

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF OKLAHOMA

W. D. BENTLEY, *Director*

OKLAHOMA AGRICULTURAL AND
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A SUGGESTED SYSTEM
for
OKLAHOMA COTTON FARMS

By D. P. Trent, *District Agent*

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A Suggested System for Oklahoma Cotton Farms

By D. P. TRENT, District Agent

The farmers of the South produced more cotton in 1926 than the world needed. Whether the plan to take the surplus off the market temporarily succeeds or not, this surplus of cotton will remain a burden on the market until such time as world consumption of cotton catches up with world production. It makes little difference by what means the surplus cotton may be taken off the market or in whose hands it may be held. The world knows that this cotton has been produced and is available for market, and until the farmers of the South adjust cotton production to world needs they will continue to sell their cotton on a market where supply is greater than demand and consequently where the price received is less than the cost of production. The world consumption of cotton from year to year changes very little, so there is no reason to expect that world consumption will be adjusted to fit world supply. The only means of escape by the cotton farmers of the South from the situation brought about by overproduction is to adjust production to world needs, to "plant two acres of cotton in 1927 for every three acres grown in 1926."

In Oklahoma it is proposed to take 400,000 bales of the 1926 crop off the market, to be sold in 1927 or 1928. The only way to enable the cotton market to absorb this surplus 400,000 bales of Oklahoma cotton in 1927 is to produce in 1927, 400,000 bales less of Oklahoma cotton than the market needs for the year. This 400,000 bales of surplus cotton represents 1,200,000 acres of Oklahoma land to cotton. Then the only way out is to plant to cotton in Oklahoma in 1927, 1,200,000 acres less than was planted to cotton in the state in 1926, and for the other cotton states to do likewise. We may as well face the fact that it will be absolutely folly to do other than play the game of "Two for Three" or plant in 1927 only two acres of cotton where we had three acres in 1926.

The purpose of this bulletin is to suggest what uses may be made of the 1,200,000 acres of Oklahoma land that grew cotton in 1926 but should

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Data used in the bulletin are taken from the Federal Census of Oklahoma for 1924 and from estimates and other material of the Federal and State Statistical Departments.

not grow cotton in 1927. To be content with a temporary shift in crop acreage merely to meet the present emergency would be a calamity. For the second time in six years farmers, landlords, bankers, and credit merchants have gambled heavily on the one-crop system and lost. The present situation offers an opportunity for the bankers, landlords, credit merchants and farmers of the cotton country to get together and shake themselves loose from a system of farming that has brought disaster so many times. If there does not come out of this situation a gradual adoption of a system of farming that will be safer and sounder, then we must expect these periodical catastrophes to continue until such time as a younger generation of farmers and business men comes along and works out a system that will make agriculture in the South safe and permanently prosperous.

Landlord and Tenant Relationships

Any material changes that are made in plans and methods on cotton farms must in most cases be made through agreement between the tenant and his landlord, or between the farmer and the banker from whom he borrows money. Sixty percent of the cotton farms of Oklahoma are operated by tenants. At least half of the forty percent of farm owners in the cotton section borrow money each year on the cotton crop. Then at least seventy-five percent of all cotton farmers of the state are subject to the direction of bankers or landlords as to the plans and methods of farming to be followed. When fifty percent of all tenant farmers of Oklahoma move annually, as shown by the 1925 Federal Census, there is something radically wrong with our tenant system. This means a moving of sixty thousand farm families, an annual pilgrimage of 275,000 human souls from one farm to another, with all of the economic loss and waste which it involves. Certainly something is wrong with the relationships between landlords and tenants, taken as a whole.

