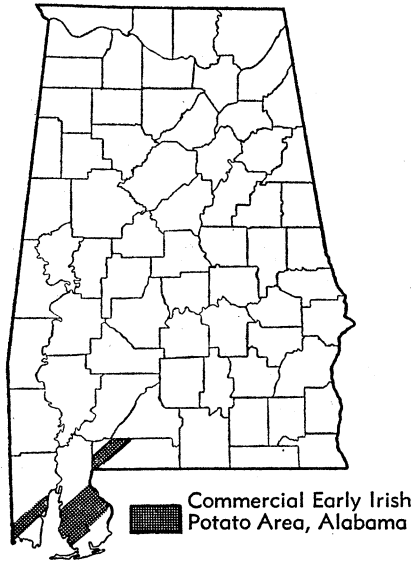


# EARLY IRISH POTATO PRODUCTION PRACTICES in SOUTHWESTERN ALABAMA



**AGRICULTURAL EXPERIMENT STATION**  
*of the* **ALABAMA POLYTECHNIC INSTITUTE**

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# EARLY IRISH POTATO PRODUCTION PRACTICES in SOUTHWESTERN ALABAMA\*

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FOR a number of years prior to World War II, production of Irish potatoes in the United States remained fairly constant except for year to year fluctuations. These fluctuations were caused primarily by yield variations due to weather and by acreage changes, particularly in years following low prices. Noticeable shifts occurred in the nation's production pattern, but there were no definite trends in the national acreage, yield, or total production. During this period, per capita consumption of potatoes declined at a rate of about 2 pounds per year, and by 1938 had reached the level of 132 pounds per person.<sup>1</sup> The increase in population during this period roughly offset the decline in per capita consumption so that total needs remained about constant.

However, during the past 12 years, and particularly since 1946, very important developments in production methods and in the consumption of potatoes have come about. Market requirements for potatoes have declined 25 per cent from the war-time peak. Although acreage has declined almost 25 per cent, yield per acre has gone up 50 per cent and has more than offset acreage reductions.

The upward trend in yields has been caused by a shift in acreage to better potato land, improved production practices, and generally favorable weather conditions. Recent development of improved insecticides and fungicides has contributed to the relatively high yields attained since 1945.

In an effort to increase consumption of potatoes and thereby

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\* The research on which this report is based was financed in part by funds provided by the Research and Marketing Act of 1946.

\*\* The author is indebted to the farmers who furnished the information upon which this study is based, and to members of the Department of Agricultural Economics for their many helpful suggestions throughout the study.

<sup>1</sup> "The Potato Price Support Situation." U.S.D.A. August 1949.

reduce the quantity purchased by the government through its support program, several research projects dealing with spoilage and consumer acceptance were initiated with funds provided by the Research and Marketing Act of 1946. In 1948, five southeastern states in cooperation with the United States Department of Agriculture undertook a study of spoilage in marketing early Irish potatoes.<sup>2</sup> In 1951, a sub-project entitled "The Effect of Price Supports and Marketing Agreements on the Farm Economy of the Southeastern Potato-Growing Region" was started. The Alabama and North Carolina agricultural experiment stations and the Bureau of Agricultural Economics of the United States Department of Agriculture cooperated on this sub-project.

A farm survey was made in each of these states to obtain basic data on available resources and their use. Some of these are used in this report, which has for its purpose the presentation of data on usual production practices being followed in southwestern Alabama and a comparison of these practices with Experiment Station recommendations.<sup>3</sup>

Although the acreage of commercial early Irish potatoes harvested in Alabama varied between 8 and 30 thousand acres during the 21-year period 1931-1951, Table 1, more than four-fifths of this acreage was in Baldwin and Escambia counties. Mobile County had more than half of the remaining acreage. The survey made to secure the basic data used in this report was conducted in Baldwin and Escambia counties, the center of commercial production of early Irish potatoes in Alabama.

