BULLETIN 349 OCTOBER 1963

Production and Marketing of CORN in Northern Alabama

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CONTENTS

FIRST PRINTING 3M, OCTOBER 1963

Production and Marketing of Corn In Northern Alabama[1]

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PROVIDING ADEQUATE QUANTITIES of corn at the right place at the right time has been a major agricultural problem. With increased consumption of corn in grain-deficit areas, the problem of time and location utility has grown in importance. This problem has been especially acute in Alabama because of the poultry industry's rapid expansion.

Between 1952 and 1961, great changes took place in acreage, yields, utilization, and marketing of corn in northern Alabama. Acreage decreased, yield per acre increased, while total production varied from year to year. Total farm utilization increased more rapidly than production, accentuating the deficit of corn in northern Alabama. The increased utilization primarily resulted from a rapid expansion of the poultry industry, although livestock numbers have been increasing for a number of years. Acquisition of corn to meet the increased demand has caused marketing changes and created additional marketing problems.

To meet the grain requirements of an expanding poultry and livestock industry, corn was shipped into the area primarily by means of a low-cost transportation system of barges. Using the Tennessee, Mississippi, and Ohio rivers, this system provided a cheap means of transporting huge quantities of grain from the

[1] Experiment Station research projects on which this report is based were supported by funds provided by the Research and Marketing Act of 1946 and by State Research Funds. The research was conducted under two separate projects: Alabama-Hatch Research Project 590 was concerned with marketing phases and Alabama-State Research Project 1-022 dealt with production phases of the study. In this study, the northern Alabama region, generally classified as the Limestone Valley and Sand Mountain areas, included 23 counties: Blount, Calhoun, Cherokee, Cleburne, Colbert, Cullman, DeKalb, Etowah, Fayette, Franklin, Jackson, Lamar, Lauderdale, Lawrence, Limestone, Madison, Marion, Marshall, Morgan, Randolph, St. Clair, Walker, and Winston.

[2] Respectively, Instructor in Agricultural Economics, Graduate Research Assistant, Professor of Agricultural Economics, Professor of Agronomy and Soils, and Graduate Assistant (resigned).

Corn Belt, a grain-surplus area, to a grain-deficit area. Also, grain was transported into the area by large trucks on back-hauls from the Corn Belt, and by rail transportation where there was an advantage to be gained through use of transit privileges.

The objectives of this study were: (1) To determine the typical utilization pattern of corn produced in northern Alabama, (2) to estimate the potential for corn production in northern Alabama, and (3) to compare the relative advantages and disadvantages of producing corn for farm use and/or for sale. A prepared questionnaire was used in a personal interview with 290 farmers who were selected by use of an area sampling technique. Secondary data were obtained from the Alabama Crop Reporting Service and from various research studies and reports.

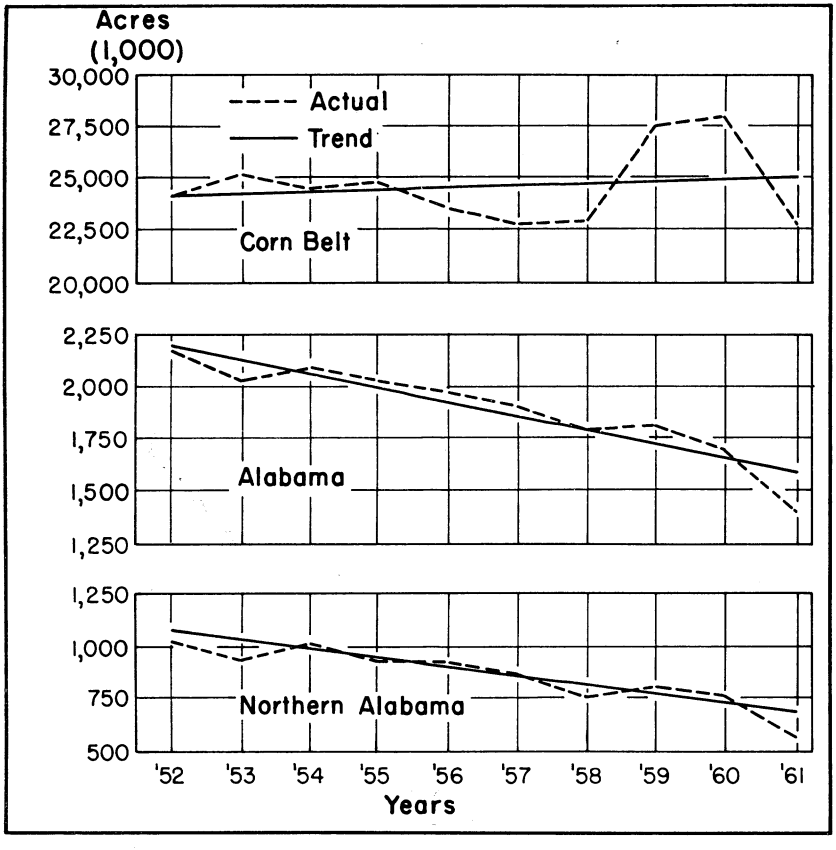

FIG. 1. Acreage of corn grown for grain in the Corn Belt, all of Alabama, and northern Alabama during the 1952-61 period is presented by the graphs above.

PRODUCTION

Acreage

Acreage of corn grown for grain in northern Alabama and in Alabama as a whole has been decreasing slowly and continuously in the past decade. Indications are that this trend will continue. During the same period, corn acreage in the Corn Belt increased slightly, Figure 1. The proportional change in corn acreage was greatest for northern Alabama and least for the Corn Belt, Figure 2. Acreage data indicated that farmers in the Corn Belt were more responsive to Government programs and policies than were farmers in Alabama.

