gunny sack near the surface of a few gallons of water, using only wooden or earthen

cannot depend on buying cows to keep up his herd.

There are some good commercial meals on the market which give excellent results in raising calves where only a small amount of milk can be used. Commercial concerns are attacking the problem in earnest, and at least one company to our knowledge has employed a high class dairy expert to devote his whole time to investigating the matter of milk substitutes for calf feeding and the working out of practical methods of successfully raising calves with a minimum of milk. The Indiana Experiment Station has worked on this question and recommends the following formula for a home-mixed calf meal: Fifty pounds soluble blood flour, 50 pounds hominy feed, 50 pounds red dog flour, and 50 pounds linseed oil meal.

Bone Meal for Wheat

Rich as our Kansas soils are, farmers in some sections of the state are beginning to find that commercial fertilizers can be used with profit. C. L. Armstrong, a farmer living in Labette County, states that he has used fertilizer on wheat for several years and has found such a difference in the fields where a little fertilizer is used that he would not think of growing wheat without it. He says: "I usually get an average of five bushels to the acre more on fertilized than on unfertilized wheat. The berry from fields fertilized is more plump than the berry from unfertilized fields. It seems that the phosphorus in the bone meal which I use makes the grain ripen better than grain which does not get this extra plant food. I use a hundred pounds of bone meal to the acre."

Drainage in Road Building

Drainage is the chief essential in putting earth roads into proper condition. An expert road builder once said that the three requirements of good earth roads are, drainage, more drainage, and still more drainage. Roads must not only have good surface drainage, but also good underdrainage.

The Manufacturing Facilities of The Standard Oil Company

(Indiana)

UNDERLYING the manufacturing activities of the Standard Oil Company (Indiana), are the same high ideals of service; the same thoughtful consideration of detail; the same earnest desire to do a big job thoroughly and well, which animates the Company in every other branch of its business.

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The plants at Wood River and Sugar Creek are modern in every particular and so organized as to use every part of the crude oil. This enables the Company to keep manufacturing costs at a minimum and to supply its patrons with products of the highest standard at prices which otherwise would be impossible.

The 7,000 earnest, industrious, well-paid men and women who make up the personnel of these three refineries, constitute, we believe, the most loyal, the most enthusiastic, most efficient, industrial army to be found anywhere.

The facilities alone for manufacture maintained by the Standard Oil Company (Indiana) represent an investment of approximately \$60,000,000. This investment is growing constantly to enable the Company to maintain the high standard of service it has set for itself and which it believes the public is entitled to receive.

Standard Oil Company

(Indiana)

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WHY SOILS NEED HUMUS

ANYONE who has had garden or farm experience knows how necessary organic matter is to the soil. Not only does the presence of organic matter prevent baking and packing and aid in holding moisture, but available nitrogen, so essential to healthy plant growth, rises and falls with the organic matter in the soil. Probably the falling off in crop yields in Eastern Kansas is due to a depletion of organic matter in the soil more than to any other one thing. R. I. Throckmorton, soil specialist at our agricultural college, has studied this problem and in discussing it points out that organic matter decays very rapidly in a cultivated soil. The more frequently the soil is plowed, the more intensively it is cultivated, the more rapid the loss of its organic matter. The soils upon which corn, kafir or other cultivated crops are grown continuously usually become depleted in organic matter more rapidly than soils cropped steadily with small grain. Soils seeded down to alfalfa or kept in grass crops tend to increase rather than decrease in organic matter.

In Kansas wheat straw is one of the most valuable by-products of the farm as related to maintaining the organic matter of the soil. Too often it is burned or otherwise destroyed. Millions of dollars worth of plant food could be added to the soil annually if the straw were saved and spread on the land either in the form of straw or after being worked over by animals. The latter method is probably the most economical way of handling it wherever enough animals are kept to use all the straw grown as bedding and feed. Handled in this way it is converted into farm manure and can be applied to the crops in that form. Straw applied as a surface dressing on wheat during the winter is often very helpful, as it prevents blowing of the soil and winter killing and the straw decays and goes back to the soil in the form of organic matter.

In the old days barnyard manure was largely looked upon as the chief source of organic matter, probably because comparatively small acreages showed the need of the addition of such material and there were enough animals kept to produce the required amount. It is generally recognized today that animals are very essential in the maintenance of soil fertility since they facilitate the return of much of the by-product material to the soil quickly. It must never be assumed, however, that animals produce any organic matter. In fact they destroy organic matter. A crop of clover, for example, turned under would add to the soil perhaps three thousand pounds of organic material. Feeding the same crop to the stock, saving the manure carefully and returning it to the soil would not add more than half this quantity.

Growing crops and plant life in general are the real sources of all the organic matter of the soil. The roots of every plant add a certain amount of organic matter and the stubble adds more. The larger the crop grown, the larger the amount of organic matter available for return to the soil. Mr. Throckmorton in his discussion of this matter of organic matter in the soil states that where it is impossible to supply enough in the form of manure, straw, corn stalks, weeds, and other plant material, it may become necessary to grow crops for the special purpose, plowing them under. These crops may be the leguminous crops, such as cow peas, soy beans, sweet clover, or non-leguminous crops, as rye, buckwheat, turnips, and sorghums. In the potato-growing section of Kansas in the Kaw Valley it is a common practice of some of the growers to seed their potato fields to turnips as soon as the crop has been harvested, plowing them under in the fall.

In the eastern part of Kansas cow peas is one of the best green manuring crops. A good practice in planting this crop for green manure is to sow on disked or plowed wheat or oat stubble as soon after harvest as possible. The peas may be drilled in close rows or in rows wide enough apart to permit their cultivation. The crop should be plowed under just before frost and the field planted to corn, kafir, or some other annual sorghum crop the next spring. It would not be wise to put wheat on land where a heavy green manure crop had just been turned under. When left for a spring crop the green material has time to partly decay during the winter

season and there will not be the danger of a loose, open seed bed.

Sweet clover is another valuable green manuring crop. It makes rapid, rank growth, and when plowed under adds large quantities of organic matter, and being a legume, is rich in nitrogen. This crop is particularly adapted to growing on soils that are so poor other crops do not make satisfactory growth. In using sweet clover as a green manure crop it is a good plan to use the crop during the latter part of the first season after seeding and the first part of the second season for pasture. About the middle of July the second year after the sweet clover was seeded it can be allowed to grow up and be plowed under before frost in the fall. A crop of kafir or cane should follow on a field treated in this way, small grain crops or alfalfa not being sown until later.

In the western part of the state moisture is often deficient and good judgment must be used in the matter of using green manuring crops. They use a large amount of moisture in their growth and for that reason the soil cannot produce another crop until there has been time to again store it with a reserve of moisture. Professor Throckmorton urges that every possible source of organic matter should be utilized in this section of the state before resorting to the growing of crops for the specific purpose of turning them under.

Judging Contest Awards

Silver loving cups awarded to the winners in the seventeenth annual students' judging contest held at the Kansas State Agricultural College, May 8, 1919, were donated by the following former students:

Park Salter, Shorthorn breeder, of Wichita, Kansas, to the student ranking highest in judging cattle. Won by R. R. Guilbert, Wallace, Kansas.

H. B. Lamer, Percheron breeder, Lindsborg, Kansas, to the student ranking highest in judging horses. Won by J. D. Montague, Anthony, Kansas.

Gwin Brothers, Duroc Jersey breeders, Morrowville, Kansas, to the student ranking highest in judging swine. Won by R. W. Kilbourn, Sterling, Kansas.

A. L. Stockwell, sheep breeder and feeder, Larned, Kansas, to the student ranking highest in judging sheep. Won by E. Williams, Longford, Kansas.

The Kansas National Live Stock Show Association also awarded a beautiful silver loving cup to the man ranking highest in all classes of live stock. This was won by J. D. Montague, Anthony, Kansas.

This manifestation of interest on the part of former students is very greatly appreciated by the present student body as well as the faculty.

Starting in Sheep

During the past five years sheep have been money makers for farmers who have handled them right. But, the man who knows nothing about sheep often starts on too large a scale and becomes discouraged because his experience costs too much.