An analysis of the farm records obtained by personal interview with 103 farmers in Baldwin and Escambia counties who produced potatoes in 1951 is the basis for the description of current practices presented in this report. Areas within each county were randomly selected. A record was taken from each farmer in these areas who grew potatoes in 1951. For purposes of analysis, the records were divided into three groups based on the number of acres of potatoes grown. The first group included those farms growing less than 16 acres of potatoes, the second group in-

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<sup>2</sup> The states cooperating were Alabama, Florida, North Carolina, South Carolina, and Virginia. U. S. Department of Agriculture agencies cooperating were the Bureau of Agricultural Economics and Bureau of Plant Industry, Soils, and Agricultural Engineering.

<sup>3</sup> The recommendations presented in this report were supplied by the following members of the Agricultural Experiment Station staff: Otto Brown, Gulf Coast Substation, Fairhope, Alabama; L. M. Ware, Horticulture Department; U. L. Diener, Botany and Plant Pathology Department; and W. G. Eden, Zoology-Entomology Department, Agricultural Experiment Station, Auburn, Alabama.

TABLE 1. ACREAGE, YIELD, AND PRODUCTION OF COMMERCIAL EARLY IRISH POTATOES, ALABAMA, 1931-1951<sup>1</sup>

Year	Acreage harvested	Yield per acre	Production
	<i>1,000 acres</i>	<i>Bushels</i>	<i>1,000 bushels</i>
1931	14.6	140	2,044
1932	10.0	85	850
1933	8.0	118	944
1934	13.2	114	1,901
1935	10.5	132	1,386
1936	13.0	147	1,911
1937	23.4	110	2,574
1938	20.6	135	2,781
1939	25.2	130	3,276
1940	27.8	105	2,919
1941	30.5	140	4,270
1942	25.9	90	2,331
1943	20.0	140	2,800
1944	29.0	55	1,595
1945	23.5	137	3,220
1946	24.0	128	3,072
1947	18.7	107	2,001
1948	18.0	140	2,520
1949	14.4	150	2,160
1950	18.3	150	2,745
1951	21.2	170	3,604

<sup>1</sup> Source: Various reports published by the State Agricultural Statistician, Old Post Office Building, Montgomery, Alabama.

cluded those growing from 16 to 31 acres of potatoes, while the third group included those that grew 31 or more acres of potatoes. In this report, these groups are referred to as small, medium, and large enterprise groups.

### DESCRIPTION *of* SAMPLE FARMS

Before appraising potato production practices on sample farms, some of the over-all organizational characteristics of these farms should be evaluated. These include cropland organization and use, tenure of operators, labor organization, livestock organization, and degree of farm mechanization in existence, Table 2.

There was a direct relationship between the size of potato enterprise and size of farm. Farmers with small potato enterprises cultivated fewer acres, and also had a smaller proportion of their cropland planted in potatoes. The proportion of cropland devoted to early Irish potato production amounted to 13 per cent on farms with small enterprises, 20 per cent on farms with medium-sized enterprises, and 36 per cent on farms with large enterprises.

Farmers with medium and large potato enterprises owned approximately 71 per cent of the land they cultivated, while farmers with small potato enterprises owned 80 per cent of the land they cultivated.

The proportion of cropland double-cropped increased as size of potato enterprise increased. Farmers with small potato enterprises double-cropped 24 per cent, farmers with medium-sized enterprises double-cropped 35 per cent, and those with large enterprises double-cropped 47 per cent. Also, farmers with large

TABLE 2. LAND USE, AND CROPLAND, LIVESTOCK, AND FARM LABOR ORGANIZATION PER FARM BY SIZE OF POTATO ENTERPRISE, SOUTHWESTERN ALABAMA, 1951

Item	Size of potato enterprise		
	Less than 16 acres	16-30 acres	31 acres and over
	<i>Number</i>	<i>Number</i>	<i>Number</i>
Number of farms	37	31	35
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
Land use:			
All land in farms	114	159	277
Owned	91	113	200
Rented in	23	46	77
Total cropland	76	117	201
Permanent pasture	14	12	28
Double-cropped	20	41	94
Cropland organization:			
Potatoes	10	23	72
Soybeans	40	71	133
Sweet corn	4	8	12
Corn	21	21	28
Truck crops	0	2	4
	<i>Number</i>	<i>Number</i>	<i>Number</i>
Livestock organization: <sup>1</sup>			
Workstock	.2	.2	.4
Milk cows	1.8	2.0	6.0
Other cattle	15.0	15.6	31.0
Brood sows	1.7	1.7	1.9
Other hogs	13.8	10.0	14.7
Hens and pullets	74.6	73.7	87.8
Tractors:			
Number per farm, av.	1.1	1.5	2.2
Labor organization:			
Families			
Operator	1.0	1.0	1.0
Cropper	.1	.3	.1
Workers in family of:			
Operator	3.7	3.0	3.6
Cropper	.1	1.4	.3
Wage Hand	1.9	1.9	3.9

