

## FEDERAL RESERVE BANK OF ATLANTA

Volume XXXIV

Atlanta, Georgia, April 30, 1949

Number 4

## Grasses and Legumes

SCIENTISTS have made rapid strides in exploring the potentialities of grasses and legumes, but farm programs that fully exploit the usefulness of these crops are still in their infancy. In two earlier articles in the *Review*, the income possibilities of pastures and grazing crops were compared with the income derived from some of the more prevalent land uses. It was shown in those articles how grasses and legumes offer ever new opportunities for farmers to increase the efficiency of their livestock operations and make more effective use of their capital and labor. The story of pastures and grazing crops, however, is more than that of the income from the milk, meat, and eggs that can be produced from them. Other contributions that pastures and grazing crops can make to a balanced farm program may be almost as important in the long run as the immediate money incomes which they yield. Farming systems in which grasses and legumes are utilized also tend to check erosion, produce needed organic matter, and help reduce livestock losses from parasites and diseases. When included in rotations, grasses and legumes provide a basis for a permanently productive farm organization.

The grass family, one of the largest families of plants, is by far the most important source of food and feed. In this family are the more familiar grains such as corn, oats, wheat, and sorghum. Although they have not always been of their present economic importance, these grain crops are vitally important for the sustenance of people and of most livestock. Enterprising farmers have, for many years, carefully selected better seed in an effort to improve the grain-producing characteristics of the major grasses. The highly productive varieties of corn being grown today bear little resemblance to the maize corn of the North American Indians, mainly because of the efforts of farmers and plant breeders who have sought to improve its grain-yielding ability. Hybrid varieties, which have increased the yield of corn in many sections of the United States about 20 percent over the open pollinated varieties, are merely a part of this development. Intensive grass breeding for forage production, however, has taken place in this country largely within the last 15 years and the tremendous progress made in so short a time promises even greater progress in the future.

In colonial times the area that is now the states of the Sixth District was covered with trees, mostly pines. When the timber was cleared, the grass that usually came up was practically worthless broom sedge. Efforts of early settlers to adapt European grasses to conditions in the Southeast were for the most part unsuccessful. Tropical grasses from Asia,

Africa, and Central America, on the other hand, were introduced successfully and proved fairly adaptable. The most important of these new grasses are Bermuda, carpet, Dallis, and Johnson grass; and today they provide the bulk of pasturage and grass hay in the region. Most legumes grown by District farmers are also foreign in origin. Alfalfa, indigenous to Southwestern Asia, was brought to the North American continent by Cortez. Lespedezas were imported from the Orient; vetches and lupines from Central Europe; and clovers from England, the Netherlands, and Italy. Plant breeders have worked with these imported legumes to produce varieties more suitable to the climate of the various regions of the United States. Farmers, too, have played an important role in this development by their selection of improved plants. Common lespedeza, for example, was first reported by a Georgia farmer in 1846 and manganese bur clover was first reported by an Alabama farmer only a few years ago. The amount of work that has been done in the breeding and selecting of legumes is small compared with that done in connection with grain crops. Experimental results, however, already show that a greater feeding value per acre can be obtained from legumes than from grain; and there is reason to expect that research will reveal even greater advantages to be derived from this important plant family.

Not only do grasses and legumes show greater promise as forage crops but they also complement each other in many important respects. Grasses, for example, require nitrogen for thrifty growth, whereas legumes draw nitrogen from the air and fix it in the soil where it becomes available to grasses. Most of the high yielding grasses grown in the District, moreover, are summer grasses, but the majority of legumes are grown in winter. This seasonal complementarity permits the year-round utilization of land, labor, and capital.

If livestock are to make efficient gains in weight, their rations must maintain a reasonable balance between carbohydrate and protein feeds. Here again grasses and legumes complement each other, the grasses tending to run high in carbohydrates and low in proteins, and the legumes to be high in proteins and low in carbohydrates. Kudzu hay, a legume, for example, averages 12 percent digestible protein whereas Johnson grass hay yields only about 3 percent. Shelled peanuts, another legume, average 27 percent digestible protein while corn, a grass, averages only 7 percent. Conversely, corn yields 68 percent carbohydrates while peanuts average only 12 percent. Rotations incorporating grass and legume forage crops are the basis of year-round feed produc-

tion in systems that also conserve water and soil fertility. Such systems are being adopted by an increasing number of District farmers.

### Erosion Controls

Soil erosion has long been a serious problem for most District farmers. The problem arises out of a number of circumstances, the more important of which are the kind of crops grown, the rolling terrain, and the heavy downpours of rain in the summer. Cotton, tobacco, peanuts, and corn, the area's main crops, require clean cultivation and are therefore planted in rows so that they may be kept free of weeds and grasses. Clean cultivation, however, leaves soil exposed to the full force of rain, and furrows left by plows become channels for water to move in. Under these conditions erosion easily sets in and makes rapid headway, especially on sloping fields.

Farmers have tried in many ways to cope with erosion. Only a few generations ago when the supply of land seemed to be endless the problem of erosion was evaded by running away from it. Cotton, corn, and other crops were shifted from "worn-out" fields to "new ground"; eroded farms were abandoned; and farmers made a new start elsewhere. Those farmers who chose to deal directly with the problem sought, for the most part, to control runoff, or surplus water, without changing the crop to which the land was planted. The most prevalent device for doing this was a terrace that tended to level the planting surface and thereby reduce runoff. In parts of the District some of these old bench-type terraces may still be seen, but the fact that they are found mainly in abandoned fields is proof that they were inadequate for their purpose.

With a high percentage of District farm lands classified as "rolling," it is obvious that erosion cannot be checked by shifting all sloping lands from the production of row crops to other uses. A broad-based, or Nichol's type, terrace was developed to enable farmers to continue to produce cotton, corn, and other clean cultivated crops on rolling land. Water which is not absorbed in the wide shallow channel is diverted by means of such terraces into outlets of grass or forest cover.

Throughout the District, however, many thousands of acres of farm land are too steep or have become too eroded for water to be controlled effectively except by shifting the use to which the land is put. Shifts have been accomplished in many places by planting cultivated crops in strips separated by grasses or legumes. On steeper slopes, however, it has been necessary to abandon cultivated crops in favor of a complete sod of cover crops. The planting of a field to grasses and legumes to check erosion, however, does not mean that the field is withdrawn from productive use, for it has been widely demonstrated that even on eroded fields it is possible to obtain, over a period of time, a higher income from grasses and legumes than from many row crops.

