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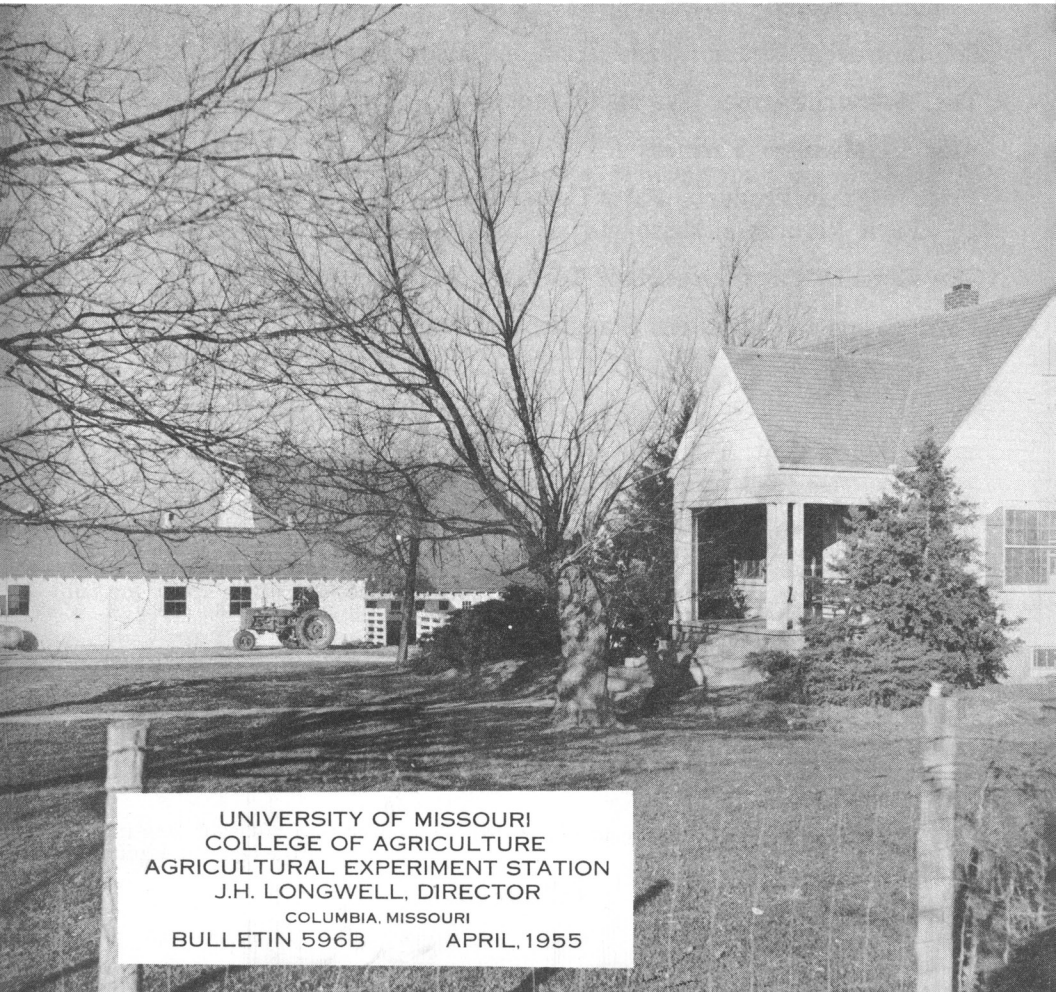
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# Some Important Features of Missouri Agriculture

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A YOUTH PUBLICATION  
By M.F. Miller



UNIVERSITY OF MISSOURI  
COLLEGE OF AGRICULTURE  
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NOTE: This publication has been prepared for youth in the town and city schools of Missouri. In many of these, information regarding Missouri agriculture is needed by the pupils in their social studies or science course. It is also of value to people from other states who wish information on Missouri agriculture. For those rural schools and some in the towns where agriculture is taught as a separate subject, the College of Agriculture is supplying a special series of youth publications which cover the subject of agriculture more completely. These will be sent on request.

# Some Important Features Of Missouri Agriculture

A YOUTH PUBLICATION

M. F. MILLER<sup>1</sup>

Everyone should have an interest in agriculture. This is true of young and old, whether they live in the country, in towns, or in cities. Few states have such a varied and interesting agriculture as Missouri, and all her people should know something about it. Their lives depend upon the products of the farm.

Agriculture is Missouri's greatest industry. It is big business in this state. Farm youth and grownups should know that in Missouri more people are engaged in agriculture than in any other one industry. Moreover, the annual value of agricultural products is greater than

that of any other business. Missouri people who live on farms should be proud of the state's agriculture, and they should feel honored to be connected with it. Missouri farmers are fine people, and agriculture is one of the highest callings in which they could be engaged.

We cannot appreciate the great developments which have taken place in Missouri agriculture without knowing something of its beginnings. The agriculture of the very early days was so different from that of the present that we can scarcely imagine how these early settlers lived.

## THE DEVELOPMENT OF AGRICULTURE IN MISSOURI

### The Very Early Settlers (Before 1800)

The adventurers who first came to the region now known as Missouri were interested in furs and mining rather than in agriculture. These were French and Spanish people, who came up the Mississippi River from the South soon after 1700. The first settlement which proved permanent was that of St. Genevieve, about 1732. During the remainder

of that century the settlers spread north along the Mississippi River and west along the Missouri, many of the people coming up the rivers in boats.

These very early settlers built their log cabins in the timbered areas along the streams, usually near a spring, for supplying drinking water. The prairies were left untouched because these people had no plows which would turn the tough prairie

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sod. The only plows were home-made wooden ones, later provided with a steel point which was made from the small amounts of steel brought in from the East or South.

The cabins of these very earlier settlers had no glass for windows, and many of them had only earth floors. The only light they had at night was from candles, made from animal fat. The people had always to be on guard against Indian attacks, and many cabins were burned by unfriendly Indians. The people lived to a large extent off the wild animals, birds, and plants of the region. However, corn and wheat grain were brought in from the East, and the cultivation of these crops in small clearings soon became common. These were the times when the early farmers produced all of their own food, excepting that secured from the forests and prairies. They made almost everything they used, includ-

ing their clothing and their farm tools. The life of these settlers, up until 1800, was hard, and it required people of great energy and courage to continue under such conditions.

#### **Developments from 1800 to 1850**

At the opening of last century agricultural settlements in the Missouri area were developing steadily. People flowed in from the eastern country, coming over the Alleghenies and the Cumberland Mountains, and spreading out over what is now our Corn Belt. By 1821, when Missouri was admitted as a state of the Union, the number of people in this Missouri territory was estimated at 65,000. Agriculture had been held back in this region because of the lack of good plows. While plows with a steel mould-board had been introduced in the East, during the latter part of the preceding century, they failed to scour or polish well, and few were brought into the Middle West. However, in 1830 the all-steel plow with a hardened mould-board was introduced, which became common in Missouri, and greatly improved the agriculture. But even these plows were not entirely satisfactory for plowing the tough prairie sod, and it was not until the introduction of the so-called "prairie-breaker", made by the farmers themselves, that the prairie sod was conquered. These plows, drawn by four to six pairs (yokes) of oxen, were used, along with the newer steel plows, and the great prairies of North and West Missouri were put into cultivation.

Once prairie plowing was established, the production of corn, oats,

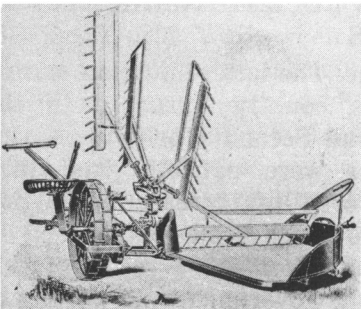
and wheat increased, and this, with the introduction of a good many farm animals, established agriculture on a permanent basis.

### Agriculture Developments From 1850-1900

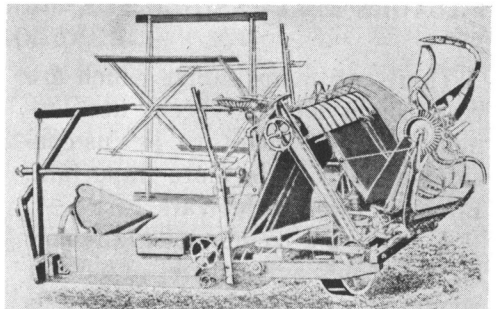
It was during the period, covering the last half of last century, that the Homestead Act was passed by Congress and signed by President Lincoln (1862). This allowed a settler to take up 160 acres of unsettled land, called a claim, and by living on it and caring for it during a definite length of time, he became owner of the property. Naturally this greatly increased the rate of farm settlement. Moreover, the development of railroads came to this area during the latter part of this era. The first railroad to reach St. Joseph was built in 1857, and the continued spread of these railroads greatly stimulated settlement of the farmlands.

During the latter part of this

period, many advances were made in agriculture. The horse-drawn mower replaced the scythe for harvesting hay, the grain binder succeeded the cradle for cutting wheat and oats, and the large portable threshing machine, run by a portable steam engine, called a traction engine, came into use. (The development of horse-drawn reaping machinery is partly shown in the accompanying pictures.) It was in this period too, that the steel spike-tooth harrow and the disk harrow were introduced, along with the two-row corn planter, the field grain drill, and the two-row corn cultivator. Between 1870 and 1890 the early roller flour mills came in to replace the old grist mill and the local flour mill. These paved the way for the town bakeries, and the bread from these has, to a large extent, taken the place of homemade bread, even on many farms. In the beginning of the period, commercial



A self-rake reaper, (1865). The grain accumulated on the platform until the operator pressed a lever, when it would be raked off to be bound into sheaves by men following. This was a very successful machine, which was used until it was replaced by the binder.



The forerunner of the modern grain binder. This machine differed from the present day binder in several respects, but especially in the feature that it used fine wire rather than twine for binding the sheaves. The twine binder is now largely replaced by the combine.

fertilizers came into use in a small way, and later the first attempts were made to prepare and sell mixed feeds.

All of these developments and many others in the last half of the last century opened the way for the very rapid agricultural growth that was to follow, leading up to the present time. As a matter of fact, by 1900 the agriculture of Missouri began to look somewhat like it does today, but the agricultural developments since that time have been much more remarkable.

#### **Developments During the Last Fifty Years**

It has been during the last fifty years that Missouri agriculture has made its most spectacular advancement. This has been the period of the great development of agricultural machinery. Large tractor-drawn plows have supplanted the old single-bottom walking plows, and the early sulky plows. Grain combines have

come in, almost to the exclusion of the binder and threshing machine. Other types of modern machines are coming out every year. Rural electrification almost covers the state. But these are but a few of the great advances in Missouri agriculture during this period. There are the new varieties, or strains, of crops such as hybrid corn, new varieties of wheat, oats, barley and rye, which yield much more than the older varieties. Then there are the new kinds of soybeans with yields two or three times those grown 25 years ago, when this crop first became of importance. There are new kinds of fertilizers, containing much more plant food than formerly, and the tonnage of fertilizer used in the state has now increased to several times what it was only a couple of decades ago. Certainly, the last fifty years, particularly the last twenty-five have seen most astounding advancements made by Missouri farmers.