<sup>1</sup> Operator's livestock only.

potato enterprises planted a larger area in specialty or truck crops. Irish potatoes and early commercial truck crops, such as sweet corn and cucumbers, were often followed with soybeans. Most farms on which potatoes were grown were fully mechanized. The only operation that required a sizeable amount of hand labor was the picking-up operation. Except for picking up, the labor used was family labor supplemented with wage hands.

Few farmers in the area maintained workstock. Farmers with small- and medium-sized potato enterprises kept an average of 2 milk cows and approximately 15 other cattle, while farmers with large enterprises kept an average of 6 milk cows and 31 other cattle. Variation in size of the potato enterprise was not associated with a difference in the number of hogs and chickens kept; farmers in all size groups had approximately the same number.

## **POTATO PRODUCTION PRACTICES**

### **Land Preparation**

**Recommendations.** If corn stalks or other heavy litter are present, the land should be disked before it is broken. This results in less clogging of the plow during breaking and in more even distribution of litter on the land. Land to be planted in potatoes should be plowed to a depth of approximately 6 inches in December or January. A two-bottom 16-inch tractor plow is recommended, though a disk plow or a flat-bottom plow of a different size may be equally satisfactory. After the land is broken, it should be well pulverized by disking. Just prior to planting, the land should be disked to freshen the surface and to destroy any weeds and grass that may have started growing.

**Present Practices.** Only about one-fourth of the growers reported that they disked ahead of flat-breaking. The usual procedure in preparing land was to flat-break and follow with a disk harrow. Most growers broke their land in December; tractors were the only source of power used. Both flat-bottom and disk plows were used; the size and type of plow depended on the type of soil and size of tractor. In Baldwin County, the plow in most common use was a two-bottom 16-inch plow; while in Escambia County, a 30-inch single disk plow was reported most often. All growers reported disking after breaking.

Most growers recognized the importance of thorough land preparation, and were following recommended practices.

## **Seed, Seeding Rate, Planting, and Spacing**

**Recommendations.** A desirable variety is one that is disease resistant and a good yielder, and one that can withstand the handling necessary in digging, grading, and shipping. In addition, the variety must possess the cooking qualities desired by consumers. Two varieties that have come closest to meeting all requirements and that work well in combination for growers in the area are Red Bliss Triumph and Sebago. Two reasons why these varieties are a good combination are: (1) Red Bliss Triumph matures approximately 10 days earlier than Sebago, and (2) Sebago possesses qualities desired in potatoes for making potato chips. Differences in maturity dates may prove valuable in the rush digging season, while the fact that Sebagos can be used by potato chip manufacturers means an additional market outlet.

Seed should be purchased from a reliable source. Seed purchased from reputable growers in the midwestern states have given good results.

No treatment of seed at planting time is recommended. Seed may be cut either by hand or with a cutter, but seed pieces should weigh between 1 and 1.5 ounces. Seed may safely be cut 3 to 5 days before planting. Where it is necessary to hold cut seed for a longer period, care should be taken to prevent exposure to heat and to store in a place where a high level of humidity is maintained.

The recommended date of planting is between January 25 and February 20. Seed should be spaced 12 to 13 inches in rows 38 inches apart, and should be covered 3 to 4 inches deep. A two-row planter with fertilizer attachment is recommended for planting. Immediately after planting, cultivating equipment should be used to open a furrow in the middle. Dirt should be thrown toward the row, but should not be thrown over the row so that seed will be covered deeper. The furrow thus opened provides drainage to keep excessive moisture away from the seed. This operation is commonly called "hilling."