Experienced men agree that the best way to go into sheep raising is to start with a few ewes, and learn the business as the flock increases. This way may seem slow. But I recall the experience of a boy near McCune, named Ralph Carnes. Six years ago Ralph traded a pet wether which he had been raising for a bred ewe. He now has a flock of thirty-five, sixteen of them being spring lambs. Most of these are the descendants of the ewe he started with six years ago. By trading the wethers for ewes it is easy to increase a flock as rapidly as this one increased.

Last year one ewe at McCune sheared six dollars' worth of wool and raised two lambs. The experienced sheep raiser decides how many sheep he can take care of well, and keeps his flock near that number. How many sheep should a 160-acre farm carry with profit, with an experienced sheep grower in charge?—J. E. PAYNE, Parsons, Kansas.

Don't start the fire with coal oil. Remember that kerosene causes about one-third of all the deaths from fire in Kansas, and is responsible for about 25 per cent more fires than gasoline each year.

Early fall is the best time to start a flock of sheep. Good grade ewes and pure-bred ram are the best for beginners.

Mechanical Farm Power

(Continued from Page One)

farms on which the tractor is a real competitor of the horse and on which it will have the greatest advantage in displacing the horse, in so far as this is possible.

Tractor Displacement of Horses

"It is also of interest to note in just how far horses are actually being displaced on farms, adapted from the standpoint of size and other factors, to tractor farming. On the basis of our cost accounting data it was calculated that on such farms one-fifth to one-fourth of the horses might be displaced by the introduction of mechanical power. In actual field studies, however, on a large number of farms using tractors, these proportions have not as yet been fully realized. Twenty per cent represents practically the maximum displacement of horses due to the introduction of the tractor. It is no doubt true that as farmers learn how to organize their farming so as to make the best use of tractors, and as tractors are more highly perfected, that the standards indicated will be reached on well organized farms. That is, there is a possibility of displacing on farms adapted to the tractor, about one-fourth of the horse equipment.

"In case of very large farms where mechanical corn plows are introduced to cut down the corn plowing 'peak' of horse labor, it may be possible to reduce this proportion somewhat farther still. This should be especially true of farms ranging in size from 500 acres up. On such farms an intelligent cropping system would include 200 to 250 acres of corn as a maximum. A smaller acreage of corn would probably not justify the purchasing of a mechanical corn plow, in addition to the regular tractor, since this acreage could almost certainly be handled more economically by the additional horses necessary. The introduction of one more mechanical corn plow would, therefore, probably be economical only on farms ranging in size from 500 acres upward. Under these conditions we might assume that the introduction of the mechanical corn plow in addition to the regular tractor would make possible a displacement of from one-fourth to one-third of the horse equipment. When we consider, however, that there were in Illinois in 1910, only 1,842 farms ranging in size from 500 to 99 acres, and only 203 above 1,000 acres, we can see that farms of this character form a very small proportion of the total number of farms. In fact, such farms constitute only 1.8 per cent of the total number of farms in the state. Even though farms in the corn belt are apparently increasing slightly in size from one census period to another, it is rather unlikely that such changes will have any very decided influence on the adaptation of the tractor to corn belt farming.

"The foregoing estimated proportions of horse labor displacement, while not, as yet, effected by farmers using tractors, will, no doubt, be realized in the course of the next few years. Experience in general indicates that farmers are not willing to cut down their horse equipment to the point where they will be taking any chance in getting in their crop or getting their necessary work done. Even the best farmers who use tractors most successfully do not consider it advantageous to displace horses any more largely than has been indicated. In fact, most of them seem to feel that it will be not only wise, but economical, to carry enough horses to do their work in good shape, especially in wet seasons or when for other reasons the tractor cannot operate to best advantage.

"In view of this discussion of the whole question, what shall be our prediction as to the place of the horse in furnishing farm power? Even on the basis of a much higher development of mechanical power, as adapted to farm work, the horse has practically a monopoly on all the farm work on 80 or 90 per cent of all corn belt farms, and an equal advantage on practically 75 per cent of the work on the relatively fewer number of farms adapted to mechanical power. It is apparent, therefore, that on the basis of best present information the horse is not due to be displaced in any large proportion from the farms of the country. On the basis of horse displacements actually effected in the corn belt, a region most favorable to tractor farming, 100,000 tractors would displace

only about 1 per cent of the total work horses on American farms.

Decline in Horse Production

"The best information available as to the increase in the number of horses, indicates that there has been in all of the horse breeding sections a progressive falling off in the number of foals raised during each of the last two or three years. While this shortage of horses is not yet reflected in present prices, in my judgment it will be in the course of the next few years. It must be kept in mind that it takes four or five years to grow a crop of horses. As soon as labor conditions readjust themselves and we return to our normal use of farm horses, combined with the decreasing number of foals being raised, we shall have two factors at work which, in my judgment, will make the horse much scarcer than he is at the present time.

"It must be kept in mind that the extreme labor shortage of the past year or two has reacted decidedly in favor of the use of larger units of power in farming. At this point the tractor had a decided advantage as compared with the horse, especially where farmers did not use six and eight horse teams. With the return to normal conditions and the more general use of six and eight horse teams this advantage of the tractor over the horse would tend to disappear.

"As I have already pointed out, the horse should and must be an economic source of farm power, if he is to meet competition successfully. In just so far as he falls short of delivering farm power economically, in just so far will he be displaced by other agencies. In my judgment, however, there is no reason why the horse of the right type should not continue to enjoy the premier place in furnishing power on the American farm. I believe he will continue to be what he always has been, the standard farm power. His future is largely in your hands. You can decide whether he is to be of the type best adapted to the requirements of our American agriculture. In just so far as you answer this question successfully, in just so far you may expect to prosper in the business of horse production."

Pasturing Rape with Hogs

The spring season this year has been exceptionally favorable for rape. Rape grows best in cool weather when there is plenty of moisture. As a supplemental pasture crop it is one of the best that can be grown for early pasturing of hogs. Even on farms where there is alfalfa pasture, small patches of rape about the buildings or in the feed lots can be used to good advantage in pasturing hogs. The nutrient material contained in rape compares very favorably with that of alfalfa or clover. It is practically as high in protein, as high in ash or mineral matter, and contains less actual crude fiber than alfalfa or clover. Samples of rape ten inches in height analyzed at the Ohio Experiment Station have shown 20.48 per cent crude protein on a moisture-free basis. The crop can be utilized only as pasture, since it is too watery in character to be used as hay or silage.

Some complain that hogs will not eat rape. It is true they do have to acquire a taste for it, but there is seldom any difficulty along this line if they are turned on it before it gets too rank and coarse. The best time to begin pasturing rape is when it is from nine to twelve inches high. During the hot dry weather of the summer this crop cannot be expected to produce very much green feed.

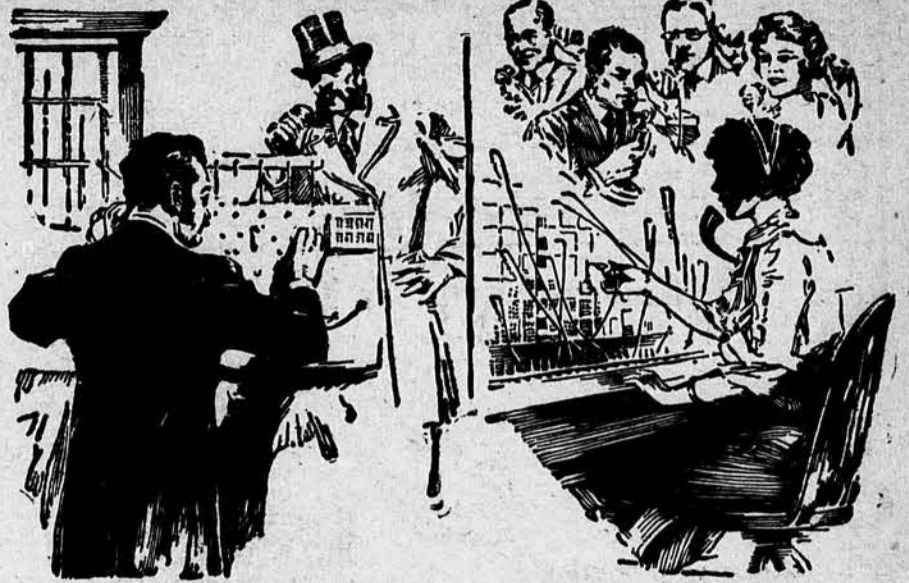
Some hog growers report that rape blisters the hogs, particularly those white or partly white in color. The same thing occurs, however, with other pasture crops if tender-skinned pigs are allowed to run in the wet forage which is as high as their backs, or higher, and then get out into the hot sun. When pigs become blistered in this way, the sore spots should be coated with dark vaseline, axle grease, or crude oil.