Legumes and grasses are similar in the manner in which they break the force of rain and retard its runoff, although grasses are generally more effective than legumes. Some legumes, however, such as kudzu, may be more efficient in conserving water than some grasses. On land that is planted to grass, or to a cover of legumes, a thin layer of material or mulch is formed underneath that helps prevent soil from washing. This layer of leaves, stems, or other organic matter not only absorbs water and thereby reduces its flow, but also removes suspended particles of soil that retard absorption. Muddy water tends to choke the pores of the soil. Moreover, by absorbing much of the force of falling rain, and by

splitting the drops into smaller particles, leaves of growing vegetation greatly reduce its destructive power. Not only do the leaves break the fall, but they also retain considerable quantities of water on their surfaces. Several tests have revealed that as much as a half inch of rain may be retained upon the leaves and stems of a good stand of clover.

Since the amount of soil that water holds is proportional to the velocity of water, a fibrous mat of grass or legume sod that materially checks runoff speed thereby reduces the water's soil-carrying capacity. Moreover, the extensive root systems of grasses and legumes loosen the soil so that a greater amount of water can be absorbed than would be the case with a tightly packed soil.

Bermuda grass with its fine blades and extensive root system has many characteristics which make it an excellent crop for erosion control. At Guthrie, Oklahoma, an experiment was conducted to compare the amount of soil loss from plots planted to cotton with plots planted to Bermuda grass on terrain having an 8-percent slope. At the conclusion of the six-year study, the land planted to cotton was found to have lost an average of 24 tons of soil per acre per year, while that planted to Bermuda grass had lost only 64 pounds. At Statesville, North Carolina, a similar study showed soil losses from cotton plots to be 31 tons per acre, compared with 620 pounds per acre from plots planted to grass.

Kudzu and *Lespedeza sericea* are two legumes that are also widely used to check erosion. At Watkinsville, Georgia, the Soil Conservation Experiment Station reported that land with an 11-percent slope lost 26 tons of soil per acre per year when planted to cotton during the four years 1943-46; but that planted to *sericea* lost only .47 tons, and that planted to kudzu .20 tons. The average amount of runoff water from the cotton plot was 12.5 inches, from *sericea* 4.4 inches, and from kudzu only 2.7 inches.

Similar experiments in many parts of the District on practically all soil types point to the same conclusion. Grass will hold both soil and water. Where moisture and fertility are retained, livestock, people, communities, and banks are held too.

### Soil Builders

Efficiency in farming is most often attained by increasing the yields of whatever crops are grown, thereby lowering the unit cost of production. On many farms of the District, however, soils have been so depleted of the very elements necessary to produce high yields that they must now be replaced by means of commercial fertilizers. District farmers have long considered the use of commercial fertilizers as a necessary step in the economical production of most crops.

The heavy use of commercial fertilizers in District states will continue but an increase in the acreage of legumes for turning is also probable. The continuous cropping of corn, cotton, peanuts, and other cash crops has not only resulted in heavy soil and mineral losses through erosion but the organic content of the land has been steadily depleted. In many sections, therefore, it will be necessary to check erosion and rebuild the soil's productivity if maximum returns are to be realized from the land. Grasses and legumes serve both these purposes quite well.

When soil is placed under cultivation, its content of humus or organic matter is reduced by the removal of crops and by erosion. A loss of organic matter, besides resulting in lower crop yields, also results in a compaction of the soil which hampers the circulation of air and water and hinders

tillage. In addition to being a source of nitrogen, organic matter in the soil increases the availability of the minerals already present and thus performs another service.

Organic matter is a rather broad term but in this connection it refers in the main to decayed plant material. Virgin soils are usually rich in organic content and for that reason produce high yields of crops. The rate of loss of organic matter, however, is rapid and if high yields are to continue this material must be regularly replaced.

A soil-building program is primarily a replacement program. Organic matter performs its functions in plant nutrition only through decomposition. The purpose in planting and turning under soil-building crops, therefore, is to provide a steady supply of organic matter that is undergoing the process of decomposition for the benefit of growing crops. Maintenance of organic matter in the soil of states in this district is difficult because of high annual temperatures that speed the rate of decomposition. This rate more than doubles for every rise in temperature of 18°F. As the temperature rises, therefore, an accumulation of organic matter from residuals becomes increasingly difficult. District farmers, however, are somewhat compensated for this by the long growing season that permits the growing of two crops a year on the same land, one of which may be turned under in order to provide a fairly high level of organic matter.

Most farmers know the value of turning under such legumes as vetch, peas, and crotalaria, and have done so to increase the yields of the following crops. Of course, the increases have varied widely, but the combined results of experiments with legumes conducted in nine southern states show that increases in yields following legumes have ranged, in general, from 6 to 60 percent. In a few instances, depending on what legume was turned under and what crop followed, yields have doubled or trebled.

#### Commercial Fertilizer Consumption\*

	1935-39 Average		1942		1946		Percent Increase in 1946 Over 1935-39
	Tons	Percent of National	Tons	Percent of National	Tons	Percent of National	
Georgia.....	725,287	10.0	852,765	9.8	1,135,685	7.8	56.6
Florida.....	512,862	7.1	589,610	6.8	1,061,073	7.3	106.9
Tennessee.....	122,744	1.7	174,298	2.0	331,265	2.3	169.9
Alabama.....	522,062	7.2	574,150	6.6	898,650	6.2	72.1
Mississippi.....	284,592	3.9	377,082	4.3	475,118	3.3	66.9
Louisiana.....	135,197	1.9	173,241	2.0	258,268	1.8	91.0
District States.....	2,302,744	31.7	2,741,146	31.4	4,160,059	28.6	80.6
United States.....	7,270,802	..	8,722,148	..	14,530,488	..	99.8

\*Excluding Government direct distribution.

These increased yields are attributable primarily to the additional nitrogen that legumes draw from the air and fix in nodules in their roots. Since legumes themselves require nitrogen for growth, that made available by turning them under is not all gain. Of the total amount of nitrogen in a legume, about one-third is supplied from the soil and two-thirds is obtained from the air; therefore, the maximum amount of nitrogen that can be added to the soil by turning under a legume crop is about 130 pounds per acre, or the equivalent of 800 pounds of nitrate of soda.