**Present Practices.** Farmers were planting recommended varieties at near recommended spacings, Table 3. Although recommended varieties were being used, the proportion of acreage planted in each variety varied by size of potato enterprises. Growers with small potato enterprises planted Red Bliss Triumph on 93 per cent of their acreage, while growers with large enter-



TABLE 3. VARIETY, SOURCE, SPACING, AND AMOUNT OF IRISH POTATO SEED PLANTED BY SIZE OF POTATO ENTERPRISE, SOUTHWESTERN ALABAMA, 1951

Item	Unit	Size of enterprise		
		Less than 16 acres	16-30 acres	31 acres and over
Number of farms surveyed	<i>Number</i>	37	31	35
Proportion of acreage planted with:				
Red Bliss Triumph	<i>Per cent</i>	93	83	70
Sebago	<i>Per cent</i>	7	17	30
Proportion of seed purchased from:				
Nebraska	<i>Per cent</i>	55	60	44
North Dakota	<i>Per cent</i>	42	31	40
Other <sup>1</sup>	<i>Per cent</i>	3	9	16
Average width of rows	<i>Inches</i>	40	40	40
Average spacing within rows	<i>Inches</i>	11	11	12
Average seed per acre	<i>Pounds</i>	870	900	1,000

<sup>1</sup> Includes Wisconsin, Minnesota, and Canada.

prises planted 70 per cent of their acreage in Red Bliss Triumph. The remaining acreages for both groups were planted in Sebagos. Growers with large enterprises probably planted a higher proportion of their acreage in Sebagos because of the opportunity for extending the harvesting season over a longer period and for taking advantage of the additional market outlet to potato chip manufacturers.

Approximately 87 per cent of the seed used by the growers interviewed came from Nebraska or North Dakota. Growers with large enterprises bought from the greatest number of sources, while those with small enterprises bought from the smallest number of sources.

One grower in 10 reported some seed treatment before planting. In every case, sulphur was the material used. All growers reported cutting seed by hand; only two reported that they cut some seed with a seed cutter.

The date of planting ranged from December 28 in the southern part of Baldwin County to February 25 in Escambia County. However, by far the greatest proportion of the acreage was planted between January 25 and February 10. Most growers planted in rows 40 or 42 inches apart, with the majority using 40 inches. Variation in width of rows was much less than that for spacing within rows. For the small- and medium-sized enterprises, spacings within rows averaged 11 inches. For large enterprises, spacings within rows averaged 12 inches.

Although row widths were the same and spacing within rows very nearly the same for all size enterprises, the amount of seed used per acre increased as the size of enterprise increased, Table 3. This was probably due, for the most part, to the fact that the proportion planted in Sebagos increased when the acreage in potatoes increased. Sebago seed potatoes are much larger and have fewer eyes per square inch of skin surface than Red Bliss Triumph seed; therefore, Sebago seed pieces are not cut as small as are those of Red Bliss Triumph.

Sixty-two per cent of the growers interviewed reported that they "hilled" potatoes immediately after planting. On farms where equipment and labor were available, this operation was performed immediately behind the planter. On other farms, the entire acreage was planted before any hilling was done.

Two-row equipment was used on 96 per cent of the farms. The remaining 4 per cent used one-row equipment.

## **Fertilization**

**Recommendations.** Total plant food needed for an acre of Irish potatoes consists of 80 to 105 pounds of N, 150 to 200 pounds of  $P_2O_5$ , and 105 to 140 pounds of  $K_2O$ . The general fertilizer recommendation is 2,000 to 2,200 pounds of 4-10-7 per acre applied at planting time. On the lighter-textured soils, good results may be obtained by applying 1,800 pounds at planting time and 400 pounds when potatoes are 4 to 6 inches high. In seasons when rainfall immediately after planting is heavy, an application of 200 pounds of nitrate of soda or its equivalent when plants are about 6 inches high will increase yields. A side application of N is always profitable on land being cultivated for the first time.