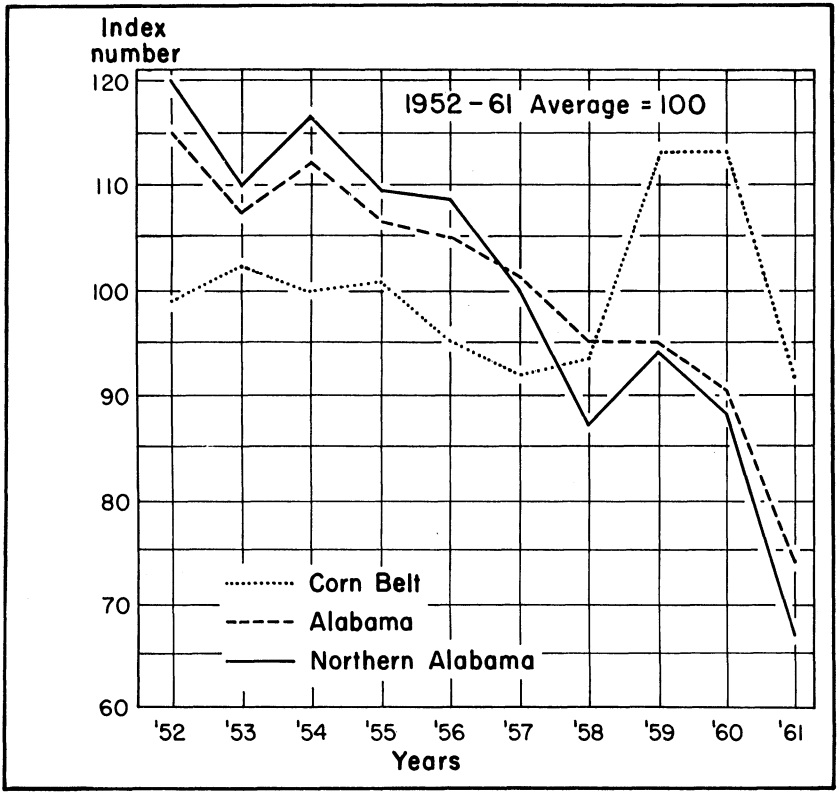

FIG. 2. Indexes of corn acreage for the Corn Belt, all of Alabama, and northern Alabama are presented for 1952-61, with the 10-year average being 100.

Yield

Average corn yields per acre in the Corn Belt were 2½ times and 2⅓ times greater than that in Alabama and northern Alabama, respectively, during the past 10 years. Yields per acre have been increasing in all three areas, Figure 3. The proportional change in yield was greatest in northern Alabama, where it almost doubled, while yield in the Corn Belt was increased by a third. However, the increase in bushels per acre was greatest in the Corn Belt. Yields in northern Alabama were much more variable than in the Corn Belt. This variation in yield resulted in changes in total production and created marketing and utilization problems.

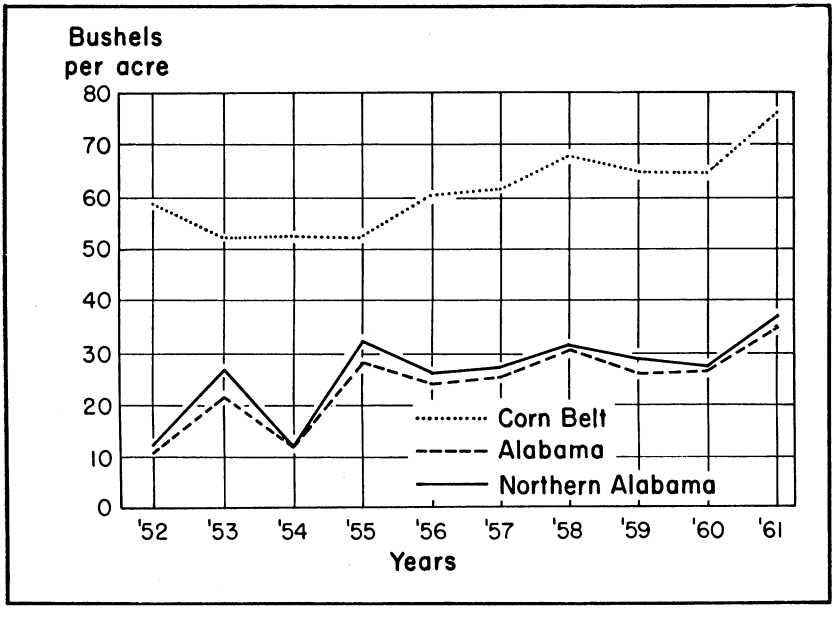

FIG. 3. A comparison of corn yields per acre in the Corn Belt, all of Alabama, and northern Alabama are shown for the 1952-61 period of the study.

Average yield per acre on northern Alabama farms reporting corn was 30 bushels in 1960. Full-time farmers had the highest average yield per acre – 38 bushels. An average yield of 35 bushels was reported necessary to cover all costs of production, which compared closely to Agricultural Experiment Station estimates.

Total Production

Total corn production in northern Alabama was more variable than for all of Alabama, or for the Corn Belt, Figure 4. Total production was most stable in the Corn Belt. About half of the corn produced in the State was grown by farmers in northern Alabama; farmers in southeast Alabama grew most of the remainder. The upward trend in total production in both northern Alabama and Alabama has been slight. The percentage of the State's corn production produced by farmers in northern Alabama has been slowly decreasing during the past 10 years.

Production of corn was more variable than acreage of corn because of weather influences. Therefore, changes in production cannot be estimated from acreage changes except within wide limits.