The Why of Club Work

Congressman Lever of South Carolina, who is chairman of the committee on agriculture, says:

"The farm boys and girls can be taught that agriculture is the oldest and most dignified of the professions and that with equal attention and ability it can be made as successful in dollars and cents, to say nothing of real happiness, as any of the other professions."

That's why he was so strong for the Smith-Lever bill which made club leadership possible.



Economy Insures Progress

The Bell System has accumulated a reserve of \$340,000,000 to provide the necessary safeguard to the business and to meet those emergencies caused by storm, fire and kindred uncontrollable disasters.

This reserve has been invested in the construction of telephone property for the benefit of telephone users. Neither interest nor dividends are paid on this money. This fund works in extending and improving telephone service without cost to the public.

Like a landlord whose careful management has given

added comforts and conveniences to tenants without raising the rent, the great efficiency savings of the Bell System have been used to build a better and broader service. Rate increases are, of course, necessary but because of this economy the Bell System is not compelled to make such rate increases as have been made by other utilities and in other lines of business.

Linking the crude telephone of forty years ago to the Bell System of today is a series of great accomplishments, both in the art and economy of telephone operation.



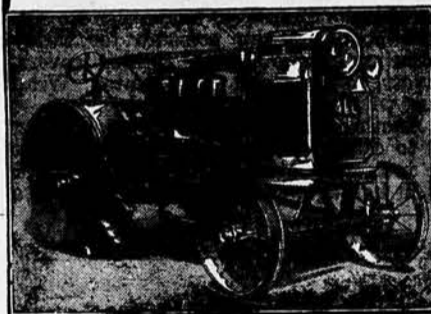
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READ KANSAS FARMER'S CLASSIFIED
ADVERTISING PAGE FOR READY BARGAINS

THE HOME-MAKER'S FORUM

ETHEL WHIPPLE, Editor

Letters from readers are always welcome. You are urged to send in helpful suggestions, to give your experiences, or to ask questions. Address the Editor of this Department.

Study of Outdoor Life

AN ARTICLE on the value of nature study to the child, prepared for the United States Bureau of Education by Mrs. Bertha Lewis, a member of the National Kindergarten Association, was printed on this page a few weeks ago. In the following article, another of the same series, Mrs. Lewis makes some specific suggestions as to ways of studying nature with small children.

"If nature study is to be begun for the first time, the easiest introduction is by the time-honored topic of the weather in conjunction with the day. . .

"To adopt a tree in springtime is another good plan. Have the children give the tree a name and so make of it a companion. Always include the family name of the tree. Frequent visits must be made to the tree, because it cannot come to the children. Notice how the buds are arranged on the branches; which of them grow most rapidly, and what they turn into—leaves, flowers, or branches. Try to discover if the tree has any other visitors; bright eyes will soon discover many. Play a game around the tree; sing to it.

"Time is never wasted listening to the trees; for to heaven we arose as grandly as these. Holding to each other half their kindly grace, Haply we were worthier our human place.

"Because the child after making mud pies is told that his face is dirty, he naturally concludes that all soil is dirt. Point out to him that it is only when out of place that it is dirt, for in place it is the home of miracles, the matrix from which comes that wonderful force we call life. Let the children make experiments with different kinds of soil—clay, sand, loam. In this way they will become familiar with the names and textures of each.

"Have the children notice the changes in the air, that it is hot in summer, cold in winter, dry in sunny weather, damp in rainy weather, calm, breezy or very windy. Explain why we should be careful to breathe only good air, breathe deeply and expand our lungs; that we live in the air as the fish live in the water; that birds fly up and down in the air as fish swim up and down in the water, that air is all above us just as the water is above the little water animals that crawl on the bottom of ocean or river.

"Every child is familiar with water in many forms, but perhaps the wonders of its forms are so common that he has not noticed how miraculous they are. We cultivate the imagination of our children by tales of the prince who became invisible when he put on his cap of darkness and who made far journeys through the air on his magic carpet, and yet no magic carpet ever wrought more astonishing disappearances than occur

when this most common of our earth's elements disappears from under our very eyes, dissolving into thin air. What child has not noticed the steam rising from the damp pavement when the sun comes out after a shower? The drops of water are donning their magic caps and flying off into the atmosphere to become invisible to our eyes. The next time we see them it may be as part of the white cloud sailing across the blue sky. Then there is the magic power which brings back the vapor spirit to sight and touch. This magician's name is Cold or Jack Frost, who transforms our water drops again and gives them many fancy shapes.

"When the child sees so many things smaller and weaker than he, all doing 'em' 'em' 'em' too, longs to join this busy world. He may well use such occupations as cutting, pasting, weaving and modeling, for the birds, trees and spiders do all these things, while the flowers are painted with colors taken from the sunbeams and from the earth.

"Stories of animals and insects may be appropriately told to emphasize the nicety and exactness of work done by creatures so much more helpless than we, and in this way a desire to do good and accurate work will be stimulated."

Canning Roosters

As soon as the hatching season is over the roosters should be sold or killed. The eggs will then soon be infertile and will not spoil so readily. It is estimated that the egg loss in this state in some years reaches two million dollars. Why not give the consumer a good egg this year and thus help to keep up the price to the producer?

Some of these roosters may well be canned to be eaten later. To do this, kill the fowl and draw at once. Wash carefully, cool, and cut into convenient sections. Place in a wire basket or cheese cloth and boil until the meat can be removed from the bones. Remove from boiling liquid and remove meat from bones. Pack closely into glass jars or enameled cans. Fill the jars with pot liquid after it has been concentrated one-half, add a level teaspoon of salt per quart of meat or seasoning, put rubbers and caps of jars into position, not tight. Cap and tip tin cans. Sterilize in hot water bath ninety minutes, under five to ten pounds steam pressure for forty minutes, or under ten to fifteen pounds steam pressure for thirty minutes. Remove jars, tighten covers, invert to cool and test joints. Wrap jars with paper to prevent bleaching.

Another satisfactory way of canning is to draw, wash and cool the fowl, cut it into convenient sections, then scald it in boiling water and dip at once into

cold water. Pack immediately, without cooking, into glass jars or enameled cans, fill with boiling water, add a level teaspoon of salt per quart, put rubbers and caps of jars into position without entirely sealing them, and proceed as when canning the cooked chicken, sterilizing for the same length of time.

Sanitary Floors

We have arrived at the stage in civilization where we want everything else sanitary, so why not floors?

The physician tells us that dust and dirt are prolific sources of disease. Cracks in floors aside from being unsightly in appearance, harbor an unbelievable quantity of dirt.

A new floor if properly laid is free from this disagreeable feature, but in the course of time cracks will begin to appear due to the shrinkage of the wood. A specialty for this very condition known as "crack filler" is made by paint manufacturers. If all floor cracks are filled with this material the accumulation of dust and dirt will be avoided.

It is a simple matter to remedy. Just clean out the dust and dirt from the cracks with some sharp pointed instrument and then clean them out thoroughly with a scrubbing brush, soap and water. When dry the crack filler may be applied. It is made in stiff paste form and should be applied with a putty knife in much the same manner as putty. To complete the job the floor may be waxed, varnished or painted, its treatment depending of course on the present finish and the effect desired.

Shabby Bags Renewed

Baggage men, hotel porters and often even travelers themselves have a habit of throwing traveling bags, suit cases, etc., about as though they were footballs. As a result, they soon assume a shabby, disreputable appearance.

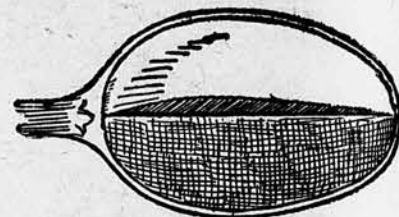
The average traveler seems to think the only remedy for a shabby bag is a new one. But owing to the present high cost of leather that is an expensive remedy. In most cases it is also an unnecessary expense, for generally a small can of leather renewer, easily and quickly applied by anyone, will make the old bag look as good as new. The can of renewer costs only a small fraction of what a new bag would cost.