The above is a general recommendation. Since the rate at which commercial fertilizer is used in growing Irish potatoes is comparatively high and since wide variations in sandiness and soil moisture conditions exist, an individual grower may be able to increase his profits by getting more specific recommendations on the use of fertilizers either from a representative of the Gulf Coast Substation or from the county agent.

Fertilizer should be applied with distributor attachments on planting equipment.

**Present Practices.** More than 90 per cent of the acreage of potatoes included in the survey was fertilized with 4-10-7, Table 4. The remainder was fertilized with either 6-8-8 or 8-8-8.

TABLE 4. FERTILIZER PRACTICES, BY SIZE OF POTATO ENTERPRISE, SOUTHWESTERN ALABAMA, 1951

Item	Unit	Size of potato enterprise		
		Less than 16 acres	16-30 acres	31 acres and over <sup>1</sup>
Number of farms	<i>Number</i>	37	31	34
Proportion of acreage receiving:				
4-10-7	<i>Per cent</i>	91	95	90
6-8-8	<i>Per cent</i>	9	5	4
8-8-8	<i>Per cent</i>	0	0	6
Magnesium	<i>Per cent</i>	19	23	48
Rate of application per planted acre:				
4-10-7	<i>Pounds</i>	2,200	2,100	2,200
6-8-8	<i>Pounds</i>	2,100	2,200	2,100
8-8-8	<i>Pounds</i>	0	0	2,200
Magnesium	<i>Pounds</i>	<sup>2</sup>	<sup>2</sup>	<sup>2</sup>

<sup>1</sup> 105 acres omitted in calculation of percentage of acreage receiving various analyses because of insufficient information.

<sup>2</sup> An insufficient number of growers gave adequate information to establish a reliable rate of application. The rates given varied between 40 and 200 pounds per acre.

Growers with large enterprises were the only ones that used 8-8-8. Many farmers bought fertilizer that contained magnesium, or added magnesium to their fertilizer. As the size of the potato enterprise increased, the percentage of acreage on which magnesium was used increased.

The rate for applying commercial fertilizer varied between 1,600 and 2,800 pounds per acre. The average rate of application was approximately 2,200 pounds per acre for each kind of fertilizer, Table 4.

Most farmers used the recommended kind and amount of fertilizer, but the rate of application on many farms was above the recommended rate, and many growers added magnesium to their fertilization practices.

### Cultivation and Weed Control

**Recommendations.** Cultivation should be started when plants are up to a good stand, and performed often enough thereafter to control weeds and grass. Dirt should be thrown up on the bed and the middle kept clean. Cultivations should be as shallow as possible and still kill weeds and grass.

The size of planting equipment used will determine the size of cultivating equipment. Since a two-row planter is recommended, two-row cultivating equipment is also recommended.

**Present Practices.** Cultivation was accomplished almost entirely with two-row equipment. Four farmers reported using one-row and two farmers reported using four-row equipment.

Forty-two per cent of the growers cultivated three times, 37 per cent cultivated twice, and 17 per cent four times. There was no significant relationship between size of the potato enterprise and number of cultivations.

### **Disease and Insect Control**

**Recommendations.** A regular spraying or dusting program to control insects and diseases should be followed. Applications should be made at 10-day intervals, beginning when the plants are 4 to 6 inches high. Earlier applications will be necessary with earlier appearance of late blight.

#### **A. SPRAY MATERIALS**

The recommended fungicides are Zineb (Dithane Z-78 or Parzate) at the rate of 2 pounds per 100 gallons, or 2 quarts of Nabam (liquid Parzate or Dithane D-14) plus  $\frac{3}{4}$  pound of metallic zinc sulphate (36 per cent) per 100 gallons of water.

The recommended insecticide is 1 pound of DDT per acre per application. This will control beetles, leafhoppers, and flea beetles. To control aphids, use 1 pint of nicotine sulphate to 100 gallons of water.

#### **B. DUST MATERIALS**

The recommended dust is 5 to 7 per cent Zineb plus 3 per cent DDT applied at the rate of 25 to 35 pounds per acre per application. Dust should be applied while dew is on plants.