Probably one group is not more to blame than the other. It is the system that is at fault and no solution can be suggested or no remedy applied except that of earnest cooperation and better understanding between landlord and tenant for the mutual benefit of both. The present situation certainly demands such cooperation. The suggestions in this bulletin are made with the hope that they may be helpful to landlords and tenants in working out plans and agreements for 1927, and for succeeding years as well. The farm plan agreed upon for 1927 should be one that fits into a permanent system of farming. It should provide for the keeping of sufficient livestock on the farm, for the production of sufficient feed for those livestock, for the production of food for the family on the farm, for preserving and increasing the fertility of the soil, for the permanent prosperity and contentment of the family that shall occupy the farm and for the protection of the investment which the landlord has in the farm. Under such conditions, tenants will remain on the farm and will become interested in the upbuilding of the land. They will become more interested in general community improvement and will be better citizens. The whole economic system will be improved as a

result. With a prosperous and contented tenant permanently located on a farm, the landlord will find that the value of the farm will increase and the returns become greater as time goes by. On the other hand, the fertility of the land can not long survive a constantly shifting tenantry. The tenant who moves from year to year can have no interest in the improvement of the soil, since he can not profit by any improvement that may be made. The landlord who changes tenants each year will soon find that the system has changed his farm from an asset to a liability.

The Long-Time Tenant Lease

Most of the misunderstandings and disagreements between landlords and tenants are caused by incidents that were not covered in the original agreement. Every time some unexpected thing occurs about which the tenant must go to the landlord, there is a chance for disagreement. Most of these differences could be avoided by the use of a complete lease contract which would outline just what shall be done under varying circumstances. A contract that states clearly who shall furnish the materials and who do the labor if the fences need repair, or who shall furnish the trees and who set them out and care for them if a small home orchard is wanted, or what shall be done under any other similar circumstances, will do much to eliminate dissatisfaction between landlords and tenants. Such contract forms have been worked out for various systems of farming and may be secured by application to the county farm agent in any county or to the Oklahoma A. and M. College. Certainly there could be not better time to adopt such a system than when landlord and tenant are working out the plans for 1927.

WHAT TO DO WITH 1,200,00 ACRES OF OKLAHOMA COTTON LAND

What should be planted upon this 1,200,000 acres of Oklahoma land that grew cotton in 1926 but should not grow cotton in 1927? Certainly it should not be permitted to lie idle, unless it is so poor that it will not return a profit under any circumstances. There is no reason to expect that it would be profitable to increase the acreage of potatoes, onions, melons, broomcorn or other such cash crops. In the southwestern counties a small percentage of the cotton acreage has been sown to wheat and in various sections there has been an increase in the acreage of alfalfa. In some of the southeastern counties plans are under way to grow a considerable acreage of peanuts, and there is no reason why an increase in the acreage of peanuts should not prove profitable. However, the acreage of all of these minor cash crops might be doubled and it would still utilize only a very small portion of the excess cotton acreage of the state.

It might be helpful to know where the state got this excess cotton acreage, or what crops were reduced to provide the extra land for cotton. In 1923 Oklahoma grew 3,295,000 acres of cotton. In 1926 the acreage was 4,950,000 acres, an increase of 1,655,000 acres. In 1923 the state grew 3,264,000 acres of corn. In 1926 the corn acreage was 2,355,000 acres, a decrease

of 900,000 in the corn acreage. Then practically two-thirds of the increase in cotton acreage came about through a decrease in the corn acreage. The figures show that the acreage of all other feed crops was reduced during the same period of time. Then certainly the state got its excess cotton acreage in 1926 by the growing of fewer acres of feed crops.

Can This Land Profitably Go Back to Feed Crops?

Certainly it would not be profitable to put all of this 1,200,000 acres of land back to feed crops unless there is a need or a demand for more feed than the state can produce normally from the present acreage. No definite data is available as to whether more feed is shipped into the state than is shipped out. So, in order to determine if there is a need for more feed it will be necessary to determine how much feed will be required to maintain the livestock of the state satisfactorily for a period of a year. The minimum requirements for maintaining different classes of livestock, under different conditions, have been determined by authorities on livestock feeding. The following table gives the requirements that have been found applicable to the livestock on the average Oklahoma farm. Amounts given are for one year.