### **FACTORS RESPONSIBLE FOR MISSOURI'S RECENT AGRICULTURAL DEVELOPMENTS**

There are many things which are responsible for the recent developments in our agriculture. Let us consider a few of the more important.

#### **Effect of Two World Wars**

A war has a tremendous influence on a nation's agriculture, either for good or bad. Where a country is overrun by an enemy's army, the agriculture may be almost ruined. Where the war is fought outside the nation's boundaries, the farmers will use every effort to provide food for the armies, as well as for the people

at home. The latter situation existed in this country during both the First and Second World Wars. Our farmers were patriotic, and they endeavored to increase production because much food was needed in the war effort. As a result of this need, the government was willing to guarantee good farm prices, which were doubled or trebled during these war periods. This combination of patriotism and satisfactory prices had a most important effect on farm production.



The proper use of fertilizers results in large increases in crop yields. Note the difference in the wheat on the fertilized and unfertilized land.

A slogan during the First World War was *food will win the war*. Farmers and their families worked long hours during both wars to supply the very maximum amounts of food. As a result, during the Second World War, when production was largest, the farmers of this country not only produced enough food for our armies and much for our allies overseas, but our own people were better fed than they had ever been. Certainly, this was a most remarkable advancement in American agriculture, in which Missouri farmers shared.

#### **Improvement in Agricultural Methods**

One of the most important things responsible for increased production in Missouri and other cornbelt

states, particularly during the Second World War, was the improvements in agricultural methods. In Missouri, this was largely due to the work of the College of Agriculture, the teachers of Vocational Agriculture in high schools, the U. S. Department of Agriculture, and other agricultural agencies. The Agricultural Experiment Station had found new ways of increasing production, and the Agricultural Extension Service carried this information to the farmers. The U. S. Department of Agriculture assisted in this, and other agencies did their parts. The newspapers and the radio helped tremendously in reaching the farm people, especially during the Second World War. As a result, the better farmers came to use new crop vari-

eties, more and higher quality fertilizers, improved machinery, and the best methods of producing meat, dairy products, and poultry products. All of these contributed to a great increase in production, and farmers are continuing to use them.

### **Increased Use of Modern Farm Machinery**

The development of improved farm machinery during the last 25-30 years has been astounding. Tractors have largely replaced horses and mules for farm power, and practically all plowing, tilling, planting, and harvesting machinery is tractor-drawn. This has meant that all farm operations can be carried out more

rapidly and efficiently. Moreover, many new types of machinery have come in, such as those for haying, for making silage by cutting or chopping it in the field, and many others. This increased use of farm machinery has had a tremendous effect on Missouri agriculture. It has had a great influence on the increase in production.

### **The Final Result**

The influence of the important factors mentioned, along with some others, resulted in an increased agricultural production in Missouri of about one-third during the latter part of the Second World War. Moreover, this rate of production has been continued, excepting when the re-



The development of power farm machinery has had a great influence on Missouri agriculture.



cent droughts have interfered. There seems to be no doubt, therefore, that Missouri farmers are in position to continue high production, provided farm prices, weather conditions, and markets are reasonably favorable. Moreover, as our population increases, the farmers of all important food producing states, in-

cluding Missouri, will be required to produce more and more. Actually, most farmers have gone only part way in adopting the new methods worked out by the experiment stations. As more farmers use these methods, and as still better methods are introduced, production may be raised to a very much higher level.

### MISSOURI HAS A VARIED AGRICULTURE

Few states have as wide a variation in systems of agriculture as has Missouri. It has a great variety of important crops, including corn, oats, wheat, barley, rye, soybeans, and sorghum; red, white, alsike, sweet, and Ladino clovers; lespedeza, alfalfa, bluegrass, timothy, and cotton. It grows watermelons, cantaloupes, and potatoes for the markets. Among fruit crops are apples, peaches, pears, cherries, plums, strawberries, blackberries, and raspberries. It produces all the common vegetables. It has herds of practically all breeds of beef cattle, hogs, and sheep. It is one of the important dairy states, with herds of all important breeds, and a large production of dairy products. It is one of the leading poultry states, standing near the top in the numbers of hatchery chicks, and it is well up in the production of eggs and broilers. Most farms have some chickens, and there are a good many farms devoted largely to the production of chickens or turkeys.

There are various reasons why Missouri has such a wide variety of products. Variations in climate and soils throughout the state are the most important ones. However, some

of the reasons are found in preferences of farmers themselves and in the markets.

#### Climate

Missouri is a large state, and the climate varies a great deal from northwest to the extreme southeast. The average yearly rainfall runs from around 30 inches in the northwest to about 50 inches in the six counties of the Southeast Lowlands. (By inches of rainfall per year, is meant the depth to which the rain water would accumulate on the surface of the land if it all remained there.) These differences in rainfall have much influence on the kinds and yields of crops which can be grown with profit. Moreover, the amount of rain which falls during the different months is very important, and this varies greatly from northwest to southeast. It may be said further, that Missouri is far enough west, toward the Great Plains, to be subject to frequent periods of dry weather, usually during the summer months. Such dry periods, usually with high temperatures, have much influence on the crops grown and the systems of agriculture followed. The recent dry

periods, sometimes with great heat, have influenced most of the state, particularly the southwest.

The average yearly temperatures in Missouri vary from about 50 degrees in the northwest to 60 degrees in the Southeast Lowlands. This 10 degree spread in temperature means the difference between a southern and northern type of agriculture. Excellent cotton and some other southern crops are grown in the southeast, with good corn and oats in the northwest. The higher Ozark uplands average 4 or 5 degrees cooler than the southeast lowlands, mainly because of the greater elevation.

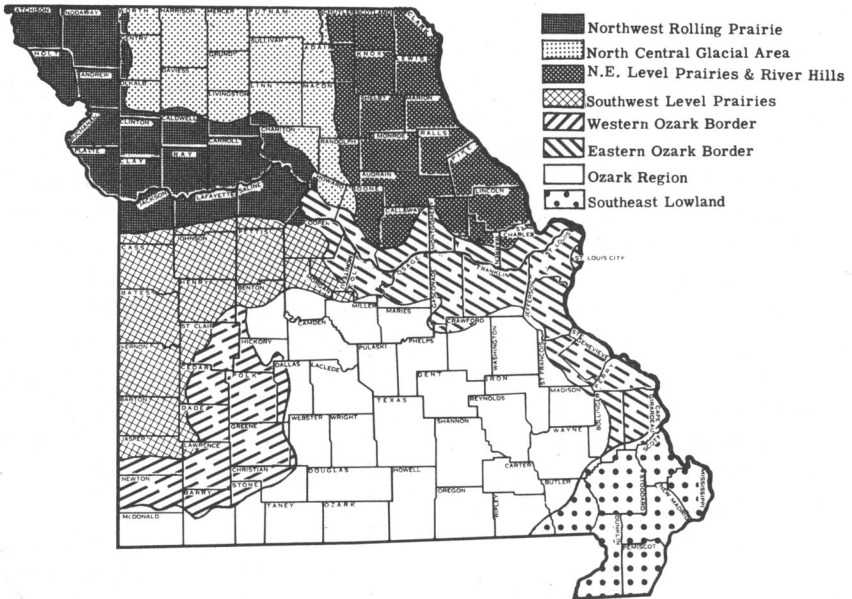
**Soils**

The soils of Missouri vary from some of the richest in the world to some of the poorest. While there are very many different types of soil in the state, these may be divided into eight regional groups.<sup>1</sup>

**Northwest Rolling Prairie:** The northwest region is an area of dark, productive soils which produce corn, oats, grass, cattle, and hogs. Practically all the land is in cultivation under a well developed agriculture. This is the most productive upland area of the state.

**North Central Glacial Area:** The north central region has rolling, dark brown, fertile soils over the western

MAJOR SOIL AREAS IN MISSOURI



Map showing the eight general soil regions in Missouri. (See the descriptions of each in the text.)

<sup>1</sup>Condensed from Missouri Agricultural Experiment Station Circular 304, by H. H. Krusekopf.



The good rolling lands of Northwest Missouri. With the exception of the great bottom land areas of the state, these dark rolling prairies are Missouri's best corn lands.

half and somewhat lighter-colored and less fertile soils over the eastern half. Corn, oats, and bluegrass are the principal crops, with much corn on the alluvial bottomlands. This is mainly a livestock region.

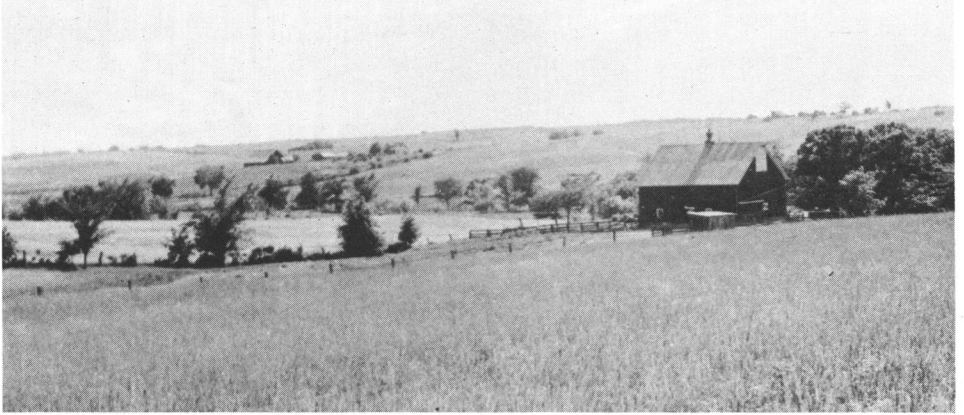
**Northeast Level Prairies and River Hills:** The northeast region is one of level to slightly rolling prairies, with timber on the hilly land along the streams. The prairie soils are dark gray, and the hilly soils light in color. The prairies produce large acreages of corn, soybeans, lespedeza, and bluegrass. Most of the hilly land is in timber or pasture crops.

**Southwest Level Prairies:** The southwest prairies are made up of dark to gray soils of moderate to

high fertility. The principal crops are corn, wheat, lespedeza, and grass. This is a region of general farming.

**Western Ozark Border:** The Western Ozark Border region has a rolling but not a hilly topography. The soils are light brown to dark brown, mostly gravelly, with moderate to good productivity. Most of the land is in cultivation, but there are large timbered areas. The agriculture is very diversified, including some apple and small fruit production, although dairying is the major type of farming.