Although an increase in nitrogen is the chief gain from turning under legumes, there are others that are also important. An improved mechanical condition of the soil, in addition to making the soil easier to cultivate, may also result in increased yields. Subsequent crops will then develop good root structures and thus absorb water and nutrients more effectively.

The turning under of legumes also has a tendency to improve the efficiency with which commercial fertilizers are absorbed by plants. Capillary action is speeded up and there is a faster exchange of moisture and plant nutrients between soil particles. Moreover, the turning under of a crop of legumes loosens the soil and supplies an abundance of air, which must be present in the soil for nutrients to be readily absorbed and assimilated by plants.

#### Crop Rotations

Crop rotations will lessen the depletion of soil resources caused by growing the same crops on the same fields year after year. Such rotations, however, if they are to be established by farmers, must be at least as profitable as present land uses, even in the short run. The small farmer in particular cannot forego income from his fields for even a season or two by following a practice that would prove profitable only in the long run. New and improved varieties of grasses and legumes and new management practices, however, permit farmers to use crop rotations that yield returns comparable with those obtained from traditional cash crops. A rather wide choice of both summer and winter varieties of grasses and legumes is available to farmers so that these crops can be fitted into almost any rotation plan.

A rotation of crops, though, presupposes some plan of achieving specific objectives. Among the more important goals of rotation are the maintenance of organic matter in the soil, the checking of erosion, and the prevention of depletion of nutrients in a particular soil layer by alternating deep- and shallow-rooted crops. Where these goals are accomplished optimum employment of land, labor, and capital resources will be attained, crop yields will be increased, and the farm program will be diversified.

Although the number of possible combinations of crops in a rotation is very great, the combinations that are desirable in a specific situation depend upon the length of rotation desired, the nature of the principal cash crops, the topography and size of farm, and the availability of equipment. A good rotation utilizes those crops that are best adapted to the particular farm and that can be fitted into a well-integrated and efficient business enterprise.

The role of legumes in crop rotations is well illustrated by the results of a few rotations that have been checked by experiment stations for their ability to accomplish these goals. At Watkinsville, Georgia, the Soil Conservation Experiment Station compared a simple two-year rotation of cotton, vetch, corn, and crotalaria with the continuous growing of cotton. The land on which this experiment was conducted was almost level with an average slope of only 3 percent. Although erosion was no particular problem on this tract, the land that was kept continuously in cotton lost 5.35 tons of soil per year, whereas that in the rotation lost only 3.45 tons. Soil loss was thus reduced 35 percent by means of rotation. Two legumes, one a winter legume and one a summer, were included in the rotation and it was estimated by experiment station workers that these legumes, when turned under, together with the residue of cotton and corn stalks, would offset organic matter lost through the removal of crops. Where cotton was grown continuously the yield was 686 pounds of seed cotton per acre. In the rotation, however, the yield was 821 pounds, or 20 percent more.

In comparison with the cotton check plot, this rotation

when tested on land with an average slope of 7 percent showed a reduction in soil loss of 54 percent, a decline in runoff of 9 percent, but a gain in cotton yields of only 8 percent. Soil loss was materially reduced but the other comparisons suggest that a different rotation was needed on land of that degree of slope. A three-year rotation of cotton, oats, and Kobe lespedeza, together with voluntary lespedeza, proved much more effective. Compared with the check plot kept in cotton, this rotation reduced soil loss 88 percent and water 50 percent. Yield of seed cotton increased from 643 pounds to 963 pounds per acre. The average yield of oats was 50.5 bushels and that of the Kobe lespedeza 200 pounds of seed per acre. Both the latter crops were also grazed.

Farmers who balance their cropping systems by means of grasses and legumes used in rotations are building up the productive capacity of their farm and are thus making a good hedge against future price deflation. Such farmers will be better able to meet whatever adjustments lie ahead than will those who have depleted their resources by adhering to systems which, in many cases, have proven ruinous in the past.

### Reducing Livestock Losses

An important but often overlooked role played by pastures and grazing crops is the reduction of economic losses in livestock by cutting the mortality rate, by inhibiting parasite infestations, and by improving the thriftiness of the animals. Though difficult to evaluate from this standpoint, these crops can—by preventing a waste of time, feed, and animal life—contribute greatly to farm income.

Hog losses on farms in the District states, for example, are very high. In 1943 when only three out of every five pigs that were born reached marketable age, the death loss amounted to almost three million head. The number of hogs on farms in the District states on January 1 was 9.7 percent of the nation's total, but during that year 20 percent of the nation's death loss occurred in those states. It is true, losses that year were unusually heavy throughout the nation, but even in 1944 and 1945 hog death rates in District states were 53 and 21 percent higher than for the United States. As great as the money loss from death may be, the loss caused by a lack of thriftiness in parasite-infested and nutritionally deficient hogs that reach the market may be equally large.

Grasses and legumes by themselves, of course, will not eliminate death losses, parasites, and lack of thriftiness. They are, however, an important part of any management program designed to reduce losses from these causes. In 1939 the money loss from hog parasites in Georgia was estimated at 4 million dollars. If the same rate prevailed in the other states of the District, the loss in that year amounted to more than 17 million dollars for the District as a whole. At current prices the loss would be much greater. Proof that parasites can be controlled comes from the records of the Zoological Station, U. S. Department of Agriculture at Moultrie, Georgia. Studies made at that station reveal that 85 to 90 percent of

the livers and kidneys in the general run of hogs are condemned as unfit for human consumption, but that 85 to 90 percent are approved for edible uses when the hogs have been raised under sanitary conditions.

Number of Hogs and Death Losses on Farms  
(In Thousands)

	1943			1944			1945		
	No. Jan. 1	Deaths	Ratio	No. Jan. 1	Deaths	Ratio	No. Jan. 1	Deaths	Ratio
Georgia.....	1,689	505	30.0	1,875	510	27.7	1,575	317	20.1
Florida.....	608	280	46.2	669	23	34.6	609	205	33.6
Tennessee.....	1,646	395	24.0	1,778	235	13.2	1,316	210	16.0
Alabama.....	1,219	292	24.0	1,560	232	14.9	1,264	190	15.0
Mississippi.....	1,170	219	18.7	1,359	190	13.9	1,054	182	17.3
Louisiana.....	807	240	29.8	1,025	265	25.8	861	240	27.8
District States..	7,189	2,931	41.1	8,276	1,652	20.1	6,879	1,344	20.2
United States..	73,736	14,642	19.9	83,852	11,003	13.1	59,759	9,977	16.7
Percent of U. S. Total in District.....	9.7	20.0	..	9.9	15.1	..	11.2	13.5	..