Class of Livestock	Grain Requirements	Hay Requirements	Pasture Requirements
Dairy cattle, per head	25 bu. corn or equivalent	2 tons	2 acres
Beef cattle, per head	8 bu. corn or equivalent	1 ton	3 acres
Horses and mules, each	50 bu. corn or equivalent	2 tons	1 acre
Hogs, per head	10 bu. corn or equivalent		$\frac{1}{4}$ acre
Poultry, each	3 pecks of corn or equivalent		

(Note: Corn only is being used as grain for convenience in figuring. Other grains should be substituted for a part of the corn on the basis of two bushels of oats for one bushel of corn, six bushels of barley for five bushels of corn, or ten bushels of any grain sorghum for nine bushels of corn. Farmers who depend upon other grains than corn to feed their livestock can figure the amount of those grains needed, in the same way. The necessary acreage in each case will depend upon the yield per acre on the particular farm. Dairy cows will need six or eight sacks of bran and three sacks of cottonseed meal in addition to the above requirements of grain and hay. At least half of the hay fed to all livestock should be alfalfa, cowpeas, soybeans, or other legume hay. At least half of the pasture should be tame pasture such as sweet clover, Sudan grass, alfalfa, Bermuda grass, rye, oats, barley, rape, etc. The rest may be good native pasture but the poorer the pasture the more acres should be allowed per animal. Poultry that does not have free range will need regular pasture or green feed and will need other feed in addition to the three pecks of corn or other grain. Certainly it will be profitable to feed hens regularly a laying mash.)

On this basis, what will be the feed requirements of the livestock of the state for 1927? The number of livestock in the state will not differ materially from the number shown by the Federal Census for 1924. A considerable increase in the number of hogs and cattle is to be expected, due to the available supply of feed and to the favorable price of livestock. Using the 1924 figures, the table below will indicate the total feed requirements of the livestock of the state.

Livestock	No. in State	Corn Require- ments (bushels)	Hay Require- ments (tons)	Pasture Require- ments (acres)
Dairy cattle	582,287	14,557,175	1,164,574	1,746,861
Beef cattle	1,111,796	8,894,368	1,111,796	3,335,388
Horses and mules ..	976,430	48,821,500	1,952,860	1,952,860
Hogs	974,157	9,741,570		243,539
Poultry	13,023,482	10,217,611		
		<hr/> 92,232,224	<hr/> 4,229,230	<hr/> 7,278,648

To feed these livestock which were on the farms of the state in 1924, the state produced only 47,533,539 bushels of corn. The total production of oats, barley, rye, and grain sorghums that year was 39,063,996 bushels which is equivalent to 25,721,710 bushels of corn. This added to the state's production of corn makes a total of 73,255,249 bushels of corn or corn equivalent in other grains, to meet the needs of the state's livestock for more than 92,000,000 bushels of corn. This shortage of 19,000,000 bushels of corn, at the average yield of eighteen bushels per acre, would require 1,065,422 more acres to corn or other grains than the state grew in that year. In regard to hay, the Federal Census shows that the state produced in 1924 only 1,625,789 tons of tame and wild hay. To this we may add an estimated 1,000,000 tons of sorghums and other crops that were cut for forage, making a total of 2,625,789 tons of hay and forage produced to meet a need for 4,229,230 tons to feed the livestock of the state that year. This shortage of 1,603,441 tons of hay, at the average yield of 1.6 tons per acre, would require 1,002,150 acres more land to hay than was grown in 1924. On the basis of the 1924 figures then, it seems evident that Oklahoma could use **a million acres more grain crops and a million acres more hay crops, or two million acres more feed crops than was grown in 1924.**

Coming down to 1926, it is found that the state's production of grain will probably exceed the amount required to comfortably maintain the livestock on hand. However, the 1926 hay crop falls 1,750,000 tons short of the requirements, which would require 1,250,000 acres more land to hay than was grown in 1926. Of course, it must be kept in mind that the 1926 feed crop was unusual and that the state can not safely depend upon such yields in the normal year. With the same acreage of grain crops in 1927 as the state grew in 1926, and with the seven year average yield of eighteen bushels of corn per acre, the grain crop would be 17,000,000 bushels short of the amount needed to feed the livestock of the state comfortably. Then for 1927 Oklahoma can use **two million acres more land to feed crops than was grown in 1926.** At the normal average yield, this would only meet the minimum requirements of the livestock in the state and there should not be a bushel of corn or a ton of hay available to be shipped out.