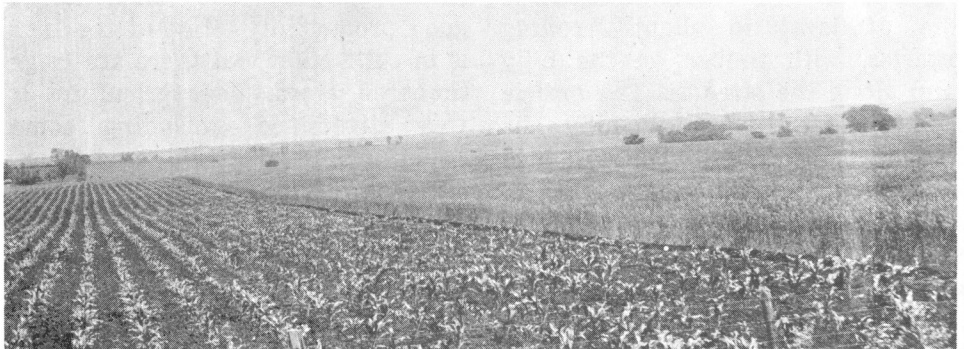
**Eastern Ozark Border:** The Eastern Ozark Border area is somewhat more hilly than the Western Border, with soils mostly light brown and of medium to low fertility. Wheat and



The rolling prairie lands of North Central Missouri. Most of this region is made up of rather good land, although where not properly handled, erosion is serious.



View on the Northeast Missouri level prairie. This soil has a very compact subsoil, but it is quite productive when properly limed and fertilized. This is a general farming area.



A farm view on the Southwest Missouri level prairie. This area is one of rather compact subsoils, but it is of moderate to good fertility.

corn are the important grain crops. General farming, including dairying, is most important. Much of the land is too steep for cropping, and is left in timber or pasture.

**Ozark Region:** The Ozark Region makes up all of south central Missouri. This is the region of hilly, stony soils, for the most part, with some rather level plateau-like areas. Almost two-thirds of the region is forested, and the valleys are the principal cultivated areas. Livestock and dairying are the main sources of income, with lespedeza the principal pasture and hay crop on the uplands and corn for grain in the valleys.

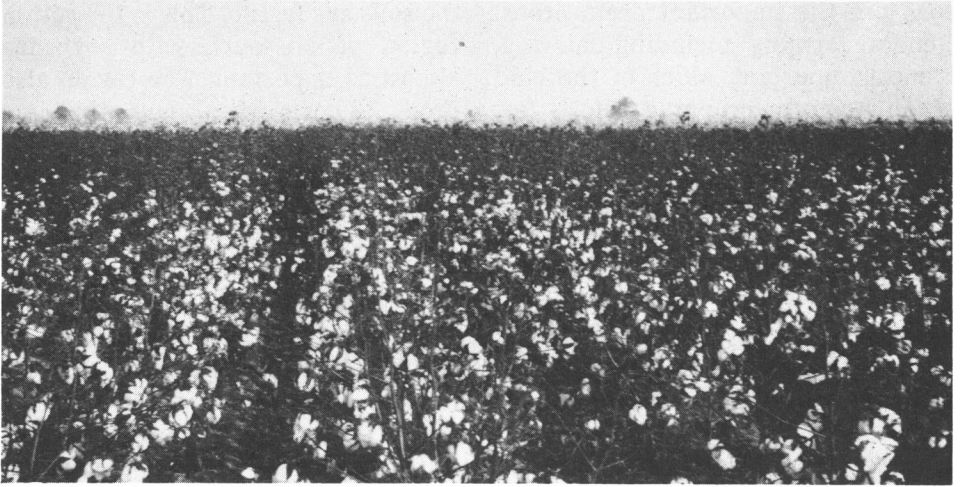
**Southeast Lowlands:** The Southeast Lowland area is made up of alluvial or bottom lands, including six counties in a single body. While there are some soils which are too sandy for high production, most of

the soils are fertile. This is the cotton region of Missouri, with soybeans almost as important. The region also produces corn, wheat, and other less important crops. On the whole, it is a cash farming region with comparatively small numbers of livestock.

It may be seen from the brief discussion of the principal soil regions of the state that Missouri's agriculture must be varied. With one-third of the total land area in forests, which are now coming under better management, timber production becomes an important industry. With about one-fifth the state in alluvial bottom lands, mostly drained and very productive, the state has large areas available for corn production. With the great area of tillable uplands and wide pasture lands, livestock farming is first in importance.



View on the Western Border Ozark Region, which is rolling to slightly hilly with brown soils of medium to good fertility. There are some timbered areas, but this is one of the very important dairy sections of the state.



View on the rich cotton lands of the Southeast Lowlands. This is the northern extension of the wide belt of so-called "delta lands", extending up from the mouth of the Mississippi.

### **Kinds of Farmers and Markets Affect Agriculture**

The nature and preferences of farmers have much to do with the types of farming followed. Almost all Missouri farmers grow some livestock. Many of them have had long experience in this, and have become very efficient in livestock production. Some farmers prefer to grow meat animals and others prefer dairy animals or poultry. Some like to grow cash crops, such as corn, wheat, soybeans, or cotton. Some prefer fruit or vegetable production. All of these contribute to the variation in our systems of farming.

The markets influence the types of farming followed in different parts of the state. However, with hard surface roads so widely distributed, and with the great use of trucks, the local markets have less influence than formerly. Grain may be trucked

long distances, if need be, although most farmers use their local elevators and railroads for handling it. Livestock can be moved to city markets by truck or train. Even dairy products, while usually shipped over rather short distances, may sometimes be hauled across several counties. It is the perishable vegetables and fruits that are most affected by local markets. These are largely consumed within the state, mostly in nearby cities and towns.

### **Missouri's Place in the Agriculture of the States**

Missouri's agriculture is best compared with that of the twelve central and midwestern states, which produce agricultural products similar to those in this state. These include Ohio, Indiana, Illinois, Michigan, Wisconsin, Nebraska, Minnesota, Iowa, Kansas, North Dakota, and South Dakota. Of course, the in-

dividual states vary in their rank in production from year to year, depending on the weather and certain other conditions. Among these states, Missouri usually ranks about seventh in the production of corn, seventh in winter wheat, eleventh in oats, fourth in soybeans, and fifth in tame hay crops. In general, among all the crops mentioned, Missouri averages about sixth, or just about average among the rankings of these twelve states. Among the 16 states that grow significant amounts of cotton, Missouri ranks about twelfth. However, in yield per acre it rank first among the regular cotton states, being exceeded only by the states of California, New Mexico, and Arizona,

where cotton is grown by irrigation.

In yields per acre, among the principal upland crops, for the ten years 1941 to 1950, Missouri averaged 34.5 bushels of corn, 15.9 bushels of winter wheat, 24.6 bushels of oats, 16.8 bushels of soybeans, and 1.2 tons of hay.

In the production of cattle and calves, including dairy stock, Missouri ranks about fifth among the 12 central and midwest states, about fourth in hogs, fourth in sheep and lambs, fourth in chickens, and sixth in whole milk.

When everything is considered, it will be seen that, among these states Missouri ranks somewhat above average.

### SYSTEMS OF FARMING IN MISSOURI

Since Missouri's agriculture is so varied, there is a wide range, not only in crops and animals produced, but also in the systems of farming followed. These farming systems may be discussed under separate headings.

#### General Farming

The term general farming refers to a system in which the farmer does not specialize in the production of any particular product or products, but grows a variety of these. It is often said to be a system in which the farmer "does not put all his eggs in one basket". Such a system is also called a "diversified system". Most Missouri farms have general farming systems which very commonly include three or more kinds of crops, such as corn, oats, wheat, soybeans, clover, alfalfa, grass, and usually

two or three kinds of livestock. On such farms, one or two of the grain crops may be sold for cash, at least in part, while the other grain, hay and forage crops are fed to livestock. It can be seen that such farms offer a variety of cropping systems, depending on the soil and the desires of the farmer, while the numbers and kinds of livestock may also vary widely. Such farms are found throughout the state, but they are less common in regions specially adapted to the production of corn and other grain crops or to cotton.

#### Cash-Grain Farming

A cash-grain farming system is one in which grain crops are the principal ones grown, and these are sold for cash. The important areas where this system is followed are on the good bottom lands of the Missis-



Missouri is well known for its herds of good beef cattle. The Herefords, Shorthorns, and Angus are the important breeds.

sippi, Missouri, and other large streams. The crops grown in these areas are mainly corn, soybeans, wheat, and sometimes oats, while cotton is grown, along with grain crops, in the Southeast Lowlands. Some upland cash-grain farms are found on the best prairie lands, primarily in Northwest Missouri. However, in no part of the state are such farms very abundant, excepting in Southeast Missouri. There are also some general farms in these areas which sell considerable quantities of their grain but not all of it. The better farmers following the cash-grain system grow legume crops, such as clovers or alfalfa, partly for sale and partly for soil improvement. For highest yields, too, liberal amounts of fertilizer sooner or later become necessary.

Many cash-grain farms are owned by men who do not live on them, and they are operated by tenants. This is particularly true of Southeast Missouri. While there are no figures available showing the number of pure cash-grain farms in Missouri, it is probable that these do not make up over 10 per cent of the total. By far the largest percentage of Missouri farmers follow the general farming or livestock farming systems.

#### **Livestock Farming**

About three-fourths of the income to Missouri farmers is from livestock and livestock products, including those from meat animals, dairy cattle, and poultry. Most farmers handle two or more kinds of livestock. However, when one speaks of livestock farming, it usually includes



meat animals only, while those handling mainly dairy cows are classed as dairy farmers.

It is interesting to know that practically all the corn grown in Missouri is fed to livestock, and some feeding corn is shipped in from bordering states. The great areas of pasture in Missouri fit into the farming program, and the experience which most Missouri farmers have had in handling livestock is largely responsible for the large livestock numbers.

The state's principal breeds of beef cattle are the Hereford, Shorthorn, and Aberdeen Angus. Most of the cattle marketed are grades of these. There are eight breeds of hogs, the well-known Poland China, the Spotted Poland China, the Duroc, the Berkshire, the Hampshire, the

Tamworth, the Chester White, and the Yorkshire. In recent years more and more attention has been given to the selection of lean-meat type hogs among these breeds or the grades coming from them. The principal breeds of sheep are the Hampshire, the Corriedale, the Shropshire, and the Suffolk. Missouri stands first in the number of registered Hampshires and third in the total number of Corriedales produced.

Livestock systems of farming do not exhaust the soil as do grain systems, since practically all the crops are fed and the manure carries much of the plant food elements back to the land. In general, they tend to be paying systems, provided the animals are well handled.



Some good Missouri hogs of the general meat type. The state ranks fourth in hogs among those in the north central region.



Missouri ranks high among the states in which dairying is an important industry. The mild winters, abundant pastures, and well distributed supplies of water give it an advantage over many of the others.

### Dairying Farming

Missouri is increasing in importance as a dairy state. Its mild climate, as compared with the important dairy states of Wisconsin and Minnesota, gives it an advantage. In general, it is well watered through ponds and wells or through clear streams in Southwest Missouri where dairy farming is very important. While some dairying is carried on almost everywhere, the other important areas are mainly within easy delivery distance of the large cities.

The principal dairy breeds in Missouri are the Jerseys, Holsteins, Guernseys, Brown Swiss, and Ayrshires, although the numbers of the two last named breeds are not large. The cropping systems under pure dairy farming include corn for silage

and grain, the small grains for spring and fall pasture, and clovers or alfalfa for hay. In recent years the trench silo has become popular. For harvesting silage, field choppers, not only for corn, but for some other silage crops, are coming into use. Dairy farming appeals to many farmers because of the regular weekly or monthly pay checks which come in. It is, of course, a confining job, but with modern equipment less labor is required. Moreover, dairy cows are most interesting animals to handle, and this appeals to farm youth as well as to their elders.