The best leather renewers are pyroxylin solutions (the same substance, in fact, used to dress the leather when brand new). They are water-proof, tough and elastic, and are not likely to crack or peel until the leather base itself gives way. They are obtainable in a brilliant black finish.

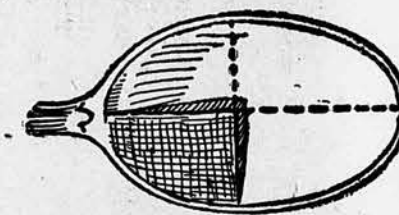
Give the old bag a chance and help relieve the strain on the overworked leather market, at the same time relieving the strain on the pocketbook.

Accurate Measurements

Unvarying "good luck" in cooking depends upon accuracy in measuring ingredients and care in combining and cooking them. Measurements to be exact must be level. A half teaspoonful of a dry ingredient, such as baking powder, may be accurately measured by leveling off a teaspoonful with a knife blade and then dividing in the middle,



MEASURING HALF TEASPOONFUL



MEASURING QUARTER TEASPOONFUL

as shown in the illustration. Dividing it again gives an exact fourth.

For measuring fractional parts of a cupful a measuring cup with one-half, one-fourth, and three-fourths indicated is essential.

Don't expect the linoleum to keep fresh and neat without care. An occasional coating of varnish will not only improve its appearance but will lengthen its life as well.

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A HOUSEKEEPER'S PRAYER

Dear Lord, I am like Martha, cumbered about much serving,
No doubt I need thy gentle reprimand;
I long to be like Mary, keeping my faith unswerving,
The higher things of life to understand.

Each day my homely labors seem to be quite unceasing
And leave no quiet moment for a prayer;
A petty round of duties holds me without releasing
Till night has come before I am aware.

But while my hands are busy, laden to overflowing,
I feel thy presence with me through the day.
Thy tender benediction, precious beyond all knowing,
Sustains my spirit when I cannot pray.

Dear Lord, I am like Martha, cumbered about much serving;
We folk that serve have special need of grace.
I long to be like Mary, keeping my faith unswerving,
To see the daily vision of thy face.

—ESTELLE M. HURLL in Epworth Herald.

New Summer Styles

A pretty model suited to various purposes is ladies' dress No. 2408. In percale or gingham it would make a neat, serviceable house dress, the pockets being omitted if desired. Made from lawn, linen, tissue gingham, or foulard, with collar and cuffs of white or of contrasting material, and its plainness relieved by the jaunty pockets, it would be a smart little dress for business or outing. A large, comfortable apron which really protects the dress is No. 2828 or 2446.

For the little girl, No. 2810 is a dainty frock and No. 2525 an ideal play or school dress, while the needs of the growing girl will be met in 2827 and 2845. The former is a very pretty design for voile or other thin summer ma-

FASHION DEPARTMENT

All patterns, 10 cents.



No. 2408—Ladies' House Dress: Cut in even sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 3 yards of 44-inch material. The skirt measures about 2 1/2 yards at the foot. No. 2828—Ladies' Apron: Cut in four sizes: small, 32-34; medium, 36-38; large, 40-42; and extra large, 44-46 inches bust measure. Size 38 requires 3 1/2 yards of 36-inch material. No. 2810—Girls' Dress: Cut in five sizes: 4, 6, 8, 10 and 12 years. Size 8 will require 2 1/2 yards of 36-inch material. No. 2827—Girls' Dress: Cut in three sizes: 12, 14 and 16 years. Size 14 will require 4 1/2 yards of 36-inch material.



No. 2845—Girls' Dress: Cut in three sizes: 12, 14 and 16 years. Size 14 requires five yards of 44-inch material. No. 2525—Girls' Dress with Bloomers: Cut in five sizes: 4, 6, 8, 10 and 12 years. Size 10 requires three yards of 36-inch material for the dress, and 2 yards for the bloomers. No. 2477—Ladies' Work Dress: Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 4 1/2 yards of 36-inch material. The dress measures about 36 inches at the foot. No. 2446—Ladies' Apron: Cut in four sizes: small, 32-34; medium, 36-38; large, 40-42; and extra large, 44-46 inches bust measure. The material size requires 4 1/2 yards of 36-inch material.

terials, also for silk, satin, linen, gabardine, gingham, or percale. Either style of sleeve is becoming. This model is composed of a simple waist and skirt over which the jumper portions are draped. No. 2845 is suitable for heavier materials, such as linen, taffeta, shantung, gabardine, or serge, with the waist of matched satin or silk, if the suit is of wool, or of organdie. Gingham might also be used for this suit.

Summer Style Book

Space will permit us to show only a few patterns each week. We would suggest that you send us 10 cents in silver or stamps for the complete summer style book containing 550 designs of ladies', misses' and children's patterns. Thirty sample stitches for the needle-worker are also illustrated.

Do You Cook from a Pattern?

It is unfortunate but true that many housewives are dependent upon the cook book for every dish they make. Much time and effort could be saved if certain principles which form the basis of much cookery could be kept in mind.

Take for an example, the baking powder biscuit pattern which may be varied to make many pleasing breads and desserts:

- 2 cups flour
- 4 tablespoons fat
- 1 teaspoon salt
- 4 teaspoons baking powder
- 1/2 cup liquid (milk or water)

Mix and add dry ingredients. Work in fat and add enough liquid to make a soft dough. Roll dough on board to one-half inch thickness, cut in shape and bake in hot oven.

Cheese Biscuits

Add one-half cup grated cheese to biscuit pattern while working in fat. Proceed as for plain biscuits.

Surprise Biscuits

Roll dough on board and shape as biscuits. Fold each biscuit over one tablespoon chopped dates, figs, prunes or raisins. Press edges tightly together. Bake in hot oven.

Peanut Butter Biscuit

Mix four tablespoons peanut butter with biscuit pattern. Sprinkle top of biscuits with chopped peanuts before baking.

Fruit Pudding

Drain the juice from one pint of cherries. Add the fruit to the biscuit pattern before adding liquid. Place in buttered steamer and steam from one to two hours. The fruit juice may be made into a sauce to be served with this pudding.

There are also foundation patterns for a great variety of custards, souffles and sauces.—LUELLA E. MADSON in the New Mexico Farm Courier.

Nut Molasses Bars

- 1/2 cupful butter or butter substitute
- 1/4 cup hardened vegetable fat
- 1/4 cup boiling water
- 1/2 cup brown sugar
- 1/2 cup molasses
- 1 teaspoon soda
- 3/4 cups flour
- 1/2 teaspoon ginger
- 1/2 teaspoon cloves
- 1 teaspoon salt
- 1/2 cup coconut
- 1/2 cup English walnuts

Pour boiling water over fat; add sugar and molasses; add flour, soda, spices and salt sifted together. Chill. Roll one-eighth inch thick. Cut in strips about three and a half by one inch. Sprinkle with coconut and English walnuts cut in small pieces. Bake about ten minutes in moderate oven.—Recipes of New York City Food Aid Committee.

Chicken Souffle

- 1 1/2 cups scalded milk
- 1/2 cup butter
- 3 tablespoons flour
- 1/2 cup soft bread crumbs
- 2 cups cold cooked chicken
- 2 egg yolks, well beaten
- 1/2 teaspoon parsley, chopped
- 2 egg whites, beaten stiff
- 1/2 teaspoon pepper

Make a sauce with butter, flour, salt, pepper and milk. Add the bread crumbs and let stand until thoroughly blended. Add chicken, yolks of eggs and parsley and fold in the stiffly beaten whites. Turn into a buttered baking dish and bake thirty minutes in a slow oven. Serve immediately.

Creamed Chicken on Toast

- 2 cups cold cooked chicken
- 2 tablespoons butter
- 2 tablespoons flour
- 1 cup milk
- 1/2 teaspoon celery salt
- 6 slices toast

Make a white sauce and heat the chicken in the sauce. Add the celery salt, pour the chicken over the toast and serve.