We do not mean to say that Oklahoma has been shipping that much feed into the state in normal years, possibly not that much in years of crop failure. However, the feed was needed to feed to the livestock on hand. Those in position to know are agreed that a tremendous amount of feed is shipped into the state in the average year. Some feed is usually shipped out during a short season and then a lot of feed is shipped in during the balance of the year. In the Federal Census for 1924, 106,105 farmers reported having ex-

pended that year a total of \$15,617,722 for feed. This is an average of \$149.19 per farm reported, paid for feed produced by other farmers of the state or by farmers of other states. The thing that actually happens on the majority of the farms is that when feed is scarce and high we do not feed the livestock what they really need. In too many cases, they are forced to rustle for a bare existence in the stalk fields and grassless woodland. No milk cow can produce milk economically without proper feed and shelter. No work animal can do efficient and satisfactory work without the regular corn, oats, and hay each day. Plenty of feed of the right kind, fed regularly, and plenty of pasture throughout the year are very essential to economical production of livestock. With all the abundant supply of feed produced in Oklahoma in 1926, it would seem that every farmer could afford to practice liberal feeding of all livestock and that no milk cow, no brood sow, or other farm animal, need go hungry. In many cases, liberal and regular feeding of the right sort of feed will enable livestock that have been unprofitable to return a nice profit. Farmers should practice liberal feeding in 1927 and so plan their farm systems as to produce sufficient feed in 1927 to continue the practice the next year.

Oklahoma Has Sufficient Pasture But Many Farms Need More

By checking the total requirements of pasture for all livestock of the state against the total acreage of pasture in the state, as shown by the 1924 Federal Census, it is found that the state as a whole has about double the pasture acreage necessary for the livestock. In spite of this fact, however, there are thousands of farms that have no pasture whatever. This is true especially on many of the cotton farms occupied by tenants. On many other farms the only pasture available is waste land, woodland, or the poorest sort of native pasture. A great deal of the native pasture of the state has long ago been overstocked and the luxurious grass that grew upon it a few years ago has been replaced by various kinds of weeds. Most of this depleted pasture can be made productive again by proper handling. Any system that will permit the grass to produce seed and reseed itself, and that will control the weeds, will eventually revive it. A small flock of sheep will soon eliminate most of the weeds found in Oklahoma pastures. Certainly we owe it to the younger generation of farmers, to preserve as much of the agricultural resources as possible.

On every farm there should be not only sufficient good native pasture, but there should be provision in the farm plan for a sufficient acreage of tame pasture. This may be temporary pasture such as rye, barley, oats, wheat, Sudan grass, or rape. Or it might be permanent pasture such as Bermuda grass or sweet clover. Nothing that can be grown on Oklahoma farms is better for pasture than sweet clover.

One of the important steps in the economical production of all livestock is to provide abundant pasture. It is the cheapest feed to be had. The cheapest gains on young livestock especially is that which is gotten from pasture. It saves grain and hay and increases the efficiency of livestock.

Even though the state as a whole may have sufficient acreage of pasture, many cotton farms need to devote some of the cotton acreage to the growing of good pasture.

Does the State Need More Livestock?

It might not be advisable for Oklahoma farmers to go into the raising and feeding of livestock for market, on a large scale. There are many farmers in the state who have been feeding livestock for the past several years and making money at it. However, most of them know the game pretty well. On those farms that have available feed, it would certainly seem that there might safely be some increase in the number of hogs and cattle, especially dairy cows. This increase should not come about through the purchase of cattle and hogs on a large scale.

If every farmer who has one or more good brood sows would raise his good sow pigs and offer them for sale to his neighbors, the sowless farms could be restocked with brood sows during 1927. If every farmer who has some good milk cows would raise his good heifer calves and offer them to his neighbors at reasonable prices, the cowless farms could be restocked with cows during 1927. Certainly the farmer who is equipped to handle a few good milk cows and sell a can or two of cream each week, and feed the skim milk to his pigs and chickens, will find that the cream check will largely take care of the regular expenses of the family. However, it is advisable to grow into any line of the livestock business. The farmer who goes into the business gradually and learns the game as he goes, is usually the man who makes it pay and who stays with it.