One of the most important conditions for the production of parasite-free hogs is to produce them on clean ground planted in grazing crops or some crop that can be hogged-off. Many, if not most, parasites affecting hog production require filthy, wet, or shady places to complete their life cycles. In fields of grasses or legumes the direct action of sunlight, together with the absence of filth, makes the completion of the life cycle of most parasites virtually impossible. The probability of infestation of grazing animals is thus reduced.

Hogs free of parasites gain weight more efficiently than those that are infested. Midwestern farm records show that parasite-free pigs tend to weight about 25 pounds more at the age of four months than do pigs that have become parasitized. An unhealthy condition of livestock is a serious drain on the financial resources of a farmer since it involves not only a waste of feed in the effort to promote growth, but also requires considerable cash outlays for medication.

More deadly than parasitic infestations and more difficult to prevent or control, are bacterial diseases. The ravages of this class of diseases, which annually take a heavy toll of hogs, can, however, be reduced by the use of clean pastures and fields of green grazing crops. Exposure to sunlight over a suitable period of time has an adverse effect on the viability of bacterial organisms and on their ability to invade susceptible animals. Hogs that are on pasture or grazing crops, therefore, have much less chance of becoming infected than those that are closely confined in a pen or a hog lot. Not only are the chances of infection reduced, but the resistance of hogs is increased considerably by the high vitamin and mineral content of green grazing crops.

Dairy and beef cattle are also susceptible to many diseases that may result in lower production, abortion, or death. For the most part, however, these diseases cannot be controlled by grazing programs as effectively as can diseases affecting hogs. Nevertheless, the resistance of cattle to disease can be greatly strengthened by providing them with abundant grazing crops, including both grasses and legumes, which protect livestock in much the same way that they protect fields from erosion, by preventing the damage before it occurs.

### Saving Labor

Beef and dairy cattle do their own harvesting of grasses and legumes and thereby free a part of the farmer's labor for other employment. Stockmen often refer to their cattle as their mowing machines, bailers, wagons, and silos. Where year-round grazing is provided, there is certainly need for

### Retail Credit Survey

The Retail Credit Survey for 1948 is a detailed analysis of the changes in sales and accounts receivable of the nine lines of business surveyed, tabulated by states, major cities, and areas. Copies are available upon request to the Research Department of this bank.

fewer implements and facilities than where crops must be harvested, stored, and barn fed. Until recent years farm labor has been abundant and cheap on most District farms but this picture is changing. Many farmers are finding it necessary to economize in the use of labor. If the labor saved by a grazing program is productively used in doing other things on the farm, or by working in nonfarm employment, then such a program can be made to raise the farmer's labor income appreciably.

One advantage that District farmers have over those in more northerly latitudes is the potential year-round grazing season. To really capitalize on this advantage, however, farmers must find productive use for the time saved. This could be accomplished by increasing the size of the whole farming operation or by adding other enterprises to the farm program. Grasses and legumes can save labor, but the farmer must use the saved labor productively if the saving is to be translated into income. A grazing program should not be looked upon as a device to escape work but rather as one permitting the farmer to work at more things and hence to work more productively. One of the bright spots in the future of the District's agriculture is, therefore, the contribution that grasses and legumes can make toward a more permanent, efficient, and profitable farm operation.

JOHN L. LILES

### Bank Announcements

During the month of April, four nonmember Alabama banks began remitting at par, three of which were added to the Par List as of April 1. One of these banks was the Watkins Banking Company, Faunsdale, Alabama. This bank has capital stock amounting to \$25,000; surplus and undivided profits, \$39,000; and deposits averaging about \$300,000. Siddons Stollenwerck is President and Cashier, Dr. T. C. Cameron is Vice President, and E. R. Stollenwerck is Assistant Cashier.

The second of these three banks was the Canebroke Loan and Trust Company, Uniontown, Alabama. The capital structure of this bank amounts to \$25,000; its surplus and undivided profits amount to \$23,000; and its deposits to \$421,000. The bank's officers are Val Taylor, President; and W. M. Buck, Vice President and Cashier.

The third bank coming on the Par List on April 1 was Planters and Merchants Bank, also of Uniontown, Alabama. This bank's capital structure consists of \$40,000 capital stock, and surplus and undivided profits of more than \$50,000. Its deposits are in excess of \$1,011,000. The bank's officers are Milton G. Walker, President; V. W. Coleman, Vice President and Cashier; and M. I. Tolman, Assistant Cashier.

On April 4 the Citizens Bank, Geneva, Alabama, was added to the Par List. This bank has capital amounting to \$100,000; surplus and undivided profits, \$237,000; and deposits of \$4,965,000. The bank's officers are Jim Johnson, Jr., President; Joel E. Johnson, Vice President; O. E. Hightower, Cashier; and Moody Williford, Assistant Cashier.

### Sixth District Statistics

Item	April 20 1949	March 23 1949	April 21 1948	Percent Change	
				Mar. 23 1949	Apr. 21 1948
Loans and investments—					
Total.....	2,276,619	2,316,413	2,290,830	- 2	- 1
Loans—Net.....	820,491	841,791	828,026	- 3	- 1
Loans—Gross.....	831,476	851,952	828,026	- 2	..
Commercial, industrial, and agricultural loans.....	518,385	534,791	516,014	- 3	+ 0
Loans to brokers and dealers in securities.....	7,142	8,108	6,016	- 12	+ 19
Other loans for purchasing and carrying securities.....	42,905	46,124	58,221	- 7	- 26
Real estate loans.....	67,863	67,419	74,580	+ 1	- 9
Loans to banks.....	4,570	4,647	5,285	- 2	- 13
Other loans.....	190,611	190,863	167,830	- 0	+ 14
Investments—total.....	1,456,128	1,474,622	1,462,804	- 1	- 0
Bills, certificates and notes.....	366,525	396,200	378,874	- 7	- 3
U. S. Bonds.....	901,028	892,412	899,448	+ 1	+ 0
Other securities.....	188,575	186,010	184,482	+ 1	+ 2
Reserve with F. R. Bank.....	486,353	519,478	450,922	- 6	+ 8
Cash in vault.....	41,534	42,570	41,336	- 2	+ 0
Balances with domestic banks.....	186,627	160,395	190,112	+ 16	- 2
Demand deposits adjusted.....	1,766,526	1,784,523	1,741,332	- 1	+ 1
Time deposits.....	535,021	529,450	545,167	+ 1	- 2
U. S. Gov't deposits.....	41,355	55,632	37,608	- 26	+ 10
Deposits of domestic banks.....	466,563	473,681	469,597	- 2	- 1
Borrowings.....	1,500	17,450	5,000	-140	- 70