Thank God! O woman, for the quietude of your home and that you are queen

in it. Men come at eventide to the home, but all day long you are there beautifying it, sanctifying it, adorning it, blessing it. Better be there than carry the purse of a princess. It may be a very humble home. There may be no silks in the wardrobe, but by your faith in God and your cheerful demeanor you may garniture that place with more splendor than the upholsterer's hand ever kindled.—T. DE WITT TALMAGE.

A good way to handle the shelves in the kitchen and pantry is to paint or enamel them. Painted shelves can be wiped with a damp cloth every day if need be. Shelves covered with paper are less apt to be cleaned as frequently as is needed and are always a bid for dust and vermin.

Water cress, which grows in some of our Kansas streams, makes delicious sandwiches. Simply wash it, salt slightly and spread between thin slices of well buttered bread. It also makes a very good salad.

Kansas Fairs, 1919

The following is a list of the fairs to be held in Kansas in 1919, the dates (where such have been decided), locations and secretaries as reported to the State Board of Agriculture, compiled by Secretary J. C. Mohler.

Kansas State Fair—A. L. Spence, secretary, Hutchinson; September 13-15.

Kansas Free Fair Association—R. L. Eastman, secretary, Topeka; September 8-13.

International Wheat Show—E. F. McIntyre, general manager, Wichita; September 29-October 11.

Allen County Agricultural Society—Dr. F. S. Beattie, secretary, Iola; September 2-5.

Allen County-Moran Agricultural Fair Association—E. N. McCormack, secretary, Moran; September 3-5.

Barton County Fair Association—Porter Young, secretary, Great Bend; September 30-October 3.

Bourbon County Fair Association—W. A. Stroud, secretary, Uniontown; September 9-12.

Brown County-Hiawatha Fair Association—J. D. Weltmer, secretary, Hiawatha; August 26-29.

Clay County Fair Association—O. B. Burtha, secretary, Clay Center; September 1-5.

Cloud County Fair Association—W. H. Danenbarger, secretary, Concordia; August 26-29.

Coffey County Agricultural Fair Association—C. T. Sherwood, secretary, Burlington; October 5-10.

Comanche County Agricultural Fair Association—A. L. Beeley, secretary, Coldwater; September 10-13.

Cowley County-Eastern Cowley County Fair Association—W. A. Bowden, secretary, Burden; September 3-5.

Dickinson County Fair Association—T. R.

Conklin, president, Abilene; September 16-19.

Douglas County Fair and Agricultural Society—W. E. Spaulding, secretary, Lawrence.

Ellsworth County Agricultural and Fair Association—W. Clyde Wolfe, secretary, Ellsworth; September 2-5.

Ellsworth County—Wilson Co-operative Fair Association—C. A. Kyner, secretary, Wilson; September 23-26.

Franklin County Agricultural Society—L. C. Jones, secretary, Ottawa; September 23-26.

Franklin County—Lane Agricultural Fair Association—Floyd B. Martin, secretary, Lane; September 5-6.

Gray County Fair Association—C. C. Isely, secretary, Cimarron; September 30-October 3.

Greenwood County Fair Association—William Bays, secretary, Eureka; August 26-29.

Harper County—The Anthony Fair Association—L. G. Jennings, secretary, Anthony; August 12-15.

Haskell County Fair Association—Frank McCoy, secretary, Sublette; about September 15.

Jefferson County—Valley Falls Fair and Stock Show—V. P. Murray, secretary, Valley Falls; September 2-5.

Labette County Fair Association—Clarence Montgomery, secretary, Oswego; September 24-27.

Lincoln County—Sylvan Grove Fair and Agricultural Association—Glenn C. Calene, secretary, Sylvan Grove; September 2-5.

Lincoln County Agricultural and Fair Association—Ed M. Pepper, secretary, Lincoln; September 9-12.

Linn County Fair Association—C. A. McMullen, secretary, Mound City.

Marshall County Stock Show and Fair Association—J. N. Wanamaker, secretary, Blue Rapids; October 7-10.

Meade County Fair Association—Frank Fuhr, secretary, Meade; September 2-5.

Mitchell County Fair Association—W. S. Gabel, secretary, Beloit; September 30-October 4.

Montgomery County Fair Association—Elliott Irvin, president, Coffeyville; September 16-20.

Morris County Fair Association—H. A. Clyborne, secretary, Council Grove; October 7-10.

Nemaha Fair Association—J. P. Kiehl, secretary, Seneca; September 2-5.

Neosho County Agricultural Society—Geo. K. Bideau, secretary, Chanute; September 29-October 4.

Norton County Agricultural Association—A. J. Johnson, secretary, Norton; August 26-29.

Pawnee County Agricultural Association—H. M. Lawton, secretary, Larned; September 24-26.

Phillips County—Four-County Fair Association—Abram Troup, secretary, Logan; September 9-12.

Pottawatomie County—Onaga Stock Show and Carnival—C. Haughwout, secretary, Onaga; September 24-26.

Pratt County Fair Association—W. O. Humphrey, secretary, Pratt.

Republic County Agricultural Association—Dr. W. R. Barnard, secretary, Belleville; August 19-22.

Rooks County Fair Association—F. M. Smith, secretary, Stockton; September 2-5.

Russell County Fair Association—H. A. Dawson, secretary, Russell; September 30-October 3.

Smith County Fair Association—J. M. Davis, secretary, Smith Center; September 2-5.

Trego County Fair Association—S. J. Straw, secretary, Wakeeney; September 8-12.

Wilson County Fair Association—Ed Chapman, secretary, Fredonia; August 18-23.

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AGENTS—MAKE A DOLLAR AN HOUR. Sell Mondets, a patent patch for instantly mending leaks in all utensils. Sample package free. Collette Manufacturing Co., Dept. 103, Amsterdam, N. Y.

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MILLET SEED—BIG GERMAN RE- cleaned, \$2.00 per bushel; sacks, 30c. Clyde Ramsey, Mayfield, Kansas.

PORTO RICO SWEET POTATO PLANTS—1,000, \$2; 10,000 and over, \$1.75 per thousand. Promptness, quality and satisfaction guaranteed. The Davis Plant Co., Tifton, Ga.

HARDY OPEN-GROWN PLANTS—NOW shipping leading varieties sweet potatoes, tomatoes, postpaid, 500, \$2.00; 1,000, \$3.50; hot and sweet peppers, eggplant, beets, 500, \$2.50; 1,000, \$4.75. Cabbage, Bermuda onions, 500, \$1.25; 1,000, \$2.00. Write or wire for catalog and wholesale prices. Order early and notify us when the ship. Liberty Plant Company, Crystal City, Texas.

MISCELLANEOUS.

ONE MAN CHANGES HEAVIEST HAY racks, header boxes, etc., from ground to wagon and off with my sling. Price, \$9. Satisfaction or money returned. F. Lovering, Fremont, Nebraska.

THRASHING OUTFIT FOR SALE cheap. Case 50-horse engine, 30-inch Buffalo-Pitts separator, tank, etc.; six-bottom plow; all first class condition. Write or come and see. Prices right. Carl Miller, Belvue, Kansas.

CATTLE.

REGISTERED SHORTHORN BULLS— Regis. from 12 to 18 months old, at farmers' prices. W. T. Hammond, Fortia, Kan.

HIGHLY BRED HOLSTEIN CALVES, either sex, 16-18th pure, from heavy milkers, five to seven weeks old, beautifully marked, \$25, crated and delivered to any station, express charges paid here. Send orders or write. Lake View Holstein Place, Whitewater, Wisconsin.

REAL ESTATE.

640-ACRE STOCK AND GRAIN HOME- steads. Duff, Casper, Wyoming.

KINGFISHER COUNTY, OKLA., FARM lands. C. W. Smith, Smith Bldg., Kingfisher, Okla.

DOGS.

AIREDALES, COLLIES, AND OLD ENG- lish Shepherd dogs. Trained male dogs, brood matrons, pups all ages. Flemish Giant, New Zealand, and Rufus Red Belgian rabbits. Send 6c for large instructive list of what you want. W. R. Watson, Box 128, Oakland, Iowa.

HONEY.

REGARDING THE LAST WORD IN FINE honey, write to Drexel, the Bee Man, Crawford, Colorado.