Missouri produces all kinds of dairy products through the many milk processing plants that have been established. The largest one of these in the entire United States is located at Springfield. Among the more

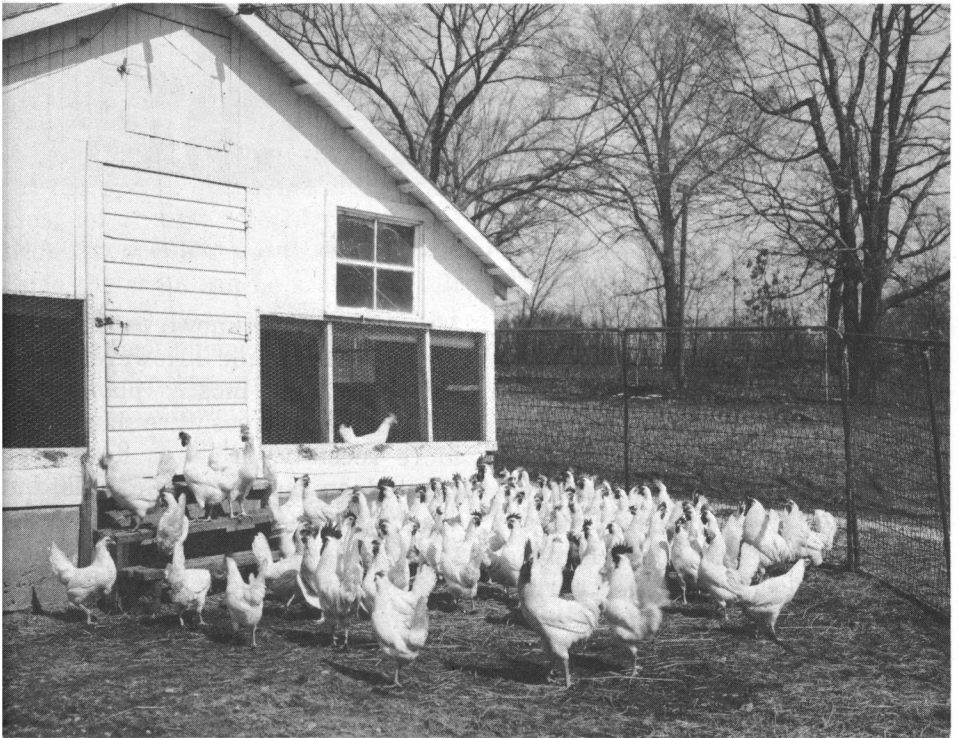
important dairy products coming from these plants are whole milk, skim milk, buttermilk, cream, dried milk, evaporated milk, condensed milk, cheese, and ice cream. Missouri ranks near the top, among the states, in the production of a number of these products.

### **Poultry Farming**

Over 80 per cent of Missouri farmers grow some poultry. However, most of this is in small farm flocks and such farms can not be classed as poultry farms. The real poultry farms are those in which poultry or egg production is the major business of the farmer.

The principal breeds of chickens produced are New Hampshires, White Leghorns, White Rocks, and Rhode Island Reds. Modern poultry raising uses special types of houses, some especially prepared feeds, and great care in disease control.

Missouri stands near the top among the state in number of hatcheries, supplying around 100,000,000 baby chicks each year. It also produces about 30,000,000 broilers, and about 3,000,000,000 eggs annually. In the marketing of shell eggs by grades, Missouri has made slow progress, and most of these still are sold as unclassified, according to the



A good poultry flock and a good poultry house usually go together. Missouri is one of the important poultry states.



A spray rig in use in one of Missouri's apple orchards. Insect control is one of the very important problems of the orchardist.

federal standards of grading. This has kept farm prices for eggs below what they might have been.

Missouri grows considerable numbers of turkeys, mostly for the Thanksgiving and Christmas markets. The three important breeds are the Bronze, the White Holland, and the Beltsville smaller turkey. They are usually grown in large flocks, by trained growers, rather than in small flocks on general farms.

#### **Fruit and Vegetable Farming**

A good many years ago there was a large development of apple orchards in the Ozark Region, and

Missouri became known as the "land of the big red apple". However, these orchards were mostly planted on soils where the trees were short lived. More recently, orchards have been planted on more suitable soils, but in much smaller numbers. While there are a good many apple orchards in the Ozark Region, mainly south of Springfield, some of the more recent plantings have been on the brown loess hill land along the Missouri River, particularly near St. Joseph, Kansas City, and Lexington.

Peaches, like apples, were once grown in quantities in the Ozark

Region, particularly in the southern part, but late frosts are too common in that section of the state, so these orchards have largely disappeared. There is, however, an important development of peach growing on Crowley's Ridge in the Southeast Lowlands. There is also a recent development near Kansas City.

Few cherries, plums, or pears are grown in Missouri. A considerable acreage of strawberries is grown for market in Southwest Missouri, mainly south of Springfield. Some of these are shipped to the larger mid-west cities, and some are frozen or processed locally.

Farms on which fruit is the major crop, so that they may be classed as fruit farms, are not very numerous in Missouri. Insects have so increased that apples, in particular, require almost continuous spraying throughout the spring and summer months. This, of course, requires careful attention and a great deal of labor. Much the same can be said of peach orchards. In general, fruit growing is a technical business in which only the well informed operators are succeeding. However, it is a very interesting business which appeals to a good many people.

The growing of vegetables in quantities is limited largely to areas near the cities where the produce is marketed. Of course, practically every farmer has a garden, but these produce vegetables mainly for home use. Occasionally, a farmer will have some surplus to sell at a roadside stand or in a nearby small town.

Some potatoes are grown for market on the Missouri River bottoms east of Kansas City. Rather large quantities of tomatoes are grown for local canneries in Southwest Missouri, and some watermelons and cantaloupes are grown for market on the sandy land of Southeast Missouri. Near the cities, a good many farms are given over almost entirely to the production of vegetable crops. These represent our only real truck farms. Such farms require large amounts of hand labor, intensive manuring and fertilizing, and constant spraying or other treatments to control insects and plant diseases. Our best truck farmers are men who have grown up with the business and who have acquired much knowledge and skill in handling these crops.

#### **Forest Management (Tree Farming)**

About two-thirds of the woodland in Missouri is privately owned. Most of this is on farms where the remainder of the land is used for one of the usual types of farming. On most of these farms it is possible for the farmer to carry on some type of forest or woodlot management, if he chooses, which may be called *tree farming*.

Very briefly, tree farming, woodlot management or farm forestry, as this may be called, consists of preserving and favoring the growth of *good trees* and cutting out or holding back the growth of the *poor trees*. The more important of those which may be called good trees in Missouri, that is, those which supply lumber or other salable products, are the



A well managed woodlot on a Missouri farm. Farm forestry, or tree farming, is interesting farmers in many parts of the state.

white oak, black oak, scarlet oak, burr oak, shortleaf pine, walnut, and hickory. Among the poorer trees, sometimes called "weed trees", are black jack oak, post oak, persimmon, the larger defective trees still standing, and small trees injured by fire. Where a forest stand is too thick, some of the smaller good trees are removed to make room for growth. Generally speaking, in most Missouri forests, the trees which may be classed as weed trees include about one-third of the timber stand.

In good woodlot management, the poor or weed trees are held back by cutting or girdling in order that the good ones may develop properly. Such a system also includes the plan

of harvesting or cutting the good trees when they have reached proper size. In Missouri, the principal marketable woodlot products are lumber, railroad ties, mine props, veneering, stove bolts, and posts.

A good many Missouri farmers are taking up the practice of tree farming or woodlot management. Where proper methods are used, considerable cash income may be expected from such forest areas.

#### **Wildlife Management**

No one speaks of wildlife farming, but many farmers are so handling their lands that different kinds of wildlife will flourish. Almost all Missouri farms have songbirds and many have quail and rabbits on

them. If there are large trees, squirrels usually are fairly abundant, and sometimes raccoons are common. Fish are found in all streams and lakes, and in recent years they have been stocked in thousands of Missouri ponds.

The important conditions for the proper development of birds and wild animals are first, food; second, cover of trees, brush, or grass over considerable areas; and third, a constant supply of water in streams, lakes, or ponds. All of these the

farmer may provide if he is interested in doing so. Most Missouri farmers have a natural interest in wildlife, and they are coming to appreciate the importance of its conservation. These matters are also of much interest to young people, particularly those in 4-H and other clubs. The State Conservation Commission is accomplishing a great deal in wildlife conservation and development and it offers assistance to those who wish it.

### **GOOD SYSTEMS OF FARMING IN MISSOURI DEPEND LARGELY ON GOOD FARM PLANS**

Haphazard farming is never good farming. Missouri farmers who succeed best are those who know where they are going. They have a good plan which they are following. The best of them are known as balanced farming plans. They are based on proper principles of farm and home management. The most important of these principles are discussed in the paragraphs which follow.

#### **A Good Cropping System**

The best Missouri farmers follow a cropping system which is adapted to the type of farming in which they are engaged. It is planned to fit their soils, the crops which bring in the most returns, either in cash or in feed, and the kind and numbers of animals they wish to keep. It may consist of one general cropping system or of this system and some supplementary systems on the small fields. It may be made up of two or more general systems varied somewhat to meet the annual needs. In

any case, the cropping system is planned in advance and followed carefully.

#### **Good Soil Care**

Every good farm plan in Missouri is based on a system of soil management which will build up and maintain soil fertility. Unfortunately, a good many Missouri farmers are not following such a plan, and their farms are losing fertility. Good farmers have found that proper soil care pays handsome profits, and it is basic to every good farming plan.

#### **Proper Selection and Care**

##### **Of Farm Animals**

Most Missouri farmers grow some farm animals. Every good farm plan dealing with farm animals provides for their proper selection and care. The animals are chosen to fit the farm, the cropping system, and the desires of the farmer. Sometimes, of course, the cropping system is adjusted to fit the type of animals the farmer wishes to keep. The plan

for handling livestock, in such cases, is usually the basis for their successful production. The plan for a general or livestock farm is much more complicated than one for a cash-grain farm where no animals are kept.

### **Good Missouri Farmers Keep Farm Records**

It is impossible to follow a good farm plan unless the farmer keeps accurate records of all his operations. These include the crops on the land from year to year, the number of animals on the farm, the yearly record of crop yields, the crops and animals sold, and the prices received. In addition, records are kept of the

costs of everything purchased, such as fertilizers, machinery, and feeds. Since it is impossible to remember all these details, they must be recorded at the time of purchase. When such records are kept, this usually changes the farm operations from a hit and miss system to a definite plan. That's the only way the farmer may know where he is making money and where he is losing it. With this information, he may be able to improve on the plan from year to year.