In deciding whether to use dust or spray, the following should be considered: availability of water, dust must be applied while dew is on plants, dusting equipment is lighter and can be used when the ground is wet, initial cost of spraying equipment is greater, and less material is needed when a sprayer is used. Regardless of the material to be used, six-row equipment is recommended.

**Present Practices.** Fifty-eight per cent of the acreage received five or more applications of spray or dust, and 79 per cent received three or more applications. Only about 10 per cent of the

acreage was not treated. The over-all rate of application was 22 pounds when dusted, and 0.6 gallon when sprayed. Nine growers in 10 used Zineb, while most of the others used Nabam. Nineteen per cent of the growers used some DDT mixed with Zineb, and 12 per cent mixed zinc with Zineb.

In Baldwin County, the method of application was about equally divided between spraying and dusting. Fifty-two per cent of the growers used sprayers. In Escambia County, all growers used dusters. Sixteen per cent of the growers reported hiring some poison applied by custom operators, some of which was done by plane.

Most growers used recommended types of fungicides and insecticides at recommended rates. Many growers, however, may increase their yields and therefore their incomes by spraying an additional number of times.

### **Method and Time of Harvesting**

Irish potatoes grown in Baldwin and Escambia counties are a perishable commodity when harvested. They are of high quality when dug, but must be given proper and careful handling if this quality is to be preserved until the consumer market is reached. In too few instances do producers, shippers, and wholesale handlers realize the effect a low quality product will have on future sales. The effect does not end with the sale of a crop for a single season, but will be a problem for several seasons. It is true that careless handling by graders, transportation agencies, or wholesalers may render valueless the growers' efforts to produce quality. However, it is equally true that these same agencies cannot maintain a quality that potatoes do not have when they leave the grower. The production and maintenance of high quality potatoes can be achieved only when all individuals and agencies cooperate by performing their respective jobs properly. Growers have the initial responsibility that begins with the digging operation.

**Recommendations.** Potatoes planted between January 25 and February 20 should normally be dug between April 25 and June 10. A two-row digger is recommended. The digger should be run at a reasonable rate of speed, and should be set to run deep enough to avoid excessive digger cuts. Due to the labor cost and time involved, most growers will profit by contracting the operations of picking up and hauling to the grader. Potatoes should

be picked up immediately after being dug. Growers should see that reasonable precautions are taken to prevent damage by rough handling methods, since it is in damaged potatoes that most decay develops en route to market.

**Present Practices.** The range in harvesting dates for the growers surveyed was from April 15 to June 10. More than 90 per cent reported harvesting a part of their crop in May.

Two-row diggers were used to dig 91 per cent of the acreage. While most growers owned diggers and dug their own potatoes, many growers hired their potatoes picked up and hauled to the grader on a contract basis. Growers with 30 per cent of the acreage operated in this manner. This practice was most common among growers having medium-sized enterprises. Other growers did their own hiring of pickers, and either used their own trucks or arranged with neighbors for trucks.

The time and rapidity of harvesting potatoes in this area are influenced greatly by current market conditions. Graders and shippers in the area maintain constant contact with central wholesale markets, and pass the information received along to growers.

### **Labor and Power Requirements**

In growing early Irish potatoes, labor and power costs make up a smaller proportion of total cost than is true for many other crops. The high rate of fertilization, relatively high cost of seed, and necessity for applying pesticides results in these three items making up a high proportion of the cost of production. Estimates indicate that the labor and power costs required to produce, harvest, and move potatoes to the packing shed amount to 35 to 40 per cent of total costs. Fertilizer, seed, and poison amount to approximately 50 per cent of the total.

### **Usual Labor and Power Requirements**

The labor and power requirements shown in Table 5 represent the most common practices in the area in 1951. During 1951, it required approximately 63 hours of man labor and 7 hours of tractor power to grow and harvest an acre of commercial potatoes. Labor requirements may change over a period of years when new methods of operations are introduced, and may vary annually because of variations in yield.