### DEBITS TO INDIVIDUAL BANK ACCOUNTS (In Thousands of Dollars)

Place	No. of Banks Reporting	Mar. 1949	Feb. 1949	Mar. 1948	Percent Change	
					Feb. 1949	Mar. 1948
<b>ALABAMA</b>						
Anniston.....	3	21,983	20,172	22,282	+ 9	- 1
Birmingham.....	6	333,599	292,341	339,851	+ 14	- 2
Dothan.....	2	12,658	11,918	12,030	+ 6	+ 5
Gadsden.....	3	19,302	16,617	18,045	+ 16	+ 7
Mobile.....	4	141,350	117,765	150,120	+ 20	- 6
Montgomery.....	3	71,514	65,049	75,622	+ 10	- 5
<b>FLORIDA</b>						
Jacksonville.....	4	290,537	253,689	287,924	+ 15	+ 1
Greater Miami.....	13	429,481	371,324	423,115	+ 16	+ 1
Miami.....	7	284,196	250,474	291,680	+ 13	- 3
Orlando.....	3	59,506	48,793	54,274	+ 22	+ 10
Pensacola.....	3	34,364	30,136	37,453	+ 14	- 8
St. Petersburg.....	3	65,666	56,789	60,256	+ 16	+ 9
Tampa.....	6	141,677	118,212	132,934	+ 20	+ 7
<b>GEORGIA</b>						
Albany.....	3	24,198	21,359	20,439	+ 13	+ 18
Atlanta.....	4	848,351	744,600	807,176	+ 14	+ 5
Augusta.....	3	62,972	49,382	57,688	+ 28	+ 9
Brunswick.....	2	8,597	7,635	8,784	+ 13	- 2
Columbus.....	4	52,043	45,105	57,625	+ 15	- 10
Elberton.....	2	3,586	3,136	3,875	+ 14	- 7
Gainesville.....	3	14,057	12,443	13,741	+ 13	+ 2
Griffin.....	2	10,456	9,668	10,823	+ 8	- 3
Macon.....	3	56,234	51,424	60,213	+ 9	- 7
Newnan.....	2	7,859	7,848	7,903	+ 0	- 1
Rome.....	3	19,787	17,653	21,490	+ 12	- 8
Savannah.....	4	92,566	75,062	94,610	+ 23	- 2
Valdosta.....	2	10,763	10,669	10,671	+ 1	+ 1
<b>LOUISIANA</b>						
Alexandria.....	3	30,301	26,616	27,994	+ 14	+ 8
Baton Rouge.....	3	128,232	96,040	88,368	+ 34	+ 45
Lake Charles.....	3	36,834	32,270	31,780	+ 14	+ 16
New Orleans.....	8	871,912	633,793	649,418	+ 38	+ 34
<b>MISSISSIPPI</b>						
Hattiesburg.....	2	16,967	14,825	16,137	+ 14	+ 5
Jackson.....	4	151,153	121,836	149,611	+ 24	+ 1
Meridian.....	3	26,901	22,192	28,947	+ 21	- 7
Vicksburg.....	2	25,313	21,051	25,483	+ 20	- 1
<b>TENNESSEE</b>						
Chattanooga.....	3	146,901	124,979	142,212	+ 18	+ 3
Knoxville.....	4	108,180	96,764	107,444	+ 12	+ 1
Nashville.....	6	299,638	249,974	280,415	+ 20	+ 7
<b>SIXTH DISTRICT</b>						
32 Cities.....	115	4,455,552	3,711,899	4,131,270	+ 20	+ 8
<b>UNITED STATES</b>						
333 Cities.....		109,735,000	89,806,000	107,636,000	+ 22	+ 2

\*Not included in Sixth District total

## District Business Conditions

### Instalment Credit Financing Expands

**M**ORE AND MORE, retail merchants have turned to banks and sales finance institutions for help in carrying their instalment paper, which has increased because of expanded credit buying. This is shown in the *Retail Credit Survey for 1948* recently completed by the Bank. In practically every line of retail business that makes instalment sales, a greater number of firms sold some of their instalment paper, and such sales constituted a larger proportion of their total instalment sales than they have for many years.

Before the war, many merchants, especially those in the automobile and appliance businesses, helped finance their operations by selling their instalment contracts. During the war and immediate postwar period, however, this practice was at a minimum. Reduced sales of automobiles and appliances made it less necessary to sell paper; and greater cash sales and larger down payments swelled the merchants' bank accounts at the same time that their inventories and receivables were being reduced.

**CREDIT BUYING EXPANDED.** Even though consumers have been able to buy many goods for cash, including durables, since the end of the war, they have turned more and more to the use of credit, particularly in the past two years. Almost 900 merchants participated in the 1948 retail credit survey and their instalment sales were 22 percent greater in 1948 than in 1947. Their open credit sales increased 14 percent.