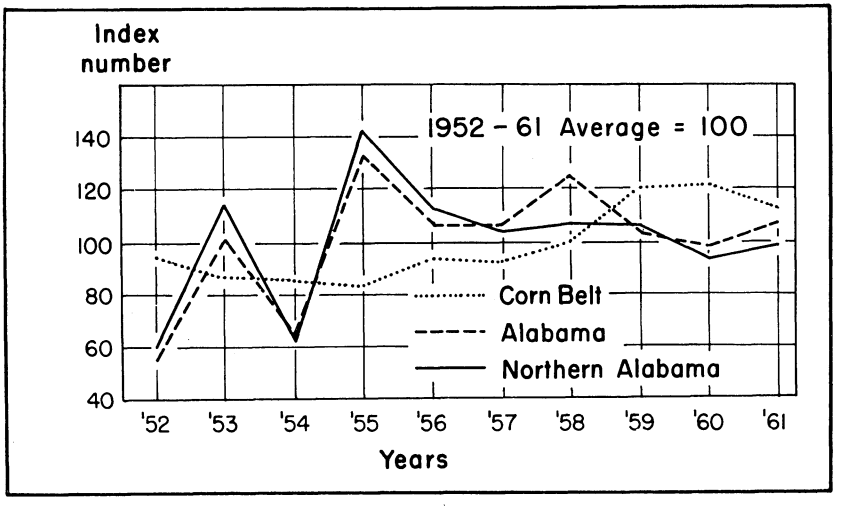

FIG. 4. Indexes of corn production in the Corn Belt, all of Alabama, and northern Alabama are shown for 1952-61, with the 10-year average being 100.

MARKETING

Disposition

In 1960, farmers sold only 3 out of 10 bushels of locally produced corn. During the last 5 years, farmers in Alabama sold from one-fourth to one-third of the locally produced corn, Appen-

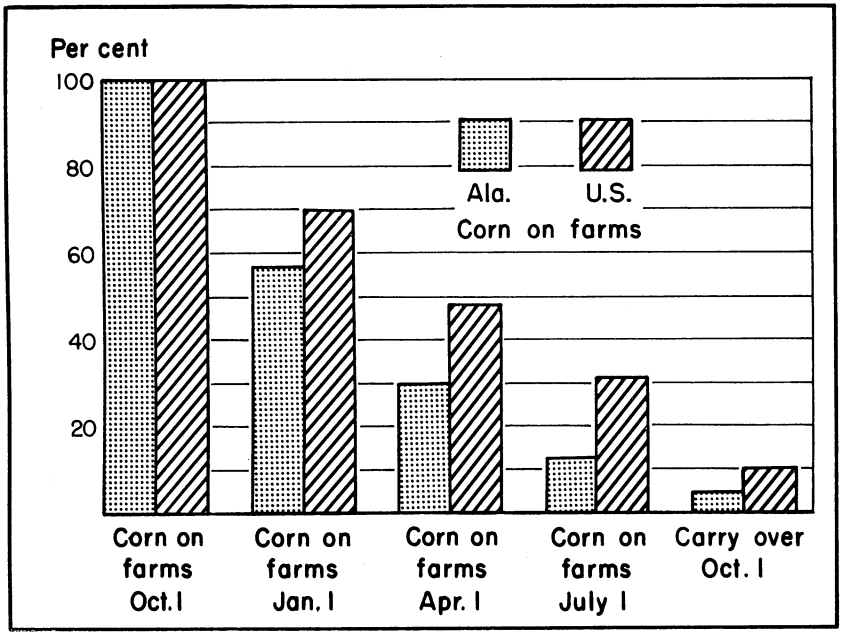

FIG. 5. Average percentage of corn on farms at the beginning of each quarter is compared for the United States and Alabama during the 1957-61 period.

dix Table 1. In contrast, farmers in the Corn Belt sold from two-fifths to three-fourths of the locally produced corn during a corresponding period.[3] Another important difference showed up in proportion of corn on hand on farms that disappeared before January 1 — almost half in Alabama but less than one-third nationwide, Figure 5. The disappearance pattern in the U.S. was fairly constant throughout the year and at a slower rate than for Alabama. By April 1 the supply of corn on farms in Alabama was only 30 per cent of the October 1 amount as compared with 48 per cent for the U.S., Appendix Table 2.

UTILIZATION

About 70 per cent of northern Alabama produced corn was kept on the farm, and about half of that was fed to swine, Figure 6. Only about 15 per cent of the corn was used for poultry feed. However, considering the total amount of corn fed to livestock and poultry in the State, including both locally produced and

[3] Hieronymus, T. A., *When to Sell Corn, Soybeans, Oats, Wheat,* University of Illinois Circular 833, May 1961, pp. 3, 7.

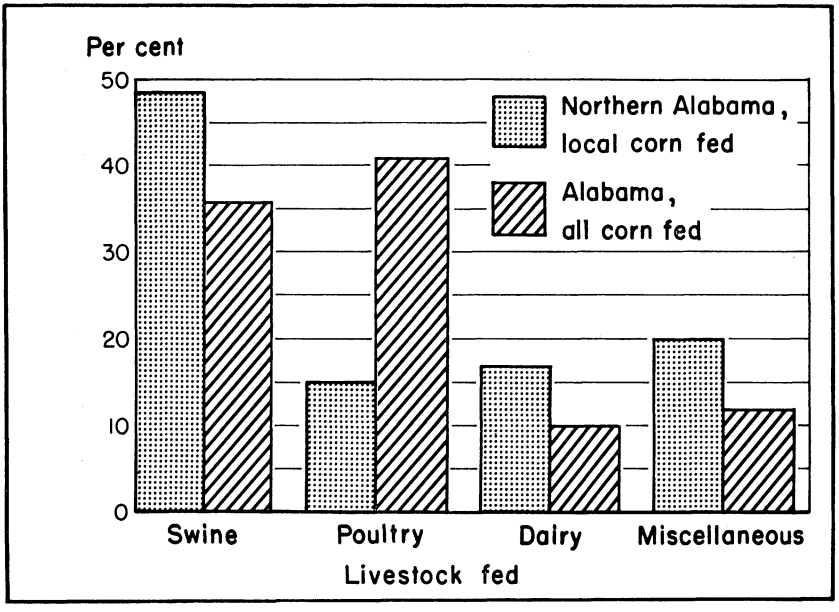

FIG. 6. Percentage of locally produced corn fed to different types of livestock and poultry in northern Alabama in 1960 is given, along with percentage of all corn fed to livestock and poultry in all of Alabama during 1962.

imported corn, approximately 40 per cent was fed to poultry. On this basis, swine were the second largest consumers of corn, Figure 6. These data indicate that a large percentage of the corn imported into Alabama was fed to poultry.