Pre-harvest labor requirements amounted to one-fourth of total labor requirements, Table 5. The most labor-consuming operation prior to harvest was cutting seed, which was a hand operation

TABLE 5. USUAL LABOR AND POWER REQUIREMENTS PER ACRE, AND SEASON FOR PERFORMING OPERATIONS IN GROWING EARLY IRISH POTATOES, SOUTHWESTERN ALABAMA, 1951

Operation	Usual dates performed	Times over	Hours per acre			
			Man	Tractor	Truck	
Pre-harvest labor:						
Disking	Dec. 1—Jan.	5	1	0.4	0.4	0.0
Breaking land	Nov. 15—Jan.	1	1	1.1	1.1	.0
Disking	Dec. 15—Feb.	1	2	.8	.8	.0
Cutting seed	Jan. 15—Feb.	10	1	6.4	.0	.0
Planting and fertilizing	Jan. 15—Feb.	15	1	2.8	.9	.0
Hilling after planting	Jan. 16—Feb.	20	1	.5	.5	.0
Cultivating	Feb. 15—May	1	3	1.3	1.3	.0
Spraying	Feb. 20—Apr.	1	5	2.4	1.0	.0
Total pre-harvest				15.7	6.0	.0
Harvest:						
Digging	May 1—June	10		2.3	1.0	.0
Picking up	May 1—June	10		39.8	.0	.0
Haul to packing shed	May 1—June	10		5.5	.0	2.7
Total harvest				47.6	1.0	2.7
Total pre-harvest and harvest				63.3	7.0	2.7

on most farms. Planting and fertilizing, and spraying were the next most important pre-harvest operations in requirements of man labor.

Harvest labor requirements, which were three-fourths of the total, were mainly for picking up potatoes. More than four-fifths of the harvest labor was used in this operation.

Planting, fertilizing, and cultivating were accomplished with two-row equipment on all except four of the farms included in the survey; three farms used one-row, and one used four-row equipment. The use of four-row equipment may provide some reduction in time requirements on large farms, but, in comparison to requirements for other intensive crops, requirements for producing potatoes were relatively low on all farms.

Due to uniformity of operations performed and the equipment used, there was little variation in per-acre labor and power requirements on farms with small, medium, and large potato enterprises.

#### Finance Requirements and Credit Sources<sup>4</sup>

Operating capital requirements for growing potatoes are high when compared to the requirements for growing most general crops in Alabama. In 1951, commercial potato growers in Ala-

<sup>4</sup> Many producers borrowed funds in a lump sum for operating capital and for purchase of livestock and equipment. Because of the difficulties of prorating borrowed funds on farms of this type, no differentiation has been made in this report between farms of this type and those that borrowed for operating purposes only.

bama had an average per acre investment of \$85 to \$100 in seed, fertilizer, and poison alone. Eighty-five per cent of this had to be spent before the grower knew whether or not he would get a good stand of potatoes. Even after a crop is grown, a highly variable market usually exists. In growing early potatoes, a producer is engaging in an enterprise that carries high financial risks.

The same sources of credit generally available in other areas were available to farmers in this area. Approximately one-fourth of the growers included in the survey financed their own operations, Table 6. Commercial banks were the most important source

TABLE 6. CREDIT SOURCES AND THE PERCENTAGE OF GROWERS BORROWING FROM EACH SOURCE, BY SIZE OF ENTERPRISE, SOUTHWESTERN ALABAMA, 1951

Source	Size of enterprise			Total
	Less than 16 acres	16-30 acres	31 acres and over	
	<i>Per cent</i> <sup>1</sup>	<i>Per cent</i> <sup>1</sup>	<i>Per cent</i> <sup>1</sup>	<i>Per cent</i> <sup>1</sup>
Self-financed	27	19	26	24
Banks	38	52	40	43
Dealer	41	35	40	39
P. C. A.	16	13	11	14
Individual	0	10	3	4

<sup>1</sup> Percentages do not equal 100 because several growers obtained funds from more than one source.

of credit from the standpoint of number of borrowers. Dealers<sup>5</sup> were the next most important source for all credit, and probably made the greatest number of strictly production loans. There was a significant relationship between size of the potato enterprise and average amount of funds borrowed from banks and dealers, Table 7. Much of the credit extended by Production Credit Associations was intermediate credit for the purchase of equipment and livestock. Loans from individuals were a very small proportion of the credit extended in the area.