Changes in Sales and Accounts Receivable at Sixth District Stores

Kind of Business	Sales				Accts. Receivable	
	Percent Change 1947-1948				Percent Change, End of Year, 1947-1948	
	Total	Cash	Charge Account	Instalment	Charge	Instalment
Department.....	+ 6	- 1	+ 11	+ 39	+ 16	+ 59
Men's Clothing.....	0	- 13	+ 10	+ 12	+ 14	+ 14
Women's Apparel.....	+ 5	+ 1	+ 8	- 5	+ 10	+ 37
Furniture.....	- 2	- 14	- 8	+ 1	+ 11	+ 21
Hardware.....	+ 7	- 8	+ 13	+ 71	+ 17	+ 73
Household Appliance.....	+ 16	- 18	+ 6	+ 44	+ 10	+ 64
Jewelry.....	- 2	- 8	+ 13	+ 71	+ 22	+ 15
Automobile Dealers.....	+ 19	+ 13	+ 19	+ 43	+ 19	+ 27
Auto. Tire and Accessory..	+ 9	- 4	+ 1	+ 66	+ 13	+ 93
Weighted Average.....	+ 10	+ 3	+ 14	+ 22	+ 16	+ 42

Changes in sales and accounts receivable at the stores included in the survey are shown in the table. Although the types of stores included account for only a little over one-third of total retail sales, they make practically all the retail instalment sales and the greater part of open credit sales.

**CASH BUYING DECLINED.** Cash purchases from each line of business except automobile dealers and women's apparel stores were smaller in 1948 than in 1947, and some of the cash purchases from automobile dealers probably were made from funds that consumers borrowed directly from commercial banks or sales finance companies. Because of the increase in credit buying and the decrease in cash purchases, consumers owed Sixth District merchants 16 percent more on charge accounts at the end of 1948 than they did at the end of 1947 and 42 percent more on instalment accounts. In the last quarter of last year, they owed retailers approximately 175 million dollars on instalment accounts alone. They owed financial institutions almost 400 million dollars on instalment

credit, a large part of which was for the purchase of automobiles and appliances.

The 44-percent yearly increase in instalment sales at household appliance stores, and the 43-percent increase in the instalment sales of automobile dealers were chiefly responsible for the increase in paper held by banks and sales finance companies. All but 5 percent of the automobile dealers reporting in the survey sold instalment paper in 1948, and all but 11 percent of the household appliance dealers. Consequently, although estimated instalment sales of these two lines of business amounted to about 45 percent of total instalment sales in the District, the paper they held at the end of the year was less than 20 percent of the total amount held by all retail merchants. Furniture stores, although they accounted for about one-third of all retail instalments sales, for the most part carried their own paper.

**FINANCING BY BANKS.** District commercial banks, the most important purchasers of instalment paper, owned about 130 million dollars worth of retail instalment paper at the end of 1948, about half of which was purchased paper. The other half was the result of direct loans made to consumers for buying automobiles, appliances, and other merchandise. The 38-million-dollar growth in retail instalment credits accounted for a substantial proportion of the rising total loans outstanding of commercial banks during the year.

A change in the sales trend of goods customarily financed by instalment contracts first became noticeable last October. Until then, monthly sales had exceeded those for corresponding months of the preceding year for many months. After that, both cash and instalment sales at the appliance and furniture stores declined. A moderation in the rate of increase in automobile sales appeared later. These declines continued into 1949 with furniture store sales for March down 20 percent; and those of household appliance stores down 32 percent. Motor vehicle dealers in Atlanta and Birmingham, according to Department of Commerce reports, sold only 13 and 3 percent more, respectively, in the first two months of this year than in that period last year. Their 1948 sales exceeded 1947 sales 16 and 20 percent, respectively.

**CREDIT DECLINED.** In January and February, for the first time since 1945, the changed sales trends were reflected in month-to-month declines in the volume of instalment credit extended. Outstandings at the District banks are still substantially greater than a year ago, but the February volume of new credits exceeded that of last year only 2 percent, and throughout the country the volume was down 4 percent.

Quite obviously, the number of automobiles and appliances, and—to a lesser extent—the amount of furniture, that consumers buy during the coming months will largely govern the amount of both direct instalment loans and paper purchased by the banks. Unless there is a change in sales activities, immediate prospects are for a leveling off and subsequent decline in the amount of retail paper held by banks and other financial institutions as existing contracts are paid off.

Over a long period, however, it is possible that instalment financing might grow even though sales do not increase, provided instalment sales resume their prewar importance to total sales.

C. T. T.

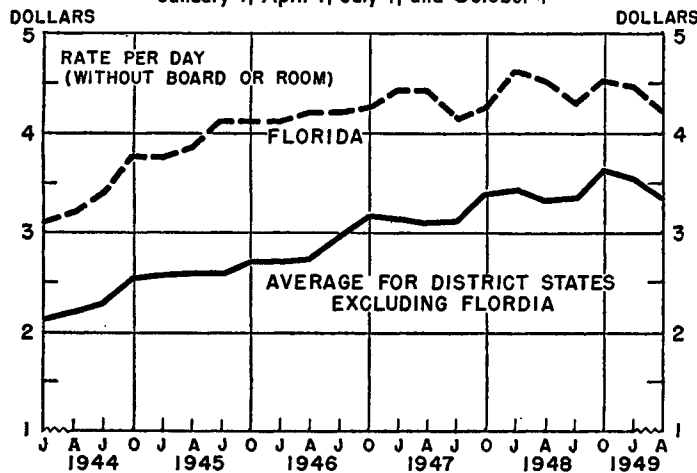
**Farm Wage Rates**

Recent declines in farm prices emphasize the necessity for reducing costs if a marked decline in net farm income is to be avoided. Farm costs, or the prices of the things used in production, change more slowly than farm prices. Since the end of the war, the lag in farm costs has placed farmers in a favorable competitive position, but during a period of declining farm prices, a lag in farm costs tends to accentuate decreases in farm income. In 1948, the cost of feed was the only important item of farm expense that showed any marked decline.

Farm wage rates, like the prices of most items that constitute production expense, have been rising steadily during the postwar years. They usually rise during the first quarter when farm employment is increasing. This year, however, from January 1 to April 1, the sharpest decline in wage rates since 1937 was reported by the Bureau of Agricultural Economics. The wage-rate index unadjusted for seasonal variation fell from 420 percent of the 1910-14 average on January 1 to 408 percent on April 1. During the same period the seasonally adjusted index fell from 438 to 416, or 5 percent. On April 1, for the first time in a decade, the index was lower than on the corresponding date a year earlier.