Sold

Most farmers who had surplus corn sold it during harvest season. Approximately 87 per cent of the corn sold by farmers from the 1960 crop was sold in the fall, as shown by the following table:

When sold by farmers	*Northern Alabama, percentage of local corn sold*
September-December	87.2
January-April	9.6
May-August	3.2

One reason given for selling corn in the fall was that farmers did not have adequate storage. Another reason was that farmers did not want to unload and load corn again at a later date.

Approximately 70 per cent of all corn sold by farmers was sold

to grain dealers. Percentages sold to different types of buyers are listed below:

Types of buyers	*Northern Alabama, percentage of local corn sold*
Grain dealers	68.9
Feed manufacturers	16.3
Local mills	8.5
Other farmers	4.1
Others	2.2

Nearly 60 per cent of all corn sold by farmers was sold as ear corn, Appendix Table 3. Eighty-one per cent of the farmers sold corn that was not graded. Ear corn was sold by 83 per cent and yellow corn was sold by 64 per cent of the farmers that sold corn, Appendix Table 4. Therefore, farmers primarily sold yellow, ungraded, ear corn to grain dealers during the harvest season.

Moving Corn to Market

Because of small production units and seasonality of harvest, many inefficiencies existed in handling corn. A limited amount of corn was harvested in a day, and usually the transporting vehicle was idle during the time a load was being harvested.

Approximately 75 per cent of the farmers harvested corn by hand. In addition to being slow, this method of harvest necessitated multiple handling of corn and resulted in the resources committed to marketing grain being less than fully utilized.

Transportation facilities, however, were not found to be a limiting factor in marketing corn. In fact, these facilities appeared capable of handling a much larger volume of corn. Over half of the farmers owned the vehicles used to haul corn to market, and vehicles larger than ½-ton truck were used by more than half of the farmers. Approximately one-sixth of the farmers hauled corn to market on a truck furnished by the buyer. Ownership of transportation facilities by farmers and the proportions supplied by others are shown below:

Ownership of transportation facilities	*Per cent*
Farmer	58
Furnished by buyer	14
Independent trucker	18
Commercial trucker	1
Other	9

Selling Methods

Most farmers hauled corn to market and received cash on delivery. Agents were not used by farmers in marketing corn in northern Alabama, since the volume of corn handled was small. Also, markets were relatively close to producing areas, thus making it convenient for farmers to sell corn. Farmers hauled corn an average distance of 14 miles.

Storage

Whether to store and when to sell corn were problems confronting most farmers. Costs of storing corn, as calculated, were separated into fixed and variable expenses. Fixed costs covered interest on investment, depreciation, taxes, and insurance. Variable costs included shrinkage, drying (when necessary), handling, loss in value from change in grade, treating for insects, price risk, and interest on variable costs. These expenses are not uniform among farms, so costs for each situation must be estimated to help determine the feasibility of storing corn. Estimates showed fixed costs were 7-9 cents per bushel and variable costs 12-14 cents per bushel for storing shelled corn for 6-8 months. These costs did not include shelling.

On-the-Farm Storage

Shelled corn. Usually, farm storage costs were higher than commercial storage costs per bushel stored because of small storage facilities on individual farms.

Per farm storage capacity for corn in northern Alabama averaged 1,000 bushels. Average production of corn reported by these same farmers in 1960 was 987 bushels per farm, and 25 per cent of this production was sold during the harvest season. Therefore, many farmers did not take full advantage of their storage capacity. However, individual farmers produced in excess of storage capacity.

Eighteen per cent of the storage capacity was "suitable" for shelled corn. Most storage facilities for shelled corn were structures that would not protect the quality of corn. Old houses or similar facilities were used by 82 per cent of the farmers storing shelled corn.

Ear corn. Wooden structures were the only type of storage used for ear corn. A majority of these structures contained large

cracks and holes that contributed to the deterioration of corn. Lack of or condition of storage space did not appear to concern most farmers. They appeared to be satisfied as long as storage capacity met their immediate needs.

Availability and use of loans to build farm storage. Five-year loans were available to farmers at a 4 per cent annual interest rate. When asked if they would be interested in obtaining a loan to build approved Commodity Credit Corporation storage for corn, 86 per cent indicated they were not interested. Only 12 per cent expressed an interest in obtaining a loan to build storage facilities. Most farmers did not value better quality storage enough to go in debt to build it. Most of the ones who were interested either used a large quantity of corn or did not have enough storage capacity.

Commercial Storage

Only a small amount of commercial storage was available to farmers. Sixteen per cent of the farmers reported commercial storage was available to them, but only 9 per cent of these used commercial storage. Twenty-two per cent of the farmers said they would be interested in using commercial storage if it were available. Many farmers had never heard of commercial storage and did not know the nature of a commercial operation.

Profitable Storage

For storage of corn to be profitable, quality must be maintained and a high percentage of the storage capacity utilized. Storage was more profitable for farmers who fed livestock than for farmers who sold corn as cash grain. Commercial storage was more profitable than farm storage where corn was sold as cash grain. Whether corn should be sold or stored depends on individual storage costs, size of the current crop, carryover from the previous year, support prices, and general farm price outlook.

Alternatives Available to Farmers for Disposition of Locally Produced Corn

Sell for Cash

Sell at harvest time. An alternative facing farmers was that of selling or storing corn at harvest time. Indications were that if a

farmer did not have adequate, high quality storage, it probably would have paid to sell surplus corn at harvest. However, price of corn was lower at harvest than at any other time. One obvious advantage of this type of selling was reduced handling on the part of the farmer, plus elimination of risk of storage loss or price decline.