Maintaining the Soil Fertility

Any farm plan for 1927 and for succeeding years is not sound unless it provides for keeping up the fertility of the soil. Without a fertile soil, agriculture can not be permanently prosperous. No farm can continue to return to the landlord a profit on his investment except as the fertility of the soil of the farm is kept up. No farm can permanently produce a comfortable living for its owner and operator, except as he preserves and maintains the fertility of the soil. In working out the farm plan for 1927, provision should be made for maintaining soil fertility in accordance with the following outline:

1. Terrace all rolling land to prevent washing.
2. Return to the land, all straw, stalks, manure, etc., so as to increase the vegetable matter or organic matter in the soil. This increases the fertility and enables the soil to absorb and hold more moisture.
3. Practice a definite system of crop rotation so as to give the land a rest from crops that reduce the plant food, such as cotton and broomcorn.
4. Grow cowpeas, soybeans, sweet clover, or other legumes which are great soil builders. Inoculate the seed so as to enable the legumes to take nitrogen from the air.
5. Keep livestock and return much plant food to the soil in the form of manure.

6. Apply limestone to acid or sour soils, especially for the growing of legumes.

7. Practice early and thorough tillage to improve the physical condition of the soil and to conserve the moisture.

In some sections of the state a great deal of sweet clover is being grown. It is a great soil builder and is also one of the best pasture crops that can be grown. In the blue grass country, farmers say that one acre of good sweet clover pasture is equal to two acres of good blue grass. This is true especially for dairy cattle. On the better land, many farmers sow sweet clover on barley or oats. On the poorer lands, most farmers who succeed with sweet clover, prepare the seed bed for it much the same as for alfalfa. Sowing the seed in weeds and grass without preparation of the land has not been successful. The idea that livestock will not eat sweet clover is wrong. Give them nothing else and they will learn to eat it and then prefer it to most other pasture. In sowing sweet clover on land that has not grown it before, it is important that the seed be inoculated. When once established upon a farm, sweet clover grows very readily and builds up the soil very rapidly.

Many farmers of Oklahoma keep up the fertility of their soil by growing cowpeas and soybeans. These may be grown in alternate rows with the corn, the yield of corn being about the same per acre as with every row to corn. Some farmers prefer two rows of corn and two rows of cowpeas or soybeans. By turning livestock in and pasturing them off, most of the plant food is returned to the soil as manure.

Food Requirements for the Family

If the necesasry data were available, it would be interesting to make the same sort of study of the food requirements of the state's total population. It would be astonishing to know the amount of food shipped in which could be produced on the farms of the state. A careful survey of one county in the state showed that in 1923, 1687 whole carloads of food and feed were shipped into the county and only 693 whole carloads of all farm products shipped out. When feed for livestock is not produced on the farm, usually the livestock go without a lot of feed which they need. The same is true to a large extent in regard to food for the family. When vegetables and fruits, poultry and eggs, milk and butter, etc., are not produced on the farm, in a large measure, the family goes without them.

Medical authorities and food specialists tell us that if we would be healthy and strong and active, and live to a ripe old age, we should eat plenty of vegetables and fruits, and drink plenty of milk regularly. They tell us also that if we would have our children grow and develop normally into healthy, vigorous, happy, intelligent young men and women, we should provide them with plenty of vegetables and fruits, milk and butter, poultry and eggs, etc., regularly. The important point is that we should have them regularly. In the farm home, plenty of vegetables and fruits will not be eaten regularly unless they are grown on the farm and enough of them canned to last through the months when they are not available from the garden and

orchard. Poultry and eggs will not be eaten regularly unless a good flock of poultry is kept on the farm. Milk and butter, which are so important to the normal development of growing children, will not be used regularly each day in the year, unless there are milk cows on the farm to supply them. Irish potatoes and sweet potatoes will not be eaten regularly unless enough of them are grown on the farm and carefully stored in suitable storage houses or bins to last through the winter months. Honey and syrup will not be on the table regularly unless the farmer has bees to gather the honey and grows cane from which to make the syrup. Unless we produce these things on the farm, we simply will not have them regularly. Nothing else is so important in the farm plan and the farm operation as the production of plenty of food of the right sort for the family, the year around. No family can be happy, comfortable, contented, congenial and normal if there is not available regularly the kinds of food which the different members of the family need and desire. The only sure way to have plenty of food on the farm is to produce it on the farm.