HONEY—CHOICE WHITE ALFALFA, 120 lbs., \$24; 60 lbs., \$12.50. Amber honey, 120 lbs., \$22; 60 lbs., \$12. Bert W. Hopper, Rocky Ford, Colorado.

THE STRAY LIST.

TAKEN UP—BY WM. LUCAS OF HOL- comb, Finney County, Kansas, on the first day of May, 1918, one gray horse, weight 1,000 pounds; also one gray mare, weight 1,000 pounds. Each appraised at \$75. F. H. Laberteaux, County Clerk.

RABBITS

RABBITS—\$6,000 YEARLY. RAISE FUR- bearing rabbits for us in your back yard, spare time. We furnish stock and buy all you raise. Big demand for meat and furs. Sunset Fur Co., Los Angeles, Calif.

Real Estate For Sale

HOME FARM, 320 ACRES

Out 6 1/2 miles. Good buildings. Fine water, 160 wheat, half with sale; some alfalfa. Only \$8,500, with \$2,500 cash, balance long time. One good 160, out 9 miles, small house, 100 smooth, 60 wheat, 40 spring crops, one-fourth with sale; shallow to water; only \$2,500, with \$500 cash, balance terms. Have other farms and ranches on small payments now, another payment after harvest. R. C. Buxton, Utica, Ness County, Kansas

KANSAS LAND FOR SALE

Forty acres, all in wheat and oats; good 5-room house, pretty good barn, close to good school and church; in good neighborhood. Land will grow alfalfa, corn, wheat, or anything put on it. Present wheat crop will nearly pay for the land. Price, \$8,600; \$1,200 cash, balance 5 to 15 years at 6%. Address

THE ALLEN COUNTY INVESTMENT CO., Iola, Kansas

SOUTHEASTERN KANSAS—Farms, all sizes; lowest prices. Terms, \$1,000 and up. Send for booklet. **THE ALLEN COUNTY INVESTMENT CO.,** Iola, Kansas.

HOGS.

PURE-BRED DUROC PIGS, TWO months old, either sex, well boned, good color, \$15. Edward M. Gregory, Reading, Kansas.

—OTTAWA—
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PURE BRED POULTRY

LANGSHANS.

PURE-BRED WHITE LANGSHAN EGGS, fifteen, \$1.50; hundred, \$8. Maude Hager, Chase, Kansas.

SCORED BIG BLACK LANGSHANS, laying strain, guaranteed. Cockerels, pullets, eggs. H. Osterfoss, Hedrick, Iowa.

PRIZE STOCK—BIG 13, 14-LB. BLACK Langshans. Pen headed by 775 cockerel, 261-egg strain; fifteen eggs, \$5. Second pen, fifteen, \$2.50; hundred, \$10. E. Stewart, Henderson, Iowa.

RHODE ISLAND REDS.

SINGLE COMB REDS—WRITE FOR CIR- cular. P. H. Thiel, Renwick, Iowa.

PURE-BRED R. C. R. I. RED EGGS FOR hatching, \$1 per fifteen, \$5 per hundred. L. F. Hinson, Stockdale, Kansas.

SCORED DARK RED ROSE COMB cockerels, \$5 and \$10 each. Eggs, \$5 for fifteen; \$15 for fifty. Highland Farm, Hedrick, Iowa.

LEGHORNS.

S. C. BROWN LEGHORN EGGS FOR hatching. Extra quality. \$6 per hundred. Mrs. L. H. Hastings, Thayer, Kansas.

PURE-BRED SINGLE COMB BUFF LEG- horns—Eggs, fifty, \$3; hundred, \$5.50. Wm. Fox, Logan, Kansas.

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Lice and mites are havoc raisers with chickens. A few pinches of sodium fluoride dusted over a hen's body will help keep the lice away. A solution of five parts kerosene and one part coal tar disinfectant, such as zenoleum, creosote, crealin, etc., thoroughly sprayed into the cracks and crevices of the poultry house will help eliminate the mite problem.

HELPFUL POULTRY HINTS

Practical Ideas on How to Fill the Egg Basket and Increase Profits

Two Kinds of Broody Hens

THE season for culling out the poor layers will soon be here. A most interesting discussion of the secret of successful culling by Victor G. Aubry, of the New Jersey Experiment Station, recently appeared in the National Farmer and Stockman. He says that to the average poultry keeper a broody is just a broody hen. She's a durned obstinate critter and a pest and a nuisance to boot. Sometimes he is right in this conclusion and again he is a mile off the right track, for there may be the exact difference between the value of two broody hens that there is between a 200-egg hen and the one that lays fifty eggs a year. We are likely to find hens laying 200 and more eggs a year that are broody, and sometimes they are pretty persistent about it. We all know, of course, that some broody hens do not lay fifty eggs in a year. We may go to individual hens at egg-laying contests to prove this beyond a doubt. One hen at the Vineland contest which laid over 250 eggs in her pullet year was broody thirty-two days, during which time she laid twenty-six eggs. Another laying ninety eggs during the same year was broody several times for periods of over a month.

During these broody spells the poultry try keeper has a splendid opportunity of distinguishing between his good and his poor hens, and he has a chance at this time to rid himself once and for all of his poor layers.

The hen that means business as an egg producer has to lay over a long period of days. She must be pretty active and she can't afford to rest many days. On the other hand, the poor layers usually lay only during late winter and spring, or during the flush season of eggs. Most always she is in a rest during the summer, fall and early winter. She usually starts this vacation the latter part of May, and during June, which is often the time when she really goes broody for good.

Now what is the difference in appearance between this poor hen and the good one, which goes broody late in the spring or early in the summer? It is very simple if one will only stop to think, because when a hen is a layer she must necessarily have quite a number of eggs inside of her in the process of development, especially if she is expected to lay three or four eggs a week. The fact of the matter is that when a hen is laying heavily, her egg cluster or the egg yolks and the oviduct or egg tubes are about the size of three or four eggs, while these same egg organs in a hen not laying do not take up the space of a lead pencil. This laying hen then must find room inside her body for all these eggs, and therefore her body around the abdomen between the back end of the keel-bone and the lay-bones up next to the vent spreads in order to make room. When she has ceased to make these eggs, her body gradually contracts until that part of the abdomen as described above is shrunken so that these bones almost touch, and the skin and flesh in that part is hard and tough. It takes a hen considerable time to start to spread in the rear when she is starting to develop these eggs, but it takes her only a short time to contract this abdomen again as soon as she quits.

Herein, then, lies the secret of selecting the good and the poor broody hens. On taking the broody hens from the nest, examine them closely. You will find the one which is large and soft in the rear around the lay-bones and back of the keel. She may be broody, mean and ornery, and all that, but that hen should not be sold or killed because she has some more eggs in her which she will begin to lay very shortly if she is not laying at the time.

The comb on this bird will be noticed also to be full and extended, not necessarily large, but at least full and extended, and will give the appearance of being full of blood very much the same as the udder on a newly-freshened cow. Along next to this hen you will find the other extreme in the broody hen, you will find the one which is usually meaner and crosser than the one just described. She is usually losing many

feathers, and her comb is apt to be shrunken and shriveled and has usually lost its bright color. It will be dark and have the appearance of dandruff all over it. Upon examining the abdomen you will find the lay-bones hard and heavy and lying close together, while the back end of the keel-bone will have come up close to these lay-bones and she appears to be all closed up in the rear, the region of the fluff. This hen cannot get rid of soon enough. She ought to be sold or consumed because she has laid her plans for a long rest in other words, she is done for the season and is going to board off the returns from the rest of the flock.

If one allows even the good hen to lay on the nest for a long period of three or four days, and one gives her the chance to thoroughly get the brooding spirit or get warmed up, she is apt to go back very quickly. Therefore one should take his broody hens out of the nest immediately, not leaving them on the nest to warm, if possible, not more than a day. He will find many which will get over this brooding instinct and go right to laying. Whereas, if the hen had had the opportunity to sit and warm for a few days she would have got this habit in a chronic stage. The way is to get them on the start and nip this broodiness in the bud.

Platted or wire bottom coop is right to punish broody hens in—under the hen when she is sitting so that she will not be allowed to warm up. Feed her at this time plenty of green feed with some mash feed, but don't try to starve her, as this will throw her completely out of production. This broody character can be broken into a strain easily, but it takes time to get rid of it. It is a character which if neglected is very important as a limiting factor in the number of eggs a hen will lay during the year.