Store and sell 6 to 8 months later. Where adequate storage was available either on or off the farm, it was profitable to store corn throughout the past 10-year period. This was true when the corn was stored during harvest season and sold in late spring or early summer, since the highest average price occurred in June. When the situation as described above exists, new storage facilities would be a profitable investment.

Commercial storage was more profitable than farm storage when corn was stored 5 months or less. Also, commercial storage reduced financial requirements and provided greater flexibility for individual farmers. Moreover, during the last 10 years, price changes were greater in alternate years, Figure 7. With this situation, both farm and commercial storage would have been profitable during years of wide price changes, and during the 10-year period as a whole.

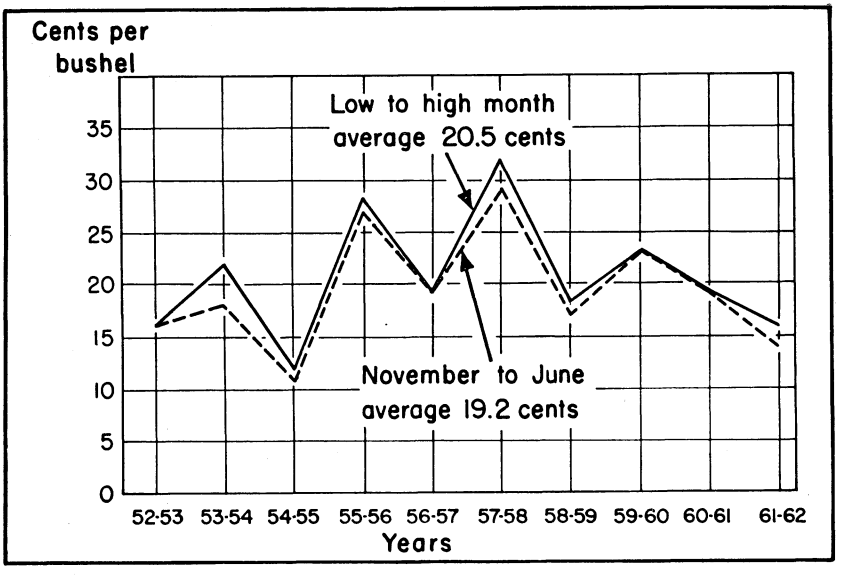

FIG. 7. Changes in corn prices from the seasonal low to the seasonal high and from November to June are presented for the years 1952-61 in Alabama.

Where adequate storage is available, corn can be economically stored every year if extra value from storage will cover variable costs. This has been the situation every year during the last decade.

Feed to Farm Animals

Feed on farm where produced. Most farmers indicated that they made a larger profit, or sustained a smaller loss, when corn was marketed through livestock. A large number of farmers planned to increase livestock production. Based on estimated returns from crops and livestock, as developed by Auburn University Agricultural Experiment Station, marketing of corn through livestock was considerably more profitable than marketing it as cash grain.[4]

One alternative open to corn-producing farmers is to feed all their corn to livestock. Since production of corn is variable, the farmer might need to adjust his livestock program. However, it is difficult to make major adjustments in milk and meat producing enterprises in 1 year. When these adjustments cannot be made, additional grain may be purchased.

Store farm production and buy remainder of needed grain. To increase profits and utilize otherwise idle resources, some farmers who grow corn may wish to purchase additional corn to increase meat and milk production. The farmer can accomplish this by producing part of the amount of corn required by his livestock and by buying the remainder of the needed grain. For this type program it is advisable to purchase additional corn from other farmers early in the season, when prices usually are lowest and a greater amount of corn is available. This necessitates storing corn produced on the farm to ensure an adequate supply and for economical use of storage facilities. However, when grain had to be purchased after the harvest season from grain dealers, it was best to buy on an "as needed" basis.

Analysis of Prices

Prices of most farm products are highly variable. They are changing continuously, reflecting changing conditions that de-

[4] E. J. Partenheimer and T. H. Ellis, *Costs and Returns from Livestock Production in the Limestone Valley Areas of Alabama* and *Costs and Returns from Crop Production in the Limestone Valley Areas of Alabama,* Agricultural Experiment Station of Auburn University, December 1960.

termine price. One farmer cannot produce enough corn to affect the market price except in a few local situations. The major farm requirement is to produce the quality of grain desired by users at a price that will be profitable to both the buyer and seller.

Corn produced in northern Alabama is of as high quality at harvest time as is corn grown in other sections of the country. However, such factors as inadequate storage, warm climate, and lack of proper care often prevent quality being maintained as well as in some other producing areas. Because of these conditions, many Alabama farmers find it economically advantageous to sell all or most of their corn at harvest. This concentrated selling causes the market price to be depressed at harvest time. From a low at harvest, the price gradually rises as the quantity of corn offered for sale decreases relative to demand. The average of the differences between the seasonal low price and the seasonal high price was 20 cents per bushel during the period October 1951-September 1961, Appendix Table 5. The average low price occurred in November and the average high price in June, and the difference between these averages was 19 cents.

In 1960, 91 per cent of the marketed shelled corn was sold in the fall at an average price of $1.08 per bushel, while 9 per cent was sold in the spring at an average price of $1.30 per bushel. The price difference of 22 cents per bushel was the return for storing 3 to 6 months. Calculations based on experimental results indicated that 22 cents per bushel for storing shelled corn 3 to 6 months gave a reasonable return for storage. The difference in the fall and spring price for ear corn was 12 cents per bushel.

Indications were that if a farmer did not have adequate storage, it probably would pay to sell surplus corn at harvest time. Where good storage was available, a reasonable return was received from storing shelled corn. In most situations, price differences made it more profitable to store shelled corn than ear corn. However, only 18 per cent of the available storage was suitable for shelled corn.

The lowest price was received by farmers for corn that was sold to other farmers.