No doubt everyone realizes these facts, yet there are thousands of farms in the state on which they are not practiced. A great many farms do not grow enough garden and truck to last through the summer months, and there are still many that have no poultry. In 1924 the total number of farm families in the state was almost twice as great as the total number of brood sows and gilts in the state, and was two-thirds as great as the total number of milk cows. Then certainly there are thousands of farms in the state on which there are no hogs to make meat and no milk cows to provide milk and butter. In planning the farm operations for 1927, as well as for the succeeding years, farmers and landlords should keep in mind that nothing is so important as the production on the farm of sufficient food for the family. Unless the desirable and needed foods are produced on the farm, the family will not have them. No farm should be without at least one good milk cow, at least one good brood sow, a good flock of poultry and sufficient acreage of garden and fruit to produce the year's supply.

Food Requirements Per Individual

Authorities on food requirements have determined rather accurately the quantity of different classes of food needed by the average person on the farm. The requirements for a family may be determined by multiplying the amount for one person by the number of people in the family. Changes may be made to suit the tastes of different members of the family.

These figures are based upon two servings of fruit each day, two servings of vegetables each day, two of greens each week, two of tomatoes each week, four or five of meat each week, pickles and relishes several times a week, and jellies or jams about once a day. It is estimated that one quart will provide six servings for one person or one serving for six persons.

Can 60 quarts of fruit per person to last eight months. It is assumed that there will be fresh fruit for the other four months of the year.

Can 27 quarts of vegetables per person to last eight months. It is as-

sumed that fresh vegetables will be available from the garden the other four months.

Can at least twelve quarts of greens per person to last six months. There should be fresh greens of some sort for the other six months.

Can at least eighteen quarts of tomatoes per individual to last nine months, using fresh tomatoes the other three months.

Can 26 quarts of meat per person, using fresh meats as they are available throughout the year.

Can eleven quarts of pickles or relishes per person to last ten months.

Make 37 glasses of jelly or jam per individual.

This budget is to be supplemented with enough fresh or stored vegetables and fruits such as cabbage, turnips, onions, carrots, greens, apples, dried fruits, etc., to make the required number of servings per week. To produce this amount per individual will require a little less than one-half acre of land per mature person, or a little more than two acres of garden and orchard for a family of five.

The United States Department of Agriculture has determined the needs of each mature person on the farm, of various other classes of food. These are given in the following table. The amounts given are for one mature person.

Vegetables, including Irish and sweet potatoes	13 bushels
Fruit, fresh and to be canned	3 bushels
Corn meal	156 pounds
Wheat flour	224 pounds
Syrup	8 gallons
Poultry	57 pounds
Butter	45 pounds
Buttermilk	97 gallons
Milk	17 gallons
Beef	12 pounds
Pork and lard	138 pounds
Eggs	20 dozen

The only sure way to have a living on the farm is to produce it on the farm. The farmer who produces the living on the farm, in accordance with the above requirements, will not suffer greatly from the low price of cotton. Wise and forward-looking landlords and tenants will make liberal allowance in the farm plan for the production of the living for the family.

SUMMARY

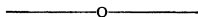
1. Oklahoma must reduce her cotton acreage 1,200,000 acres in 1927. There is no other way out of the situation.
2. Landlords and tenants must cooperate in working out a system of farming that will be safe and sound, permanently. Eliminate shifting of tenants by long time leasing and better understanding.
3. The state as a whole can utilize 2,000,000 acres more land in the production of feed for the livestock of the state.

4. Liberal feeding of the livestock, of the proper kinds of feed, will prove economical and profitable. All livestock should have plenty of good pasture.

5. The number of hogs and cattle in the state can safely be increased, especially through the raising of the good sow pigs and dairy heifer calves. Every farm should have a good milk cow, a good brood sow and a flock of good poultry.

6. Any farm plan will eventually fail unless it provides for the upbuilding of the soil.

7. The first consideration in any farm plan must be the production of food for the family. The surest way to have a living is to produce it on the farm.