**FARM WAGE RATES—SIXTH DISTRICT STATES**

January 1, April 1, July 1, and October 1



Measured by daily rates without room or board, the average farm wage rate in the District states was slightly lower in April than it was in the corresponding month a year ago. District farmers are using more hired labor, however, than they were last April. The weakening of wage rates in the face of an increase in the number of hired workers may be attributable to more ample supplies of farm labor, prospects of lower prices for farm products, and increased availability and use of farm machinery. Although the declines in wage rates to date have been too small to have much effect upon farm costs, further declines may be in prospect. Farm machinery will become more plentiful and some of the major items of machinery may become cheaper. The recent increase in nonfarm unemployment also may cause an increase in the number of workers seeking farm employment. Since payments for hired labor account for nearly one-fifth of District farmers' production costs, any further declines in farm wage rates may help farmers to maintain their net income at present levels.

B. R. R.

**Sixth District Indexes**

Place	DEPARTMENT STORE SALES*					
	Adjusted**			Unadjusted		
	March 1949	Feb. 1949	March 1948	March 1949	Feb. 1949	March 1948
DISTRICT.....	353	357	368	339	314	387
Atlanta.....	369	365	398	363	343	428
Baton Rouge...	406	385	417	393	347	433
Birmingham...	358	351	376	341	302	387
Chattanooga...	296	305	355	274	257	357
Jackson.....	361	341	352	338	293	346
Jacksonville...	362	351	432	349	309	436
Knoxville.....	343	330	327	324	297	333
Macon.....	258	283	328	241	226	320
Miami.....	341	354	374	396	417	434
Montgomery...	322	331	374	289	285	362
Nashville.....	383	354	454	366	311	455
New Orleans...	351	343	368	326	302	352
Tampa.....	465	474	499	451	422	507

Place	DEPARTMENT STORE STOCKS					
	Adjusted**			Unadjusted		
	March 1949	Feb. 1949	March 1948	March 1949	Feb. 1949	March 1948
DISTRICT.....	365	369	370	365	343	370
Atlanta.....	446	431	481	455	410	490
Birmingham...	304	317	303	313	305	311
Montgomery...	401	397	336	424	388	356
Nashville.....	507	505	538	527	495	559
New Orleans...	329	322	330	348	323	349

Place	GASOLINE TAX COLLECTIONS***					
	Adjusted**			Unadjusted		
	Mar. 1949	Feb. 1949	Mar. 1948	Mar. 1949	Feb. 1949	Mar. 1948
SIX STATES.....	206	193	165	191	193	153
Alabama.....	197	202	177	181	192	163
Florida.....	204	195	182	214	210	191
Georgia.....	182	190	164	167	181	150
Louisiana.....	218	215	138	201	211	127
Mississippi.....	174	170	140	157	163	126
Tennessee.....	238	195	161	210	187	142

Place	COTTON CONSUMPTION*			ELECTRIC POWER PRODUCTION*			
	March 1949	Feb. 1949	March 1948		Feb. 1949	Jan. 1949	Feb. 1948
TOTAL.....	132	130	158	SIX STATES..	383	376	350
Alabama.....	141	139	162	Hydro-			
Georgia.....	132	130	160	generated	375	357	301
Mississippi...	79	81	110	Fuel-			
Tennessee...	113	105	141	generated	393	401	414

Place	MANUFACTURING EMPLOYMENT***			CONSTRUCTION CONTRACTS			
	Feb. 1949	Jan. 1949	Feb. 1948	Place	Feb. 1949	Jan. 1949	Feb. 1948
SIX STATES..	145	146	152	DISTRICT...	355	297	349
Alabama...	152	154	159	Residential.	447	346	501
Florida...	146	145	145	Other.....	311	274	276
Georgia...	140	140	147	Alabama...	435	257	271
Louisiana...	149	150	144	Florida....	383	379	501
Mississippi...	137	143r	154	Georgia....	324	291	285
Tennessee...	146	145	158	Louisiana...	375	286	425
				Mississippi...	128	125	169
				Tennessee...	323	235	270

Item	CONSUMERS PRICE INDEX			ANNUAL RATE OF TURNOVER OF DEMAND DEPOSITS			
	Mar. 1949	Feb. 1949	Mar. 1948		Mar. 1949	Feb. 1949	Mar. 1948
ALL ITEMS..	173	172	172	Unadjusted..	20.4	19.7	19.1
Food.....	203	201	210	Adjusted***	20.4	19.5	19.1
Clothing...	198	201	200	Index**.....	82.6	79.0	77.6
Fuel, elec., and refrig.	139	139	133	<b>CRUDE PETROLEUM PRODUCTION IN COASTAL LOUISIANA AND MISSISSIPPI*</b>			
Home furnishings...	192	194	189		Mar. 1949	Feb. 1949	Mar. 1948
Misc.....	154	153	147	Unadjusted..	285	291	282
Purchasing power of dollar...	.58	.58	.58	Adjusted***	285	287	282

\*Daily average basis  
 \*\*Adjusted for seasonal variation  
 \*\*\*1939 Monthly average=100  
 Other indexes, 1935-39=100

r Revised

## Industry and Employment

**CONSTRUCTION CONTRACTS** awarded in the Sixth District states, according to F. W. Dodge Corporation statistics, increased 12 percent in value from February to March, and were 12 percent larger than in March 1948. The March total is nearly 36 percent larger than that for January. In March, as in February, residential contracts increased more, percentage-wise, than other awards, but the reverse is true in the comparison with last March. Total awards in March were larger than a year ago in Alabama, Florida, Georgia, and Mississippi, but residential contracts increased only in Alabama and Florida.

So far in the first quarter of 1949, total awards in the District are one percent larger than in that part of last year. Residential awards for the quarter are down 6.4 percent from a year ago, but other contracts have increased 6.9 percent. In Alabama, first-quarter awards for residential construction were nearly double the small total a year ago, but decreases are shown in the figures for the other five states. First-quarter totals for all construction are larger than a year ago for Alabama, Florida, and Georgia, but smaller for the other states. February indexes show a reduction of 7 percent in the wholesale price of lumber since last summer, but the over-all indexes of construction costs have declined only one percent.

**MANUFACTURING EMPLOYMENT** in the District was off one-half of one percent from January to February, following declines of about 2 percent in both December and January. The February index was 4 percent below that for February 1948. Slight February gains in Florida and Tennessee were a little more than offset by decreases in the other four states.

In Alabama, manufacturing employment was 4 percent less than it was a year ago. Employment in shipbuilding declined 43 percent; in textiles, 4 percent; in lumber and wood products, 6 percent; and in fabricated metals products, 18 percent. The chemical and primary metals industries, however, reported increases of 9 and 4 percent, respectively.