### **The Home and Family are Important**

Most good Missouri farmers think of their families as most important. They want to save enough money to



Some good Percheron horses, the most common breed in Missouri. However, most of them are dark in color. Notice that one of the mares has a horse colt, and the other a mule colt. Such large mares produce the good mules for which Missouri has been famous.



provide a good home in which the family may live, with all, or at least most, of the farm conveniences. Most of them want the family to have good food, health, books, and education, along with proper religious and recreational opportunities. Missouri farm people are noted for

their hospitality, and in the better farm homes all of these opportunities for good and gracious living are present. This is not saying that all Missouri farmers fall into this class, but a great many of them do. Moreover, the number who are doing so becomes greater year by year.



This is a farm family checking over their farm records with the county extension agent, and developing a balanced farm plan.

### COMMON SOIL AND CROP MANAGEMENT PRACTICES IN MISSOURI

Most of the soil and crop management practices followed in Missouri are similar to those in the other Cornbelt states. However, the state extends so far south in the Southeast Lowland counties that the practices there are similar to those of the Southern States.

#### Land Drainage

Very large areas of Missouri bottom lands were originally in swamp,

particularly in the Southeast Lowlands. Other undrained areas occurred along the Mississippi and Missouri Rivers and along some of the larger North Missouri streams in wide stretches. But these have largely been drained through the use of wide, open ditches, or canals, often extending long distances. While there are still some rather large areas yet undrained, most of

these swampy lands are now in cultivation, although some are subject to frequent overflow.

The large areas of level prairie in Northeast and Southeast Missouri were originally very wet during the spring months. However, the advent of improved roads with deep side ditches has brought about a rapid removal of surface water, so the drainage problems on these flat lands are no longer so serious. It is interesting to know that tile drains, which are used almost everywhere in the level lands of Iowa, Illinois, Indiana, and Ohio, have never become common in Missouri. This is due, in part, to the fact that our level prairie lands and even some of our heavy bottom lands have such tight sub-

soils that the tile drains do not work very well. Furthermore, Missouri lies farther south than these other states so that our seasons are longer, and it is not necessary to get on the land quite so early in the spring.

### **Cropping Systems**

The cropping systems on Missouri farms are, of course, influenced by the type of farming followed. They usually have one, and sometimes two years of corn, one or two years of small grain, and one or more legume crops such as clover, soybeans, or lespedeza. Only a few have alfalfa in the regular cropping system, since most Missouri soils, excepting the best bottoms, require liming and heavy manuring or fertilizing for this crop. However, its acreage is increas-



A large drainage canal in the Southeast Lowlands. Similar canals, most of them smaller than this, have been dug in many parts of the bottom lands of the state.

ing. One thing about our cropping systems is very interesting. Our farmers, as well as those of Illinois and the other states having much prairie land, do not follow such regular rotations as are common with the farmers of Indiana and Ohio, for instance. In those states the agriculture is older and more stable, while the climate is such that fewer crop failures occur to throw the rotations out of balance.

In Missouri, some very interesting new and short cropping systems have been introduced through the work of the Department of Field Crops of the College of Agriculture. An example is wheat and lespedeza, the same year, often called a one-year rotation. The wheat may be cut for grain, and the lespedeza following may be pastured. This may be extended to a second year when the lespedeza is again pastured or it is cut for hay or seed. Instead of wheat, a one year system of oats and lespedeza or barley and lespedeza may be used. These small grain-lespedeza systems are widely used in Missouri, particularly where much pasture is needed.

It should be said in connection with cropping systems that Missouri farmers are becoming more and more interested in the so-called pasture farming. The use of more pasture, much of it in the new, short cropping systems, is in addition to the permanent pastures which cover such wide acreages in the state. By a proper combination of improved permanent pasture and the shorter cropping systems, including pasture crops, livestock production is cheap-

ened and the net returns are usually increased. This is one of the important recent developments in Missouri agriculture.

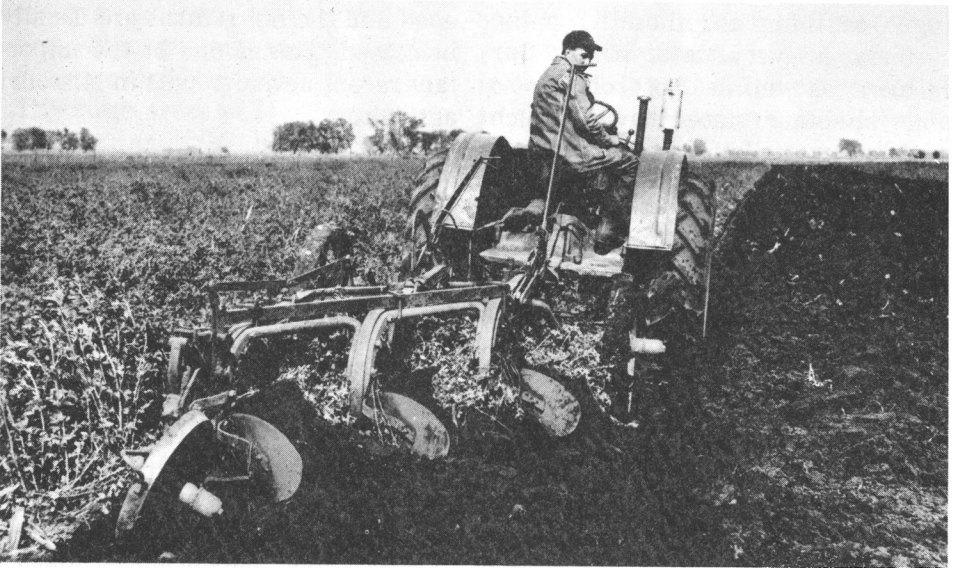
### **Plowing Operations**

Methods of plowing in Missouri are not greatly different from those in the other cornbelt states. The tractor, with the use of a two or three bottom plow, has greatly increased the speed of this operation. Earlier, with a team and a single-bottom walking plow, two acres was a good day's work. Today, with a tractor and a wheeled two-bottom plow, a man or a good-sized boy can turn ten acres or more in a day.

In this state, land is always plowed for corn, sometimes for soybeans or wheat, and always in seedbed preparation for alfalfa and truck crops. Wherever heavy applications of farm manure have been made, or heavy corn stalks or straw turned under, the land usually is disked thoroughly before it is plowed. Many farmers are now plowing deeper than formerly, often for the purpose of plowing in heavy applications of fertilizer. Plowing is an expensive operation, and most farmers try to use cropping systems in which the land is plowed rather infrequently, usually only once in three to five years.

### **Seedbed Preparation**

Many different tools may be used in preparing seedbeds. As a rule, some form of the disk harrow is used after plowing, followed by a drag harrow, or other smoothing or pulverizing implement. Where the soil has broken up cloddy, the disk may be followed by a corrugated



Plowing and seedbed preparation proceed rapidly and efficiently with modern machinery.

roller or a cultipacker and a drag harrow. Missouri has many heavy, clayish soils which run together badly under excessive rainfall, so that the use of pulverizing implements often is necessary. The use of tractor power and modern tillage implements has greatly simplified and increased the speed of seedbed preparation so that it is not the problem it once was.

#### **Farm Machinery and Rural Electrification Have Great Influence**

Modern farm machinery and electric power are now in use by most Missouri farmers. These have almost revolutionized the agriculture of the state. They have had influences in several respects.

The use of the modern rubber-tired tractor and modern machinery has resulted in an increase in the

average size of farm. Many farmers with one son can now handle an extra 40 or 80 acres which they may be able to buy or to rent.

The use of modern machinery greatly reduces the hours of man labor required in the management of a given acreage of land. Today, it is possible for one man on the farm to produce two or three times as much as one man could 25 or 30 years ago.

One of the great advantages of tractors and modern machinery is the decrease in the time required for farm operations. With such equipment the farmer can take advantage of drying spells between rains for preparing the land for crops, working night and day, if necessary. He can also harvest grain and hay quickly when the moisture is right.

The great spread of rural electrification makes it possible to do many things around the farm buildings and the home that could not be done before. This has had a great influence on modern farming methods.

Marketing farm products is now done largely through the use of trucks. By radio, the farmer can

learn the market prices from day to day and decide just when to truck his crops or animals to market.

The great influence which modern farm equipment has on farming is felt throughout the country. Missouri is but one of the great food producing states that is so influenced.

### **SOIL IMPROVEMENT AND CONSERVATION ON MISSOURI FARMS**

If we were to drive across an average Missouri county and stop at every farm, we would find that some farmers are doing all they can to improve and conserve their soils. On the other hand, we would find some who are doing nothing. Of course, the majority would fall between these two extremes. In general, our farmers are doing a pretty good job in caring for their soils, but the number who are using all the good practices is not so very large.

#### **Soil Losses Under Agriculture**

Whenever a crop is removed from the land, the soil loses the fertility the crop has taken out. Among the important plant food elements thus removed are nitrogen, phosphorus, potassium, calcium, and magnesium. There are also some losses of minor elements, but in small quantities. When a cultivated crop like corn is grown, some of the organic matter, often called humus, is lost. Finally, when any of the grain crops are grown on rolling land, some of the surface soil is carried away through erosion. All of these losses may take place under the usual systems of agriculture. The farmer who is to

improve and conserve his soil must find ways of offsetting them.

#### **Controlling or Offsetting Soil Losses**

Our best Missouri farmers have learned how to control, or to offset the losses taking place from their fields. They are following cropping systems containing one or more legume crops, such as clovers, soybeans, lespedeza, and alfalfa, which bring nitrogen from the air into the soil. Livestock farmers and general farmers feed most of the crops grown, and the animal manure carries much of the plant food elements back to the land. These farmers are also using much lime and fertilizer, which supply calcium, magnesium, nitrogen, phosphorus, and potassium to the soil. Finally, they are learning to control soil erosion, which in years gone by, has caused great losses to Missouri farms, and still is causing a good deal of damage.

#### **The Use of Legume Crops**

Missouri farmers have made much progress in the use of the nitrogen-building legume crops. The lespedeza acreage in the state equals that of

corn, and the soybean acreage is approximately half as much. These, in addition to the clovers and alfalfa grown, give the state a high legume acreage. These legumes are used for pasture, for hay, or for turning under as green manures.

#### **The Use of Lime and Fertilizers**

The principal source of calcium for applying to our soils is ground limestone. Some limestones contain considerable amounts of magnesium also. Much of the limestone used for agricultural purposes comes from the rock crushing plants, which prepare crushed rock for road building and concrete work. The fine siftings

from these plants are known as agricultural limestone. Some quarry operators make a specialty of preparing it.

Ground limestone is used primarily for improving the growth of the legume crops, which make up a part of every good cropping system. For the last eight years, Missouri farmers have used an average of about 2,750,000 tons of ground limestone annually. Only two or three other states have applied as much as this.