Generally, seasonal price changes were greater following large crops than they were following small crops. Price declines at harvest were small for short crops and large for bumper crops. Those feeding livestock in northern Alabama, a corn-deficit area,

usually profited from buying needed corn early in the harvest season regardless of whether the crop was large or small.

Normally, seasonal price variation is greater in corn-deficit areas than in corn-surplus areas. However, this was not true during the last 5 years. Seasonal variation in a corn-deficit area, Alabama, averaged 22 cents per bushel, while the corresponding variation in the corn-surplus Corn Belt averaged 21 cents per bushel, Appendix Tables 5 and 6. This situation partially resulted from the level of price supports of corn and from CCC selling activities

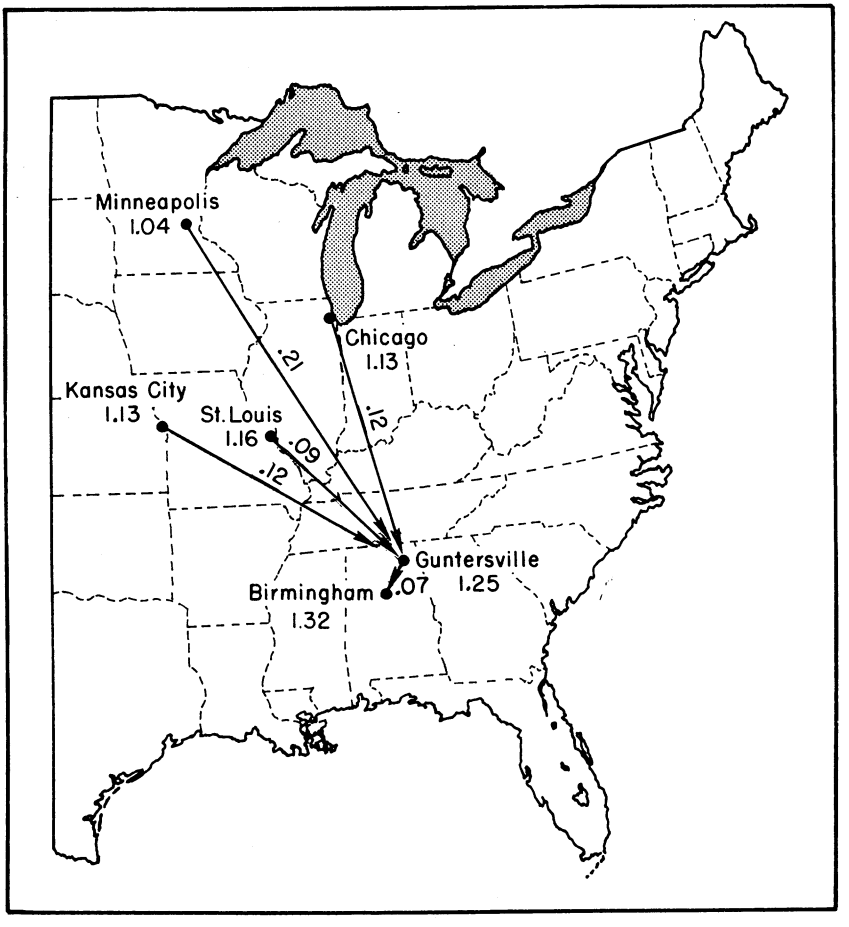

FIG. 8. Seasonal average cash price for No. 2 yellow corn is shown for selected points during 1959-62, along with differences between locations. Sources of data are "Grain Market News," Grain Division, USDA, AMS, 1959-62, Washington, D.C.; and Federal-State Market News Service, Birmingham, Alabama.

in this commodity. As long as programs similar to these remain in effect, seasonal price variation in both corn-deficit and corn-surplus areas will approximately equal storage costs.

Prices in northern Alabama were affected by price levels in corn-surplus areas plus movement charges into northern Alabama. The difference in prices at various points that ship corn to northern Alabama was approximately equal to transportation and handling costs, Figure 8. Usually, the price of corn in northern Alabama equaled the price at major surplus points plus movement charges, except during harvest time the price differential was reduced because local demand was supplied primarily by local production.

POTENTIAL FOR PRODUCTION

Average climatic conditions, such as total rainfall, temperature, day length, and length of growing season, in northern Alabama compare favorably with the Corn Belt, Appendix Table 7. However, rainfall distribution during the growing season fluctuates greatly from year to year and often seriously limits corn yields. The moisture-holding capacity of soils in northern Alabama is much lower than that of the better corn producing soils of the Corn Belt. Alabama soils will not store enough water to supply crop needs during summer drought. The low per acre value of corn has prevented irrigation from being profitable in most cases where it has been used.

Mechanization of corn production in northern Alabama has been limited to some extent by topography. As increased mechanization in other areas places pressure on northern Alabama to mechanize, the topography limitation will become more acute. Physical layout in terms of shape and size of fields has hindered efficient production. In the days of workstock use, topography and size of fields were not as important in the cost of production as they are today.

Normally, farmers in northern Alabama were able to purchase any machinery they desired. Many had the tendency to buy more equipment than their operations justified, thus creating a problem of payment. Another problem mentioned by many farmers was securing large enough farm units to mechanize.

In 1960, fertilizer was used on 98 per cent of the corn acreage. There was an average of 47 pounds of nitrogen, 28 pounds of

P_2O_5, and 25 pounds of K_2O applied per acre under all corn that was fertilized. Twenty per cent of the farmers – with 11 per cent of total corn acreage – reported that they did not sidedress corn. More adequate fertilization, particularly the application of additional nitrogen, would increase yields and profits and improve the competitive position of farmers growing corn in northern Alabama.

At present, the general competitive position of farmers producing corn in northern Alabama relative to farmers in the Corn Belt is weak. Costs of production per bushel in northern Alabama were high as compared with costs in the Corn Belt, see table. Consequently, in many cases shelled corn was produced in the Corn Belt and shipped into northern Alabama as cheaply as the average northern Alabama farmer produced corn.