Total manufacturing employment in Florida was slightly higher than a year earlier. Fabricated metal products plants (principally cans for fruits and vegetables) had 31 percent more workers; lumber, 3 percent more; paper and chemicals, over 6 percent more; but employment in shipbuilding was off 36 percent and in food manufacture, 3.5 percent.

Georgia manufacturing employment was 5 percent less than a year ago because of declines at fertilizer plants, apparel, fabricated metal products, machinery, furniture and fixtures, food, and textile establishments.

Manufacturing employment in Louisiana was 3.4 percent above that in February 1948, increases being reported in most all of the principal groups except lumber and wood products, where there were 7.5 percent fewer workers.

For the first time in five months, Tennessee manufacturing employment increased during February because of the gains in apparel, furniture, and electrical machinery plants. Increases over February 1948 in chemicals, food, and paper were, however, more than offset by decreases in other groups.

**COAL OUTPUT** in Alabama and Tennessee was reduced in March by the work stoppage, and the weekly figures averaged 27 percent below production a year ago.

**STEEL MILL ACTIVITY** has continued since mid-February at about 94 percent of rated capacity. In March, a number of District paper mills closed for varying periods, and some have adopted a shortened work week.

D. E. M.

## Sixth District Statistics

INSTALMENT CASH LOANS					
Lender	No. of Lenders Reporting	Volume		Outstandings	
		Percent Change March 1949 from		Percent Change March 1949 from	
		February 1949	March 1948	February 1949	March 1948
Federal credit unions.....	44	+ 37	+ 17	+ 2	+ 30
State credit unions.....	23	+ 29	- 1	+ 0	+ 29
Industrial banking companies.....	10	+ 15	+ 2	+ 1	+ 8
Industrial loan companies..	15	+ 11	- 16	- 1	+ 5
Small loan companies.....	40	+ 23	+ 0	- 1	+ 4
Commercial banks.....	33	+ 29	+ 9	+ 2	+ 32

RETAIL FURNITURE STORE OPERATIONS			
Item	Number of Stores Reporting	Percent Change March 1949 from	
		February 1949	March 1948
Total sales.....	91	+ 17	- 20
Cash sales.....	80	+ 16	- 28
Instalment and other credit sales..	80	+ 15	- 19
Accounts receivable, end of month	90	- 3	+ 17
Collections during month.....	90	+ 4	+ 3
Inventories, end of month.....	66	+ 5	- 11

WHOLESALE SALES AND INVENTORIES*						
Item	No. of Firms Reporting	SALES		INVENTORIES		
		Percent Change March 1949 from		Percent Change Mar. 31, 1949, from		
		Feb. 1949	Mar. 1948	Feb. 28 1949	Mar. 31 1948	
Automotive supplies.....	5	- 3	- 33	4	- 1	+ 8
Electrical group						
Wiring supplies.....	3	- 14	- 29	3	+ 8	+ 9
Appliances.....	5	+ 3	- 18	4	- 4	- 4
General hardware.....	10	+ 20	- 7	4	+ 1	+ 15
Industrial hardware.....	3	+ 26	+ 12	..	..	..
Jewelry.....	3	- 13	- 26	..	..	..
Lumber and building materials.....	3	+ 46	- 9	..	..	..
Machinery equipment and supplies.....	3	- 7	- 22	..	..	..
Plumbing and heating supplies.....	4	- 7	- 14	3	+ 4	+ 18
Confectionery.....	3	+ 19	+ 4	..	..	..
Drugs and sundries.....	6	+ 11	+ 6	..	..	..
Dry goods.....	20	+ 3	- 20	13	- 8	- 26
Farm supplies.....	3	+ 19	- 30	..	..	..
Groceries.....						
Full lines.....	38	+ 17	- 3	18	- 4	- 9
Specialty lines.....	6	+ 18	+ 9	3	- 1	+ 5
Shoes and other footwear.....	3	+ 8	- 9	..	..	..
Tobacco products.....	8	+ 14	+ 13	3	+ 1	- 3
Miscellaneous.....	11	+ 15	+ 1	16	+ 2	- 13
Total.....	137	+ 14	- 7	71	- 2	- 7

DEPARTMENT STORE SALES AND INVENTORIES						
Place	No. of Stores Reporting	SALES		INVENTORIES		
		Percent Change Mar. 1949 from		Percent Change Mar. 31, 1949, from		
		Feb. 1949	March 1948	Feb. 28 1949	Mar. 31 1948	
ALABAMA						
Birmingham.....	4	+ 27	- 13	3	+ 3	+ 2
Mobile.....	5	+ 17	- 27	..	..	..
Montgomery.....	3	+ 14	- 20	3	+ 9	+ 19
FLORIDA						
Jacksonville.....	4	+ 27	- 20	3	+ 5	- 20
Miami.....	4	+ 7	- 9	3	- 3	- 1
Orlando.....	3	+ 12	- 12	..	..	..
Tampa.....	5	+ 20	- 11	3	- 0	+ 2
GEORGIA						
Atlanta.....	6	+ 19	- 15	5	+ 11	- 7
Augusta.....	4	+ 33	- 12	3	+ 33	+ 34
Columbus.....	3	+ 32	- 18	..	..	..
Macon.....	4	+ 20	- 25	4	- 7	- 12
Rome.....	4	+ 41	- 25	..	..	..
Savannah.....	6	+ 24	- 19	4	+ 4	+ 0
LOUISIANA						
Baton Rouge.....	4	+ 28	- 9	4	+ 4	+ 3
New Orleans.....	6	+ 21	- 7	4	+ 8	- 0
MISSISSIPPI						
Jackson.....	4	+ 30	- 2	4	+ 8	+ 8
Meridian.....	3	+ 28	- 21	..	..	..
TENNESSEE						
Bristol.....	3	+ 26	- 21	3	+ 9	+ 3
Chattanooga.....	4	+ 20	- 24	3	+ 8	+ 2
Knoxville.....	4	+ 23	- 3	..	..	..
Nashville.....	6	+ 32	- 20	5	+ 7	- 6
OTHER CITIES*	22	+ 14	- 10	22	+ 6	+ 5
DISTRICT.....	111	+ 21	- 13	76	+ 6	- 1

\* When fewer than three stores report in a given city, the sales or stocks are grouped together under "other cities."