The use of fertilizers has increased greatly since the first World War. Farmers have found that it pays to



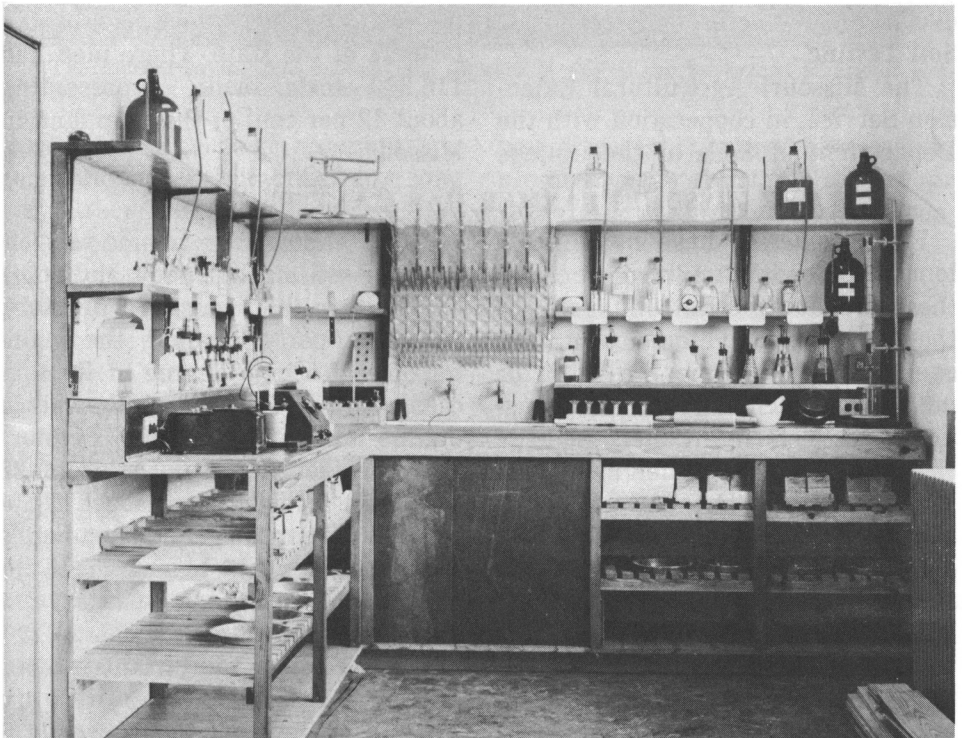
**This rolling field is farmed on the contour to assist in controlling erosion.**

return, through fertilizers, much of the plant food elements lost through the removal of crops. The amount of fertilizers used in 1953 was 763,000 tons, which was a dozen times that used 12 years before. Of course, the better farmers are using much, and the poorer farmers little. However, this tonnage makes an average of only about 80 pounds per acre of farmed land. For the highest practical yields, the average for all farmers should be at least double this amount.

### Erosion Control

The essentials of erosion control are generally understood by all of

our good farmers who handle rolling farm lands. They consist first, in the use of good cropping systems, containing crops which keep the land covered most of the spring and summer, such as sod crops and small grains, second, the use of enough manure and fertilizer to give these crops a rank growth so that they provide a good cover; and third, the use of terraces and contour cropping on the rolling land farmed to regular crops. Erosion measurements at the Missouri Experiment Station show that land with about an average slope, where grown to continuous corn, will lose about 17½ tons of soil



A county soil testing laboratory. Missouri farmers are making wide use of these laboratories to determine the best soil treatments for their farms.

per acre each year. Under the same conditions, land in a good cropping system will lose only 2½ tons. Where the same type of land is in grass, the loss will be less than one ton per acre. In farm practice, where a good cropping system and fertilizers are used, along with terraces and contour cropping, erosion losses are reduced to almost nothing.

The progress Missouri farmers are making in installing terraces and in contour cropping has been fairly satisfactory. To date, about 990,000 acres have been terraced. However, much land is contoured that is not terraced, so that the total amount contoured in 1953 reached a little over 1,700,000 acres.

### **Soil Testing**

The Missouri Agricultural Extension Service, in cooperation with the Department of Soils of the College

of Agriculture, has organized a large number of soil testing laboratories in the different counties of the state. These are established with the various extension agents (county agents), and hundreds of soil tests made for farmers each year. The tests show the needs of the soils for the different plant food elements, and about how much of these should be used, as lime and fertilizers, for the highest crop yields. In order to meet the costs, a small fee is charged. These tests make possible the use of the proper soil treatments by the farmers. In 1954, a total of 96 of the 114 counties had soil testing laboratories, and they were used by 61,000 farmers, or over one-fourth the farmers of the state. These men had 116,280 tests made, representing about 12 per cent of the crop land in Missouri.

## **THE MISSOURI FARMER HAS MANY PROBLEMS**

Few businesses have more problems than has agriculture. Some of these are due to the complexity of the business, and some to things over which the farmer has little or no control, such as weather, changing prices of farm products, and the cost of things the farmer must buy. Most of these are serious, too. During any year or series of years, they may determine the difference between a good farm income and a loss.

### **Maintaining Soil Fertility**

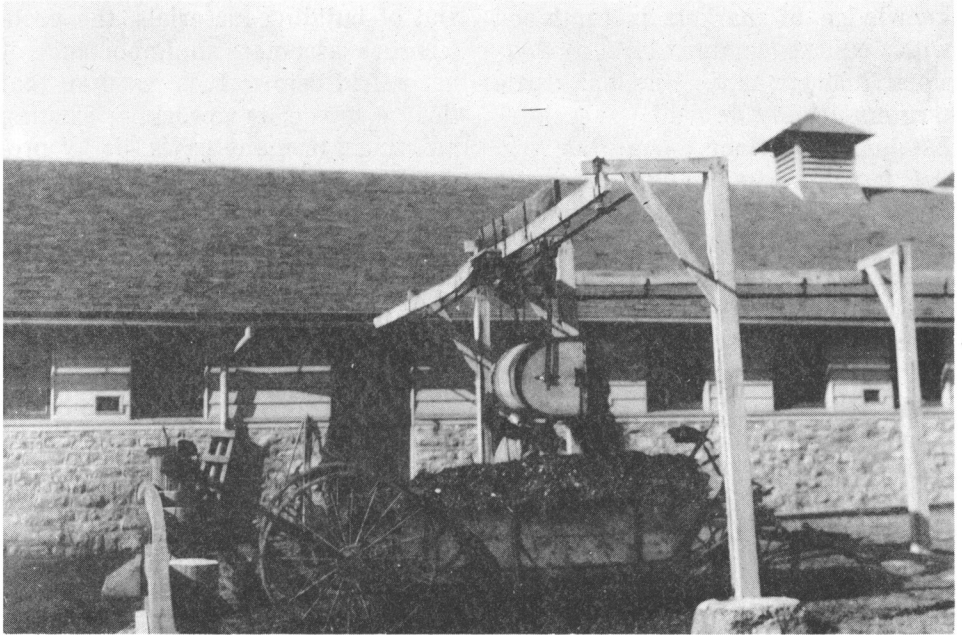
Good Missouri farmers know that to secure high yields, they must keep their soils at a high level of fertility. This can be done, although it

requires knowledge, some experience in soil management, and some expenditure of funds. Fortunately, where properly handled, the maintenance of a high degree of fertility of the soil pays exceptionally well in dollars and cents. The best farmers are now securing crop yields of 25 to 50 per cent or more above those secured earlier, largely due to better soil treatment and management.

### **The Control of Weeds, Insects, And Crop Diseases**

We have weeds, injurious insects, and crop diseases always with us. They do millions of dollars worth of damage to Missouri crops every





The careful saving and use of farm manure is one of the important means of conserving fertility on livestock farms.

year. However, good cropping systems and cultural practices go a long way in controlling weeds, and the new weed sprays offer a great deal for the future. Certain types of injurious insects are much more plentiful some years than others, and whenever serious outbreaks occur, the particular insects must be controlled by sprays or other means. Plant diseases are dependent to a large degree upon the weather, but they are always a threat. Sprays or other measures will control them, but these require constant attention by the farmer. By proper breeding methods, crop breeders can produce varieties or strains of crops that are resistant to certain diseases, but in time these may be attacked by

new diseases. It is then necessary to produce new resistant strains or varieties, and this seems to be a continuing process.

### **The Problems of Efficient Livestock Production**

There are many problems in livestock farming. The farmer must know, not only the methods of profitable production and marketing, but how to avoid or control animal diseases. This requires expense and care which may mean the difference between profit and loss. The matter of marketing livestock presents almost as many problems as livestock production. However, knowing what and when to buy and when to sell are things in which Missouri livestock men are quite proficient. When this

knowledge of markets is combined with experience and care in live-stock management, Missouri cattle farmers usually do well.

### **Establishing a Good Farm Plan**

It is not an easy thing to lay out a complete farm plan that will fit the farm properly. However, it is one of the problems the good farmer must meet and solve. A good plan which covers all the essentials to satisfactory and profitable farming also includes the development of a good home with educational, religious, and recreational opportunities for the family. It represents a "Missouri balanced farming plan." With this problem solved, the farmer is on the way to complete success.

### **Providing Suitable Buildings**

The farm building problem is one of the real ones for Missouri farmers. With the present high cost of labor

and of building materials, the problem has assumed an importance it never had before. It is essential that this be solved by reworking existing buildings, in many cases, or by providing new ones which are efficient, well arranged, and not too large or expensive. Almost every farmer will have this problem before him in some form, sooner or later. The farm house with all the conveniences and furnishings necessary to a real farm home adds greatly to the building problem, but it gives great satisfaction when this problem is solved.

### **The Problem of Proper Education For Country Children**

The seriousness of the educational problem for the children of a family in the country varies with conditions. Where good schools and good teachers are found in the community, the problem of providing elementary



A fine set of buildings, such as these on a good Missouri farm, are expensive to build and maintain, but their importance makes the expenditure well worth while.



A modern school building in one of Missouri's enlarged school districts, to which farm children are transported by bus.

education, particularly in the three R's, is solved automatically. In neighborhoods where the schools are poor, the problem becomes one of great importance. It is here that the parents may need to give much assistance to the children, in speaking good English and in supplying them with an abundance of good and interesting books for home reading. Missouri's elementary schools vary widely in their efficiency, but on the average they are far from the best. Many are too small to be economical, and there is a great scarcity of good teachers. As a result, many farm children are seriously handicapped,

and a real load falls on the parents. However, the movement toward the formation of enlarged districts, with larger schools and better trained teachers is helping to solve this educational problem in the rural areas. It should be said that the large increase in the number of children, since the last World War, is causing very serious educational problems in the cities and towns, where most of our people live.

#### **Proper Health Conditions**

In Missouri, the country is a healthful place to live, provided the home conditions are satisfactory. In too many cases, however, Missouri

farm homes do not protect the health of the families. Often it is poor heating equipment, or insanitary surroundings, or a water supply that may carry certain disease germs, or milk that has not received proper care. Often, too, farm boys and girls are not supplied with proper winter clothing, and one cold follows another in the family throughout the winter months. These are the conditions which, in many farm homes, make for unhealthy children. In properly organized farm houses, these conditions do not exist. However, it is a real problem on many farms to provide all of these, and in

such cases, the health of the family may be far below what it should be.