The farmer will find that the proper selection and care of his broody hens from now on and until the latter part of July will be effective in increasing his average egg production, and will enable him also to produce an egg of much better quality.

Rooster Week

The high price of eggs and the fact that infertile eggs keep much better caused people to realize the value of getting rid of the males as soon as they have sufficient hatching eggs. Infertile eggs not only keep better, but longer. No other kind should be used for storing. Hens lay fully as well without males. Many people sell off the old males and keep a few vigorous cockerels penned up for breeding purposes next year.

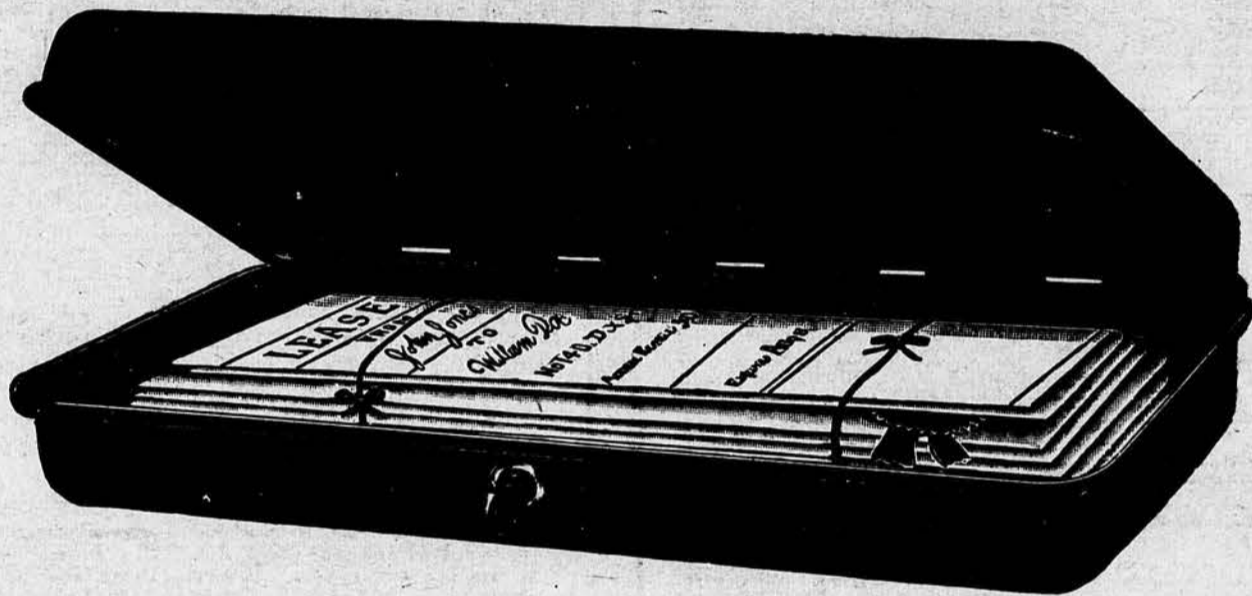
Every egg is a good egg when it is laid; but seventeen out of every hundred are bad eggs when they reach the market. Most of these seventeen eggs spoil just because they are fertile. Without the roosters in the flocks there will be just as many eggs this summer; but they will be infertile and they will spoil quickly. The roosters should go during Rooster Week, June 2 to 7.

Environment plays as important a part in the growth of chicks as do the feed and water provided for them. Range is of great advantage to the growing youngsters. If it offers something more than mere space, for example, growing green stuff, occasional bugs or insects, and inducement to scratch, the advantage can scarcely be overrated. Chicks need both sunlight and shade. Except on hot days, turn the chicks into the sunlight and open the building so they live in to the germ-destroying rays of the sun. On a hot day the shade of growing shrubs or trees is cooler and more grateful than the shade of low buildings or canvas-covered frames. It is folly to expect growth from lousy chicks or chicks that are cooped up in vermin-infested houses.

All dealers are required to candle eggs before purchase, between the dates of May 1 and January 1.

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Jersey Cattle.
May 31—Central Kansas Jersey Cattle Club.
M. A. Tatlow, Manager, White City, Kan.
June 24—Dr. J. H. Lomax, Leona, Kan.

Spotted Poland Chinas.
Oct. 11—R. W. Sonnenmoser, Weston, Mo.
Feb. 14—R. W. Sonnenmoser, Weston, Mo.

O. L. Isaacs, of the Isaacs Stock Farm, Peabody, Kansas, owner of one of the good herds of big-type Polands in Kansas, reports his herd doing well and a choice lot of spring pigs that are growing out fine. Mr. Isaacs has the popular big-type blood lines in his herd and a choice lot of individuals, the hog, smooth, easy-feeding kind.

The sale of Shorthorn cattle held by the Jefferson County Breeders' Association at Valley Falls, Kansas, on May 22, resulted in the disposal of twenty-two head of Scotch-topped females at an average of \$150. Several were only yearling heifers in thin flesh. The cattle that were fitted for a sale brought better prices. Fourteen young bulls sold for an average of \$147. While no sensational prices were recorded, yet the averages were very fair for the condition of the cattle but low enough to insure each purchaser a profit on his investment. Geo. A. Ely of Valley Falls sold the top female of the offering. This splendid young cow went to the herd of J. N. Willard, Elmont, Kansas, at \$202.50. The Mitchell Brothers consigned the top bull, a well bred yearling

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calf, selling for \$360. The total returns of the sale were very satisfactory. Col. Frank Blake officiated on the block.

The sale of Shorthorn cattle of Park E. Salter, Wichita, Kansas, resulted in the disposal of forty-six head of Scotch cattle at an average of \$1,532, a record sale for Kansas and a record for the breed southwest of the Missouri River. Pleasant weather augmented the pleasure of the 2,000 breeders and farmers present. The visiting breeders were royally entertained at the new Hotel Lassen. This Shorthorn event was the bringing together of the largest number of Shorthorn breeders ever assembled at any Shorthorn sale in Kansas. The cattle were presented in the pink of condition and were competed for at good prices. The breeding of the premier herd sire, Imported Bapton Corporal, was a strong factor in attracting many breeders to invest in better females bred to this great bull. Another factor in the sale was Mr. Salter's two young herd bulls that have gained an enviable record in the show ring. The sale was a great success, a record sale, and the returns were very satisfactory to Mr. Salter.

Ezra T. Warren, of Clearwater, Kansas, has announced October 3 for his annual fall sale of Poland Chinas. Mr. Warren is the owner of the great breeding boar, Big Lunker by Disher's Giant and out of old Lady Lunker. Big Lunker is one of the largest and best bred big-type boars doing service in the West. He is a well balanced hog, weighing half a ton, and has proven a splendid breeder of the correct type. Mr. Warren has saved about a hundred spring pigs by Big Lunker, Big Timm, Giant King, by A Wonderful, Big King, and out of the best herds sows by the following herd boars: A Wonderful King, Caldwell's Big Bob, A Wonder, Big Timm, Gerstale Jones, Bridges' Bob Wonder, Big Orphan, Blue Valley, Long King's Equal, and Wedd's Long King.

H. R. Wenrick, of Oxford, Kansas, has raised eighty-five Poland China spring pigs, mostly sired by Giant Lunker by Disher's Giant and out of old Lady Lunker. These pigs are by this mammoth boar and out of the best herd sows on the farm. Mr. Wenrick is building up one of the good herds of real big-type Poland Chinas in Kansas.