Credit was available to producers for the period of time that it was needed. Interest rates on short-term production loans varied from 6 to 8 per cent. Many growers were financed by dealers through what is known as the "75-25," or "80-20" plan. Under the "75-25" plan, the dealer supplied seed, fertilizer, and poison; the grower supplied land, equipment, and labor. When the crop was sold, the dealer received 75 per cent and the grower 25 per cent of the proceeds until the cost for seed, fertilizer, and

<sup>5</sup> Sold fertilizers, seed, and poison, and in many instances operated a grading and packing shed.



TABLE 7. AVERAGE SIZE OF LOANS SECURED BY POTATO PRODUCERS IN SOUTHWESTERN ALABAMA, 1951

Source	Size of enterprise		
	Less than 16 acres	16-30 acres	31 acres and over
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
Banks	1,280	2,267	3,612
Dealers	826	1,541	6,722
P. C. A.	3,350	3,067	11,625

poison was paid. From the remainder of the proceeds the grower received 75 per cent and the dealer 25 per cent. The only difference between the "75-25" and "80-20" plans was the percentage that each party received. The operation of the plan was the same.

## SUMMARY

In 1951, the Alabama and North Carolina agricultural experiment stations in cooperation with the Bureau of Agricultural Economics initiated a study on "The Effect of Price Supports and Marketing Agreements on the Farm Economy of the South-eastern Potato-Growing Region." In Alabama, a survey of 103 potato farmers in Baldwin and Escambia counties was made to secure basic data on the resources available, and how these resources were currently being used. This report compares production practices as they were being carried on in 1951 with current Experiment Station recommendations.

Farms in this area that produce early Irish potatoes commercially were almost completely mechanized, and farmers were using recommended types of equipment in preparing land. Medium-sized tractors, two-bottom 16-inch plows, and 6-foot disks were in use on a majority of the farms. Practices followed in preparing land were those recommended.

The varieties grown in the area were those recommended. More than 90 per cent of the acreage of potatoes on farms with small potato enterprises was planted to Red Bliss Triumph, while 70 per cent of the acreage of potatoes on farms with large enterprises was planted with this variety. The remaining acreage for both groups was planted with the Sebago variety. More than four-fifths of the seed used by growers was purchased from seed producers in Nebraska and North Dakota. Farmers spaced potatoes 11 to 12 inches apart in 40-inch rows, which was close to recommended spacings. Farmers with large potato enterprises

used the heaviest seeding rate, but on an average growers planted between 800 and 1,000 pounds of seed per acre.

The most common fertilization practice was to apply 4-10-7 fertilizer at the rate of 2,200 pounds per acre at planting time. More than 9 acres in 10 were fertilized with 4-10-7, and on many farms the rate of application exceeded recommendations. Approximately one-fifth of the farmers with small potato enterprises and one-half of those with large enterprises added magnesium to fertilizer. Distributors attached to planting equipment were used in applying fertilizer.

Implements used for cultivation and weed control in 1951 were, in most cases, the types of equipment recommended. Forty-two per cent of the growers cultivated three times, 37 per cent twice, and 17 per cent four times.

Growers used recommended types of fungicides and insecticides, and at a slightly heavier rate per application than was recommended. Many growers made only three applications in place of the five recommended. Only one grower in five used an insecticide. Approximately half of the growers applied poisons in the form of dust and half in the form of sprays. The most common size of equipment in use was an eight-row sprayer or duster, though almost as many growers used six-row equipment.

Harvesting in the area is greatly influenced by market conditions. In 1951, the harvesting season was spread over a 2-month period. Contract operators were responsible for picking up and hauling to graders potatoes from 30 per cent of the acreage. Approximately 77 per cent of the potatoes represented in the survey in 1951 were graded U. S. No. 1.

The most labor-consuming operations were cutting seed and picking up potatoes. Total per acre requirements were 63 hours of man labor and 7 hours of tractor power. Pre-harvest operations required 16 hours of man labor and 6 hours of tractor power.

Commercial banks and dealers supplied the largest volume of credit. Loans to growers were available on a short-term basis with interest rates of 6 to 8 per cent.