### **Providing Satisfactory Religious And Recreational Conditions**

The community in which a farm is located has much to do with the satisfactions in country living. A good rural church in the community, or within easy driving distance, is essential to a fully developed rural family life. The decline of the rural church in many communities in Missouri presents a real problem in connection with proper religious influences. However, where the head of the farm family has a will to solve this problem, working with others in



A Missouri rural church. While many rural churches have been closed, real progress has recently been made in re-establishing or combining them.

the community, better opportunities may usually be provided. This may often be done through the improvement of an existing nearby church or by combining two or three congregations in a single church building which offers most as a religious center. The Missouri Bible College at Columbia, working in cooperation with the University of Missouri College of Agriculture, is making real progress in helping to improve the conditions in many of Missouri's rural churches.

As to recreation, the country provides much of its own. It is not usually necessary to organize special recreational facilities. Much recreation

for young people centers in 4-H clubs, Junior Farmers Clubs, and the Future Farmers' Organization. Recreation for adults may be found in the activities of the various farm organizations, the Agricultural Extension Service, and other groups. To one who loves the out-of-doors, there is opportunity for studying nature and all that goes with it. Hunting is enjoyed by many people. Fishing in Missouri streams, lakes, and farm ponds is a type of recreation the whole family may enjoy. On the whole, the problem of wholesome recreation may be solved by almost any Missouri farm family which has the will to organize for it.

### **AIDS TO MISSOURI FARMERS**

It is generally understood that Missouri farmers have problems, some of them beyond the power of the individual to solve. Since agriculture is of great importance to all of us from the standpoint of food production, a number of plans have been developed to help farmers. Most of these have been worked out by the national and state governments, but some by the farmers themselves.

#### **The College of Agriculture**

The University of Missouri College of Agriculture is one of the Land Grant colleges, made possible under the Morrill Act. This Act was passed by Congress and signed by President Lincoln in 1862, during the Civil War period. These colleges, of which there is one in every state, have been greatly enlarged and developed through the use of both federal and

state funds, and they are now the principal agencies of farm assistance.

The Missouri College of Agriculture is a division of the University of Missouri, and it serves farmers in three ways. First, it supplies instruction in agriculture to students enrolling in the college at Columbia. Second, the Agricultural Experiment Station conducts a great variety of experiments designed to answer the farmer's questions about the many problems he encounters on his farm. Third, through the Agricultural Extension Service, the findings of the Experiment Station and the teachings of the college are brought to the farmers and their families throughout the state.

There are about 1500 students in the College of Agriculture, receiving training in all phases of agriculture



View on the campus of the University of Missouri College of Agriculture. It is this institution, working through the teaching staff, the experiment station, and the extension service that provides farm families with much of the latest information on improved agricultural methods.

and forestry for men, and in home economics for women. The Experiment Station conducts experiments on problems dealing with soils, crops, fruits, vegetables, cattle, hog and sheep production, dairy farming, and poultry farming. It studies the problems of farm management, farm economics, rural sociology, home economics, and many others.

The Agricultural Extension Service has one or more extension agents, often called county agents, in each county. It also has women home agents in most counties. It is largely

through these agents that the results of the Experiment Station are brought to farm men and women, helping them to meet their own problems, and adopt the methods best suited to their farm and farm homes. Missouri farmers are making wide use of the College of Agriculture in developing a better agriculture and a more satisfying country life.

#### **Special Educational Activities In the Field of Agriculture**

Those high schools which teach vocational agriculture and vocational

home economics give instruction in these subjects to hundreds of farm youth as well as to many older people. The teachers of vocational agriculture are graduates of the College of Agriculture, and they bring to farm people in their school districts, much of the more recent agricultural information. The five state colleges provide some instruction in agriculture to those of their students who wish it. The College of Agriculture is supplying youth publications in the field of agriculture to the pupils in the 2500 Missouri one-room rural schools where agriculture is taught. These publications are also sent to the schools in the enlarged districts, and to those town schools which wish this type of information.

#### **Other State Agencies**

##### **Assist Missouri Farmers**

Every state has a Department or Division of Agriculture, of some type, within the state government. In Missouri, this department sees that the various laws affecting agriculture are enforced, such as those regulating the sale of feeds and seeds, it manages the State Fair, and looks after other matters for the good of the farmers. It is a very important organization.

The Missouri Conservation Commission, set up under the state constitution, is one of the very efficient agencies affecting agriculture and the people. It employs a very efficient staff, dealing with the improvement of forests and the conservation of all types of wild life, most of which are of value or of interest to farmers.

The Resources and Development Commission is an important state agency which deals with the natural resources of the state and with the state's general development. Many of its activities are of benefit to farmers and farm people.

##### **Farm Organizations**

Organizations made up of the farmers themselves are having a most important influence on Missouri agriculture. The oldest of these is the Grange, then the Farm Bureau, and the Missouri Farmers Association. There are some local organizations of the Farmers Union but no state organization at this time.

These organizations, which now include in their memberships the majority of the farmers of the state, are powerful agencies seeking to improve Missouri agriculture. Some of them have developed most important cooperative activities in buying and selling, and in types of insurance of particular assistance to farmers. They are also interested in promoting education for farm people and in farm legislation.

##### **Government Agencies**

###### **Which Assist Farmers**

The national government in Washington serves Missouri farmers in various ways. Many of these activities are carried on in cooperation with the states.

The United States Department of Agriculture is a vast organization, set up to assist agriculture. It carries on large numbers of experiments for the benefit of farmers. It has the duty of administering the national

laws for the control of animal and plant diseases, the inspection of foods and drugs, and other types of legislation. The Department cooperates with the states in carrying forward the work of the various agricultural colleges, including particularly that of the Agricultural Experiment Stations and the Extension Services. It also works in cooperation with the states in the administration of many other important agencies. Among these are the A.S.C. (Agricultural Stabilization and Conservation Act), the F.H.A. (Farmers Home Administration), and the S.C.S. (Soil Conservation Service).

An important agency, set up under the Department of Commerce in Washington but with wide state cooperation, is the Weather Bureau. While this bureau gives much time to the assistance of modern aviation, it is of great benefit to agriculture. One can scarcely turn on a radio without hearing a weather report which is of value to farmers.

#### **Ready Sources of Farm Information**

There are many means now in use for supplying agricultural information directly to Missouri farmers. The Agricultural Extension Service of the University College of Agriculture, has already been mentioned.



The radio is one of the very important means of providing agricultural information for farmers. Radio broadcasters use on their programs a large amount of material from the College of Agriculture.



The bulletins and circulars from the College supply the information from the Experiment Station, and these may be secured from the county agent's offices or directly from the College. Moreover, the agents, both men and women, supply information to farm people through meetings, farm visits, letters, local papers, the radio and television.

The local and county papers, of which there are about 350 in the state, carry much agricultural information, supplied to them by the College, particularly through the county extension agents. These papers represent a very important

source of information for farm people.

Most farmers have radios, and these carry a great variety of agricultural information. More recently, television has come into use, and agricultural information is now carried to farm people by this means.

As a result of all of these, as well as of some other sources of information, the latest agricultural practices and methods of agricultural improvement are brought to the farmers, young and old. That they are making wide use of this information is shown by the recent progress of Missouri agriculture.

### PRICE OF FARM PRODUCTS, FARM COSTS, AND FARM RETURNS IN MISSOURI

Income from the sale of farm products on the one hand, and the costs of farm operations on the other, determine the real money returns from farming. During the First World War, both income and costs increased. Then they declined greatly during the depression period of the 1930s. They rose again during the Second World War, and have remained rather high. However, there has been a decline, particularly in farm income during recent years.

#### Prices of Farm Products

It is very interesting to compare the prices of farm products in Missouri, during the hard times of the thirties with those of recent times. It seems almost unbelievable that they could have changed so much.

In the thirties, the lowest seasonal average prices on Missouri farms<sup>1</sup> were for corn 27c, wheat 40c, oats 18c, and soybeans 60c a bushel, while cotton lint sold for only 5c a pound. Steers sold as low as \$4.10, hogs down to \$3.40, and lambs at \$4.65 per hundred pounds.

In the period following the war, the approximate maximum seasonal average prices received by Missouri farmers were corn \$1.70, wheat \$2.20, oats \$1.04, soybeans \$3.20 a bushel, while cotton lint brought 30c a pound. At this same time, beef cattle reached a farm price of about \$34, hogs \$29, and lambs \$30 a hundred pounds. It will be seen that the prices of crops at the highest period were five to six times, and those of

<sup>1</sup>Data from Agricultural Marketing Service, U. S. Department of Agriculture, Columbia, Missouri.



One hundred bushel corn crops like this are becoming common in Missouri. These require full soil treatments, thick planting and good care.

livestock six to eight times, those of the depression. These are tremendous variations. Moreover, when the prices following the Second World War are compared with those just preceding it, that is, after the depression of the thirties, they are still two or three times as great.

These increases in prices of Missouri farm products were due mainly to three causes. First, there was an increase in the food demand from our armies and from the people at home. Second, the government provided a larger volume of money and credit to both farmers and to business men, thus lowering the value of the dollar. Third, it provided

guarantees of favorable prices on several important farm products.

Price variations, such as those shown above, represent a kind of uncertainty in agriculture with which it is difficult for farmers to deal. Actually, thousands of farmers in Missouri, as well as in many other states, lost their farms during the depression period. This is one of the reasons why Congress has attempted, through price fixing and other types of legislation, to lessen the extent of serious price changes. However, the extent to which Congress should go in providing such legislation is a matter that has caused much difference of opinion among farmers and others.

**Farm Costs**

The costs of things farmers buy have remained rather high since the last war. As a result, farmers have been "caught in a squeeze" between the prices of things they have to sell and the costs they have to meet in operating their farms. Most city and town people do not realize this fact. They have heard of the high farm prices, and they have observed the high retail prices they pay for food. As a result, they have jumped to the conclusion that farmers are making a great deal of money. However, the increased farm costs have, in most cases, made this impossible. Let us consider some of these.

**Costs of Land:** Average land prices in Missouri have doubled since the thirties. They have declined some recently, but not much. This means that a young man with small savings, who goes out to buy a farm, must either go heavily in debt or buy a much smaller farm than he may want or need. This also means that, in most cases, young men wanting to take up farming will be fortunate to have inherited a farm or a large share of one. In any case, the overhead investment in land is much greater than formerly.

**Costs of Livestock:** We have seen that prices of livestock are a great deal higher than they were before the last war. As a result, when one attempts to buy beef cattle, dairy cattle, hogs or sheep to stock a farm, the costs seem almost unreasonable. This is especially true of purebred animals.

**Farm Machinery and Buildings:**

Not only has the price of farm machinery risen greatly in recent years, but a well equipped farm uses much more machinery than formerly. The machine equipment for a 200 acre Cornbelt general farm, if purchased new, will cost \$10,000 or more. On smaller farms it will be less, of course, since on such farms a team or two may still be available, for use with smaller machinery. Then, too, the amount of machinery is much less than on a larger farm. In some cases, certain machines are used jointly by two or three small farmers, and this lessens the load for each.

Farm buildings, newly built, cost two or three times what such building cost in earlier times. Even the repair of older buildings is expensive. The prices of the new kinds of household equipment is also high, but this has so many advantages that it is usually a very good investment.