Some Suggestive Farm Plans

With the foregoing suggestions in mind, some suggestive farm plans have been worked out. These are for farms of different sizes and different conditions. It is realized that no plan will suit all farms and that each farmer must necessarily work out a plan to fit his own conditions and needs. From the suggestions that have been given, any farmer should be able to calculate fairly accurately the amount of grain, hay, and pasture needed for the livestock on his farm. Then from his knowledge of what his land may reasonably be expected to yield per acre, he can determine the number of acres necessary to produce the required amount of feed. He can also determine the acreage of food crops and the amount of canned vegetables, fruits, meat, etc., necessary to supply his family for a year. If he grows kafir or other grain sorghums instead of a part or all of the corn, he should substitute ten bushel of grain sorghum for nine of corn and then determine the number of acres necessary to produce the required amount of feed. If he wants to grow some oats, he can substitute two bushels of oats for one of corn and then determine the necessary acreage of oats to be grown. It should be kept in mind that the plans suggested are not just for 1927 but are such as should be adopted permanently on the farms of Oklahoma.

Plan No. 1

160 acre farm, five people, eight head of work stock, 12 head of cattle, 8 head of hogs, and 75 head of poultry.

FEED REQUIREMENTS			
8 head work stock	400 bu. corn	16 T. hay	8 acres pasture
12 head cattle	240 bu. corn	24 T. hay	24 acres pasture
8 head hogs	80 bu. corn		2 acres pasture
75 head poultry	56 bu. corn		
	776 bu. corn	40 T. hay	34 acres pasture

LAND DIVISION

776 bu. corn, 18 bu. per acre	43 acres
40 T. hay, 1.6 T. per acre	25 acres
Pasture	34 acres
Potatoes	1 acre
Garden	1 acre
Orchard and lots	3 acres
Other crops	13 acres
	<hr/>
Balance to cotton	120 acres
	40 acres

We have assumed in this case that the cattle were dairy cattle. Beef cattle would require less grain. We have figured corn at the state average of eighteen bushels per acre which is considerably below the average yield of good land. Where the land will yield more than eighteen bushels per acre, the acres of corn may be reduced and more land allowed for cotton and other crops. The farmer who wants to replace some of the corn with oats, can substitute two bushels of oats for one bushel of corn and figure the oat acreage required according to the yield of oats per acre on his land. Likewise, barley may be substituted for corn on the basis of six bushels of barley for five of corn; or any grain sorghum may be substituted on the basis of ten bushels of grain sorghum for nine of corn. Cowpeas or soybeans may be grown in with the corn and pastured off, thus reducing the hay requirements slightly. Each farmer will necessarily work out a system to meet the requirements of his particular farm, but the above plan for the farm described is about right.

Plan No. 2

120 acre farm, five people, 6 head of work stock, 8 head of cattle, 5 head of hogs, and 75 head of poultry.

FEED REQUIREMENTS

6 head work stock	300 bu. corn	12 T. hay	6 acres pasture
8 head cattle	150 bu. corn	16 T. hay	16 acres pasture
5 head hogs	50 bu. corn		1 acre pasture
75 head poultry	56 bu. corn		
	<hr/>	<hr/>	<hr/>
	556 bu. corn	28 T. hay	23 acres pasture

LAND DIVISION

556 bu. corn, 18 bu. per acre	31 acres
28 T. hay, 1.6 T. per acre	18 acres
Pasture	23 acres
Potatoes	1 acre
Garden	1 acre
Orchard and lots	3 acres
Other crops	13 acres
Balance to cotton	30 acres
	<hr/>
	120 acres

We have assumed that the cattle on this farm are dairy cattle and have provided 25 bushels of corn each for five cows and 25 bushels of corn for three calves. It should be remembered that dairy cows will not prove profitable on a straight grain and hay ration. Each dairy cow should have at least six or eight sacks of bran and three sacks of cottonseed mel to go with the above grain and hay. Also, it should be remembered that hens will not produce eggs profitably and will not lay many of them on a straight grain ration.

Each hen should consume at least forty pounds of a good laying mash during the year, in addition to the three pecks of corn or other grain.