George Morton, of Oxford, Kansas, is the owner of one of the good herds of Poland Chinas in the state. At the head of this herd of good sows is the sensational herd boar, Morton's Giant. This hog is by

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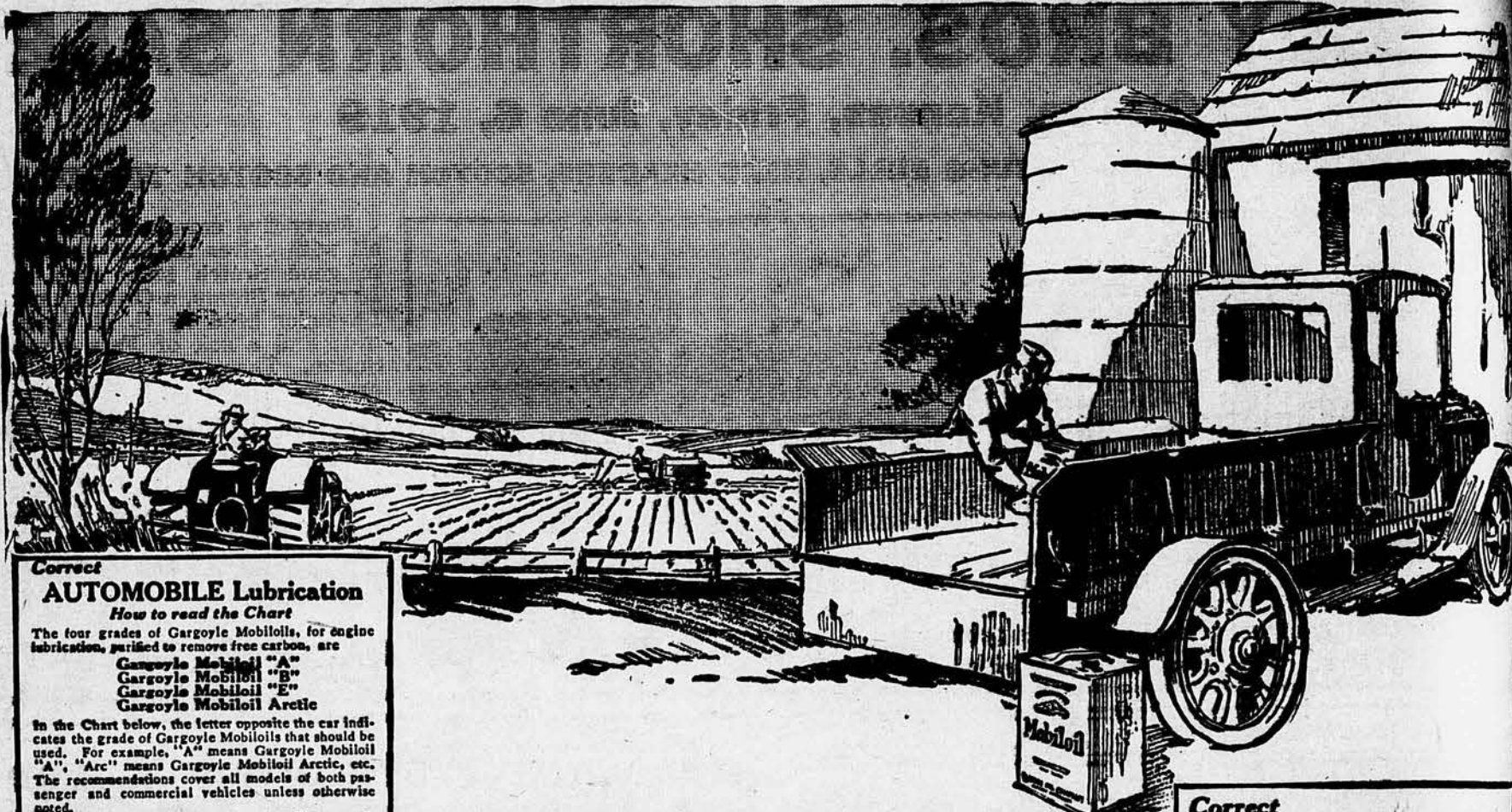
Name..... Address.....

Disher's Giant, he by Big Ben, Morton's Giant is out of the great brood sow, Lady Lunker. This hog is probably one of the best breeding boars in the West and has sired a fine lot of spring pigs. Mr. Morton has announced October 4 for his first annual fall sale and will offer spring boars and gilts sired by Morton's Giant. Morton's Prospect is also used in the herd. This pig is by The Guardsman by Grand Big Orphan by Grand Master. This young hog is a splendid prospect for a real herd boar and should mate well with Morton's Giant Gilts.

Kelly Brothers, the well known Shorthorn breeders of Gardner, Kansas, have announced a dispersion sale at Ottawa, Kansas, June 6. Forty-five head of cows and heifers and eight young bulls will be included in the

offering. The cows and heifers all have calves at foot or are bred to Scotch bulls such as Lavender Stamp, a Cruickshank Lavender, and a son of Fair Acres Sultan. The Kelly Brothers have been breeding Shorthorn cattle for years and their herd needs little introduction in Kansas. The offering is a richly bred lot of useful cattle and every one a worker. The bulls include one Scotch herd bull, a proven sire of merit by Royal Gloster, out of a Cruickshank Orange Blossom dam. Other bulls are by Scotch Monarch, Lavender Stamp and Silk Goods. The entire offering promises to be one of the good lots to be sold in any sale in Kansas this spring.

WHEN WRITING TO ADVERTISERS
PLEASE MENTION KANSAS FARMER



Correct
AUTOMOBILE Lubrication

How to read the Chart

The four grades of Gargoyle Mobil oils, for engine lubrication, purified to remove free carbon, are

Gargoyle Mobiloil "A"
Gargoyle Mobiloil "B"
Gargoyle Mobiloil "E"
Gargoyle Mobiloil Arctic

In the Chart below, the letter opposite the car indicates the grade of Gargoyle Mobiloil that should be used. For example, "A" means Gargoyle Mobiloil "A", "Arc" means Gargoyle Mobiloil Arctic, etc. The recommendations cover all models of both passenger and commercial vehicles unless otherwise noted.

This Chart is compiled by the Vacuum Oil Company's Board of Engineers and represents our professional advice on Correct Automobile Lubrication.

[illegible]

Avoiding Engine Trouble

How correct lubrication improves engine performance

WHEN the engine won't start or it misfires; when it knocks heavily; when the cylinders mar and score and compression weakens—when any of the common engine ailments occur, look to lubrication first.

Often lubrication is the difference between good and poor engine operation. Too few automobile or tractor owners realize this.

Just a few examples:

Spark Plugs

The engine won't run when spark plugs foul or crack.

Correct lubrication prevents fouling. Often too light an oil (the incorrect grade) or too much oil, causes it.

In either case, oil leaks up past the piston rings and burns in the intense heat of the combustion chamber.

No oil can ever withstand such heat—often 3000° Fahrenheit.

Use the correct grade of Gargoyle Mobiloils and fill reservoir to the right amount, consult the Chart.

**Then fouling of spark
plugs will stop.**

Cylinders

Marked loss of efficiency comes when cylinders wear and score. Correct lubrication prevents wearing and scoring. Wearing and scoring result from lack of lubrication. Of course, the cooling system must work well. The *correct* grade of Gargoyle Mobil-oils will do the rest—by preventing excess friction, by carrying off excess heat.

Gears, clutch, bearings, magneto, timer, self-starter, universals—all operate better, longer, more economically, when correctly lubricated.

Engine lubrication is the most important. Buy Gargoyle Mobiloils for their nationally recognized superiority. But use them according to the Charts shown here—the only proved lubricating recommendations, based on the findings of our automotive engineers.

Gargoyle Mobiloils are put up in 1- and 5-gallon sealed cans, in 15-, 30- and 55-gallon steel drums, and in wood half-barrels and barrels.

Write for "Correct Lubrication," the booklet containing complete automobile and tractor charts, and other valuable data.



Mobil oils

In buying Gargoyle Mobiloils from your dealer, it is safer to purchase in original packages. Look for the red Gargoyle on the container.

VACUUM OIL COMPANY, New York, U. S. A.

Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world

Domestic Branches: New York Philadelphia Detroit Minneapolis Kansas City, Kan.
Boston Pittsburgh Chicago Indianapolis Des Moines

Correct TRACTOR Lubrication

How to read the Chart

The four grades of Gargoyle Mobiloils for tractor lubrication, purified to remove free carbon, are:

Gargoyle Mobiloil "A"
Gargoyle Mobiloil "B"
Gargoyle Mobiloil "BB"
Gargoyle Mobiloil Arctic

In the Chart below, the letter opposite the tractor indicates the grade of Gargoyle Mobiloils that should be used.

This Chart is compiled by the Vacuum Oil Company's Board of Engineers and represents our professional advice on Correct Tractor Lubrication.

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