**Farm Operations:** Farm labor on Missouri farms now costs twice what it did 25 years ago, but with the use of modern machinery men can do much more than twice the amount of work. The cost of the upkeep for farm machinery and the costs of all operating supplies, such as feeds, fertilizers, gasoline, and oil are also up. Most of these are at least double what they once were, with the exception of fertilizers, on which the price increase is only moderate.

It can be seen, in general, that most farm costs are from two to three times what they were before the last war. While the prices of

farm products have risen in about the same degree, these have gone down some, as has been indicated, but costs are remaining quite high. This is one of the difficulties our farmers have to meet in adjusting their operations to post-war conditions.

### **Money Returns from Missouri Farms**

The total returns (annual sales) from Missouri farms vary widely. The net returns represent the difference between the total returns and the entire costs of operating a farm.

During all recent years, the more efficient farmers have received good total returns for their efforts. However, those who have somewhat less ability to manage a farm, or who have been unfortunate in some way, have made only fair returns. Those with less ability, or those who have suffered very serious misfortunes, have received small returns.

The 1950 census, which gives the farm returns for 1949, shows that 12.9 per cent of Missouri farmers, that is the better ones, averaged \$6,000 or more in total returns from

their farms. At this same time, 23.4 per cent, that is those representing the average farmers, or those somewhat below average, received between \$2500 and \$6000 in total returns. The remainder or 63.7 per cent received total average returns of less than \$2500. It should be remembered that these figures are for one year only, but it was a fairly representative year. Moreover, they are for total rather than net returns, and as a rule, net returns are only about two-fifths of the total returns.

A study of these figures will show that more than half of Missouri farmers received very small total returns in 1949. Nevertheless, about one-third of all farmers, that is those in the two upper groups, received fair to good total returns, and doubtless corresponding net returns. Considering Missouri's land and land prices, the state's generally favorable growing seasons, the very wide variety of crops grown, and the high quality of its livestock, Missouri offers good opportunities for efficient farmers.

### **THE MISSOURI FARM AS A PLACE TO LIVE**

Missouri people differ greatly in the places they choose to live, although most of them go where they are able to find employment. Some prefer to live on farms. But there are not enough farms changing hands each year to provide one for each young man who is ready to start out for himself. As a consequence, a good many young people must leave the farm for town or city life. Some prefer it, or they at least think

they would enjoy such living better than that in the country.

In these days of high priced land and costly farm equipment, a young man without means must be very determined if the obstacles to owning a farm are overcome. It is when a farm comes to a young man by inheritance that the greatest opportunities arise. A father and son partnership is one of the best ways of getting started on a Missouri farm.



This boy, with his 4-H hog project, is learning how to work in taking care of the hogs. He knows country life and likes it.

### **Independence of Farm Living**

Probably the thing most often heard regarding farm living is the independence and freedom which it offers. This is true in Missouri as in other states. Certainly the Missouri farmer is far from the punch clock of the factory or the hum-drum of the assembly line in industry. His work is far from monotonous. He is largely his own boss, and that appeals to very many. In Missouri, where people are known to be somewhat conservative in their thinking, this independence and this freedom of action interests almost all farmers.

### **Enjoyment of the Outdoors**

The enjoyment of seeing farm crops and animals grow is a part of the nature of every good farmer. Moreover, living day by day in the

open and observing the variations in the weather, the beauty of sunrises and sunsets, and the change of seasons all form a part of farm life. To real dyed-in-the-wool Missouri farmers, ranging from those who barely make a living to those who own good farms and who have the knowledge and knack of proper farm management, these appeals of the open country make up much of the joys of living. A recent survey of a large number of Missouri farmers who were in the lower third, regarding income, showed some very interesting things. For instance, 95 per cent of them said they enjoyed farming, and 75 per cent said they would choose farming again, if they were to make a choice. There is something about farming as a way of living that

appeals greatly to very many people, even when the money returns are not very high.

### **Most Missouri Farmers Live Well**

The farmer has a great advantage over the city man in that he can produce much of his own food. Moreover, he has it when it is fresh and appetizing. The big country meals are known everywhere, and those of most Missouri farmers are very good. While we do not live to eat, we all must eat to live. When we have good farm food, eaten when our appetites are whetted by a lot of outdoor exercise, we derive much pleasure from it. The better Missouri farmers, particularly those of the old southern stock, have always been known for a high degree of gracious living, in which good food forms a very important part.

### **Modern Conveniences in the Farm Home**

Not so many years ago the country home was often a bleak place, a house with little or none of the modern improvements. But even in those days much farm life was enjoyable. Today the modern farm home has running water, a central heating plant, and electricity, with all the conveniences that go with these. In the better farm homes today, and this represents a rather large number, the conveniences are practically the same as those in the better city homes. These conditions are found in the better farm homes, but there are, or course, a good many who cannot afford all of the conveniences. However, 93 per cent of Missouri farmers now have electric cur-

rent, and in some counties almost all farms are electrified. This almost always means electric lights and one or more electrical appliances. Between 80 and 90 per cent of the farmers have radios and automobiles.

In general, the young people in a very high percentage of Missouri farm homes are able to keep almost as fully informed regarding what is going on in the world as do their city cousins. Moreover, most of them are able to enjoy a more wholesome outdoor life than the young folks in the average city home.

### **The Farm is a Good Place For Sober Thinking**

In the rush of the big cities, few people have time to think things through. As a result, many of the things they do are on the impulse of the moment, and these are often to their disadvantage. The crowded conditions in these cities, particularly in the great industrial centers, may lead to actions which are the result of poor thinking or poor judgment on someone's part. If the majority of these people had more time to think, their judgments would doubtless be better.

While the people in the open country usually work long hours, much of the work is such that they may think while doing it. Doubtless, the clear-headed and conservative judgments of most country people are due to the fact that they have time to think. Missouri farmers are no exception to this rule. In fact, they are usually noted for their uncanny judgments and clear thinking on matters of real importance to

them, their neighborhoods and their country.

### **The Farm is a Good Place To Raise Children**

There is something about life in the open country that appeals to boys and girls. On the farm these young people are early thrown on their own resources in farm work. They learn to do all sorts of farm jobs, they learn to handle various kinds of livestock, and they become accustomed to handling farm machinery at an early age, sometimes too early for their own safety. Moreover, with the changing weather conditions, and with the various moods of the farm animals which are under their care,

they become resourceful and learn to meet various emergencies. It was formerly said that a farmer, as well as many farm boys, can fix anything with a piece of baling wire. This was, of course, an exaggerated statement of their resourcefulness, yet it illustrates a point. Young people, raised with these early responsibilities which they learn to handle, are usually better prepared to meet the problems of life than are those who haven't had this type of early training.

### **A Good Farm Offers Much For Home Living**

In the Missouri farm home, the family is together much of the time.



**A modern Missouri farm home. This is an exceptionally nice one.**

This is quite different from the conditions in most city families, where the father is away all day on a job, and in many cases the mother also works outside the home. In the country each member of the family has a share in the work to be done. They often plan together so that much of the work is done cooperatively. Thus a close family life is usually more common in the country than in the city. This means a great deal in the lives of the children, as well as in those of the parents. It is one of the real advantages of country living, not only to Missouri farmers but to our farmers everywhere.

#### **The Country Provides Wholesome Activities**

There is always something of interest on the farm in a good country

community. The complexity of farm operations, the influences of changing conditions of the weather, the needs of farm animals, and the demands of farm crops combine to keep farmers busy. But along with these, come the various community activities which are of interest to young and old. For the young there are the activities in the schools, the 4-H Clubs, Junior Farmers Clubs, and the Future Farmers groups. For older persons, the farm and community organizations, the churches, and various rural activities add spirit to country living. There is no need for many picture shows or other types of recreation common to the people in cities. A good country community furnishes much of its own type of entertainment and recreation.



Missouri is a foremost state in the production of good saddle horses. This is a picture of one of the early horses, Rex McDonald, bred and owned in Missouri. This fine animal, when in his prime, was said to be the finest of all saddle horses.



**FARM CROPS AND LIVESTOCK STATISTICS FOR 1953<sup>1</sup>**  
 (Data from the Office of Agricultural Statistician, of the National  
 Agricultural Marketing Service, Columbia, Missouri)

**FIELD CROPS**

Crops	Acreage	Production
Corn (grain)	3,624,000	121,404,000 bu.
Corn (silage)	285,000	1,796,000 bu.
Corn (forage)	163,000	
Corn (all uses)	4,072,000	136,412,000 bu.
Wheat	1,578,000	41,028,000 bu.
Oats	1,254,000	31,977,000 bu.
Barley	96,000	2,832,000 bu.
Rye	32,000	448,000 bu.
Popcorn	15,000	22,500,000 lbs.
Sorghum (grain)	34,000	510,000 bu.
Sorghum (silage)	40,000	280,000 tons
Sorghum (forage)	79,000	118,000 tons
Sorghum (syrup)	2,000	100,000 gal.
Soybeans (seed)	1,824,000	25,536,000 bu.
Soybeans (hay)	99,000	99,000 tons
Cotton (fiber)	555,000	445,000 bales
Cotton (seed)		192,000 tons
Tobacco	4,600	4,140,000 lbs.
Alfalfa (hay)	341,000	665,000 tons
Clover & Timothy (hay)	1,126,000	1,015,000 tons
Red Clover (seed)	125,000	6,250,000 lbs.
Sweet Clover (seed)	3,600	450,000 lbs.
Lespedeza (hay)	299,000	224,000 tons
Lespedeza (seed)	75,000	7,500,000 lbs.
All hay	2,500,000	2,485,000 tons
Wild hay	125,000	88,000 tons
Timothy (seed)	60,000	7,200,000 lbs.
Redtop (seed)	32,000	1,760,000 lbs.
Tall Fescue (seed)	8,000	1,200,000 lbs.

Total value of all harvest crops—\$534,796,000.

**HORTICULTURAL CROPS**

Crops	Acreage	Production
Apples		800,000 bu.
Peaches		342,000 bu.
Pears		99,000 bu.
Grapes		2,800 tons
Cabbage	900	4,200,000 tons
Cucumber (pickles)	900	67,000 bu.
Irish Potatoes	11,000	682,000 bu.
Sweet Potatoes	2,000	130,000 bu.
Sweet Corn	4,800	336,000 dozen ears
Strawberries	3,000	150,000 crates
Tomatoes (fresh)	2,000	150,000 bu.
Tomatoes (canning)	1,700	2,600 tons
Spinach	950	166,000 bu.
Watermelons	2,200	440,000 melons
Cantaloupes	1,800	225,000 crates

Total value of these horticulture crops—\$9,733,000

**LIVESTOCK**

Types	Numbers
Beef Cattle	3,950,000
Milk Cows	1,014,000
Hogs	3,756,000
Sheep and Lambs	948,000
Horses	189,000
Mules	30,000
Chickens	18,747,000
Turkeys	274,000

Total value of all these livestock at current inventory prices—\$460,358,000

<sup>1</sup>Reprinted from Experiment Station Bulletin 596A, Products of Missouri Farms.



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