Average yields from tests at the four Agricultural Experiment Station substations in northern Alabama, as reported in 1952-61 official variety reports, were as follows: 1957-61, 75.4 bushels; and 1952-61, 60.9 bushels. In 1952, 1953, and 1954, yields were severely reduced by adverse weather.

To obtain these yields, recommended varieties were planted, adequate and balanced plant nutrient requirements supplied, and timely cultural practices performed. Such yields are probably

COSTS, YIELDS, AND RETURNS FOR CORN PRODUCED UNDER EXISTING AND IMPROVED PRACTICES, NORTHERN ALABAMA AND CORN BELT[1]

Item	Existing practices		Improved practices	
	Northern Alabama	Corn Belt	Northern Alabama	Corn Belt
Average cost per acre, dollars[2]	38.89	45.24	41.50	52.85
Yield per acre, bushels	30.8	66.9	65.0	100.0
Average cost per bushel, dollars	1.26	.68	.64	.53
Five-year average price/bu., dollars[3]	1.11	.94	1.11	.94
Net return per bushel, dollars[4]	—.15	.26	.47	.41
Net return per acre, dollars[4]	—4.62	17.39	30.55	41.15

[1] Information based on data for various periods since 1956.

[2] Excludes cost of land and management. Average cost data came from two sources: Alabama data from Partenheimer, E. J., and Ellis, T. H., "Costs and Returns from Crop Production in the Limestone Valley Areas of Alabama;" Corn Belt data from Vollmar, G. J., and Blosser, R. H., "Crop Economics for Ohio," Ohio State University Bulletin 423, 1962, "Detailed Cost Report for Heavy Till Soils Central Illinois, 1958," Research Report AERR-32, University of Illinois College of Agriculture, April 1960, and "Detailed Cost Report for Heavy Till Soils Central Illinois, 1959," Research Report AERR-32, University of Illinois College of Agriculture, April 1961.

[3] Average received by farmers during October, November, December, 1957-61.

[4] Returns to land and management.

near the economical maximum with present technology, managerial ability, and available resources. Also, these yields are higher than the average that could be expected from all farms.

Even though farmers in northern Alabama producing average yields failed to make a return to land and management in growing corn during the last 5 years, estimates indicate that a reasonable income could be realized from this crop.

Northern Alabama has the physical capabilities to produce much more corn than has been grown. Land and technology were available for the production of much of the deficit corn shipped in from the Corn Belt. As indicated by variety test data, average yields of 65 bushels per acre can be produced in northern Alabama with available facilities and knowledge. Such production would give a return to land and management of about $30 per acre. Farmers who utilize resources available to produce at this level can compete with Corn Belt producers at prices that have prevailed in recent years.

Corn was a secondary crop in northern Alabama. It was a high risk crop and considered to be more risky on Limestone Valley soils than on Sand Mountain soils. Risk was greater in both areas than in the Corn Belt. A drought-resistant variety that consistently made adequate yields was not available for the area. Too, adoption of improved technology for corn production has been relatively slow in northern Alabama. Maximum economical fertilizer rates were not being applied, thus prohibiting optimum yields of corn.

Utilization of corn in northern Alabama was estimated to be almost twice the local supply. This was a favorable situation for producers with low per unit costs of production. In fact, the better producers had opportunities for returns comparable with producers in the Corn Belt.

Failure to adjust corn acreage to varying conditions can be partly explained by the nature of the farm organizational pattern under which corn was grown. Also, much corn in northern Alabama is grown primarily as a supplemental crop to enable producers to more fully utilize available or fixed resources. An examination of short-run factors revealed that they are inadequate indicators of future supply changes. It takes long-time factors of demand and prices to affect the year-to-year supply of corn. A high price for or high yield of corn in a given year is little indication that the price or yield will be high the following year. Price

may be the dominant factor in the distribution of supplies already on hand – both as to place and time utility. However, price does not explain changes in acreage from year to year.

SUMMARY

In this study, a prepared questionnaire was used in a personal interview with 290 farmers. Other data were obtained from the Alabama Crop Reporting Service, various research studies, and other reports.

During the past decade, corn yields in northern Alabama have doubled and acreage has been reduced almost half, resulting in little change in total production.

The demand for corn in this area is approximately twice the local supply. Farmers who have low costs per unit of production are in a favorable position to benefit from corn production. On the other hand, farmers who have high costs of production or make low yields are in an unfavorable position, as far as potential for profitable corn production is concerned.

In 1960, northern Alabama farmers sold approximately 30 per cent of the corn they produced. The corn sold was primarily non-graded, yellow, earn corn and most sales were to grain dealers during the harvest season. Of the corn remaining on farms, a large proportion was fed to hogs.

From the standpoint of price, November was the best time to buy local corn during the period 1952-1961. The lowest price for corn occurred 8 out of 10 years in November. The peak price received for corn did not occur regularly during a specific month. However, the highest average price was in June. During each of the 10 years, the price change between November and the following June was equal to or greater than variable costs of storage. Considering the 10-year period as a whole, storing corn would have been a profitable practice when quality was maintained.

Farmers who produced corn thought it more advantageous to feed grain to livestock than to sell it as cash grain.

CONCLUSIONS AND IMPLICATIONS

1. Quantities of corn utilized in northern Alabama have been increasing and are expected to continue to increase.

2. Few farms in northern Alabama have storage that is adequate for protecting corn from rodents and insects and for preserving quality. Many farmers in this area would find it advantageous to provide adequate storage to maintain quality of corn.

3. At present there is no apparent need for grain brokers in this area.

4. Indications are that present volume of grain produced in northern Alabama is insufficient to warrant large-scale commercial storage other than the elevators handling imported corn.