Plan No. 3

80 acre farm, 4 people, 4 head of work stock, 2 dairy cows, 4 head of beef cattle, 4 head of hogs, and 75 head poultry.

FEED REQUIREMENTS

4 head work stock	200 bu. corn	8 T. hay	4 acres pasture
2 dairy cows	50 bu. corn	4 T. hay	4 acres pasture
4 head beef cattle	32 bu. corn	4 T. hay	12 acres pasture
4 head hogs	40 bu. corn		1 acre pasture
	322 bu. corn	16 T. hay	21 acres pasture

LAND DIVISION

320 bu. corn, 18 bu. per acre	18 acres
16 T. hay, 1.6 T. per acre	10 acres
Pasture	21 acres
Potatoes	1 acre
Garden	1 acre
Orchard and lots	3 acres
Other crops	5 acres
Balance to cotton	21 acres
	<hr/> 80 acres

Here we have assumed that only two dairy cows are kept on the farm and that there are four head of beef cattle. This reduces the requirements for grain and hay. In all of these plans it should be kept in mind that in certain sections of the state grain sorghums and other grains will be grown instead of corn; also, that in any section of the state, oats and other grains should be substituted for a part of the corn. Each farmer can determine for himself the arrangement best suited to his particular needs and plant sufficient acres of whatever grains he may grow to produce sufficient feed for his livestock.

Plan No. 4

60 acre farm, 4 people in family, 3 head of work stock, 3 head of dairy cattle, 3 head of hogs, and 75 head of poultry.

FEED REQUIREMENTS

3 head work stock	150 bu. corn	6 T. hay	3 acres pasture
3 head dairy cattle	60 bu. corn	5 T. hay	6 acres pasture
3 head hogs	30 bu. corn		$\frac{1}{2}$ acres pasture
75 head poultry	56 bu. corn		
	296 bu. corn	11 T. hay	9 $\frac{1}{2}$ acres pasture

LAND DIVISION

296 bu. corn, 18 bu. per acre	16 $\frac{1}{2}$ acres
11 T. hay, 1.6 T. per acre	7 acres
Pasture	9 $\frac{1}{2}$ acres
Potatoes	1 acre
Garden	1 acre
Orchard and lots	3 acres
Other crops	5 acres
Balance to cotton	17 acres
	<hr/> 60 acres

In planning the system of farming, it should always be kept in mind that the amount of cotton that can be handled depends largely upon the number of hoeing and picking hands available. As a general rule, it is not profitable or safe to plant more land to cotton than the members of the family can hoe and pick. Hired labor in handling cotton usually takes up most of the profit and often the folks who are hired to hoe and pick the cotton are the only ones who realize a net return out of the crop.

In the Federal Census for 1924, 95,000 farmers of the state reported having paid out \$26,238,224 for farm labor, an average of \$276 per farm reporting.

Plan No. 5

40 acre farm, 3 people in family, 2 head of work stock, 2 milk cows, 2 head of hogs, 50 head of poultry.

FEED REQUIREMENTS

2 head work stock	100 bu. corn	4 T. hay	2 acres pasture
2 milk cows	50 bu. corn	4 T. hay	4 acres pasture
2 head hogs	20 bu. corn		$\frac{1}{2}$ acre pasture
50 head poultry	37 bu. corn		
	207 bu. corn	8 T. hay	6 $\frac{1}{2}$ acres pasture

LAND DIVISION

207 bu. corn, 18 bu. per acre	11	acres
8 T. hay, 1.6 T. per acre	5	acres
Pasture	6 $\frac{1}{2}$	acres
Potatoes	1	acre
Garden	$\frac{1}{2}$	acre
Orchard and lots	2	acres
Other crops	4	acres
Balance to cotton	10	acres
	40	acres

As in all the other plans suggested, cowpeas or soybeans should be planted in with the corn. A few acres of oats should be grown instead of some of the corn. Whenever the moisture is sufficient at the time of cutting the oats, they should be followed immediately by cowpeas. Most farmers prefer to plant cowpeas in rows and cultivate them. At least a small acreage of sweet clover should be grown on every farm in the state. It is the best pasture that can be grown on the poorer lands and is a wonderful soil builder.