5. Feeding corn to livestock and poultry can result in greater net returns than selling corn as cash grain.

6. It is anticipated that corn acreage in the area will continue to decline and that corn will be grown primarily on farms having low production costs per bushel and/or farms with grain and livestock enterprises.

7. Many farmers in northern Alabama could achieve greater production efficiency and increase returns from corn by using land and other resources available and adopting known technology. The use of recommended rates of nitrogen and varieties along with other recommended practices would make corn production a profitable enterprise on many farms.

APPENDIX

APPENDIX TABLE 1. NUMBER OF BUSHELS OF CORN PRODUCED AND SOLD, AND PROPORTION SOLD, ALABAMA, 1952-61

Year	Production	Sales	Proportion sold
	Bushels	*Bushels*	*Per cent*
1952	27,115	3,116	11.5
1953	50,424	9,874	19.6
1954	27,573	6,066	22.0
1955	58,870	15,895	27.0
1956	47,736	15,753	33.0
1957	47,675	15,256	32.0
1958	55,614	18,353	33.0
1959	46,982	15,034	32.0
1960	44,330	13,299	30.0
1961	48,335	13,534	28.0

Source: *Alabama Agricultural Statistics*, Alabama Crop and Livestock Reporting Service, Bul. 7 and 11.

APPENDIX TABLE 2. AVERAGE PERCENTAGE OF CORN ON AND DISAPPEARANCE FROM FARMS, QUARTERLY, ALABAMA AND U.S., 1957-61

Item	Alabama	United States
	Per cent	*Per cent*
Corn on farms October 1	100	100
Corn on farms January 1	57	70
Corn on farms April 1	30	48
Corn on farms July 1	13	31
Carryover October 1	4	10
Disappearance October-December	43	30
Disappearance January-March	27	22
Disappearance April-June	17	17
Disappearance July-September	9	21

Source: *Alabama Agricultural Statistics*, Alabama Crop and Livestock Reporting Service, Bul. 11, and *Agricultural Statistics 1961*, USDA, 1962.

APPENDIX TABLE 3. QUANTITY OF 1960 CORN CROP SOLD AND FORM IN WHICH SOLD, NORTHERN ALABAMA, 1960-61

Season	Shelled corn	Ear corn	Both ear and shelled corn	Total	Proportion
	Bushels	*Bushels*	*Bushels*	*Bushels*	*Per cent*
Sept.-Dec.	26,850	38,080	1,100	66,030	87.2
Jan.-Apr.	2,600	4,660	0	7,260	9.6
May-Aug.	800	1,660	0	2,460	3.2
TOTAL	30,250	44,400	1,100	75,750	100.0
PERCENTAGE	39.9	58.6	1.5	100.0	

APPENDIX TABLE 4. PROPORTION OF FARMERS WHO SOLD CORN OF VARIOUS GRADES, FORMS, AND COLORS, NORTHERN ALABAMA, 1960-61

Item	Proportion of farmers selling
	Per cent
Grade	
Not graded	81
No. 1	5
No. 2	13
No. 3	1
Color	
Yellow	64
White	20
Yellow and white	16
Form	
Ear	83
Shelled	15
Ear and shelled	2

APPENDIX TABLE 5. SEASONAL HIGH AND LOW PRICES RECEIVED BY FARMERS FOR CORN, MONTHS IN WHICH EACH OCCURRED, AND SPREAD BETWEEN HIGH AND LOW PRICE, ALABAMA, 1952-62

Season	Low price	Month	High price	Month	Spread
Oct.-Sept.	*Dollars*		*Dollars*		*Cents*
1952-53	1.83	November	1.99	June	16
1953-54	1.42	November	1.64	March, August	22
1954-55	1.53	November	1.65	May	12
1955-56	1.05	January	1.33	June	28
1956-57	1.16	November	1.35	May, June, August	19
1957-58	1.14	November	1.46	August	32
1958-59	1.09	November	1.27	March, April, May, July	18
1959-60	1.06	October, November	1.29	June	23
1960-61	1.08	November	1.27	June	19
1961-62	1.09	October	1.25	May	16
1952-62 average					20
1957-62 average					22

Source: *Alabama Agricultural Statistics*, Alabama Crop and Livestock Reporting Service, Bul. 10 and 11.

APPENDIX TABLE 6. AVERAGE MONTHLY PRICE RECEIVED BY FARMERS FOR CORN, CORN BELT, 1957-62

Month	Price per bushel				
	1957-58	1958-59	1959-60	1960-61	1961-62
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*
October	1.03	1.03	1.06	.97	.98
November	.94	.91	1.06	.79	.88
December	.95	1.02	.93	.88	.90
January	.90	1.02	.96	.96	.92
February	.91	1.03	.96	1.00	.93
March	.97	1.05	.97	1.00	.94
April	1.11	1.13	1.03	.95	.96
May	1.15	1.14	1.05	1.01	1.00
June	1.19	1.15	1.08	1.02	1.01
July	1.19	1.12	1.08	1.04	1.01
August	1.20	1.13	1.06	1.02	.99
September	1.13	1.07	1.03	1.00	.99
Spread	.30	.24	.15	.25	.13
5-year av. spread					.21

Source: *Agricultural Statistics 1961*, USDA, 1962.

APPENDIX TABLE 7. COMPARISON OF SELECTED CLIMATIC CONDITIONS AFFECTING CORN YIELDS, NORTHERN ALABAMA AND CORN BELT, 1899-1938

Item	Northern Alabama	Corn Belt
Temperature		
Average annual	60°F.	50-55°F.
Average July	80°F.	75°F.
Average annual maximum	100°F.	100°F.
Precipitation in inches		
Average annual	50-55	35-40
Average warm season	25	20
Average spring	14	10
Average summer	14	10
Sunshine and frost-free period		
Average hours of sunshine (June-August)	9.7	10.5
Days of frost-free period	200-220	160-180

Source: *Climate and Man:* Yearbook of Agriculture, 1941, pp. 701-760.