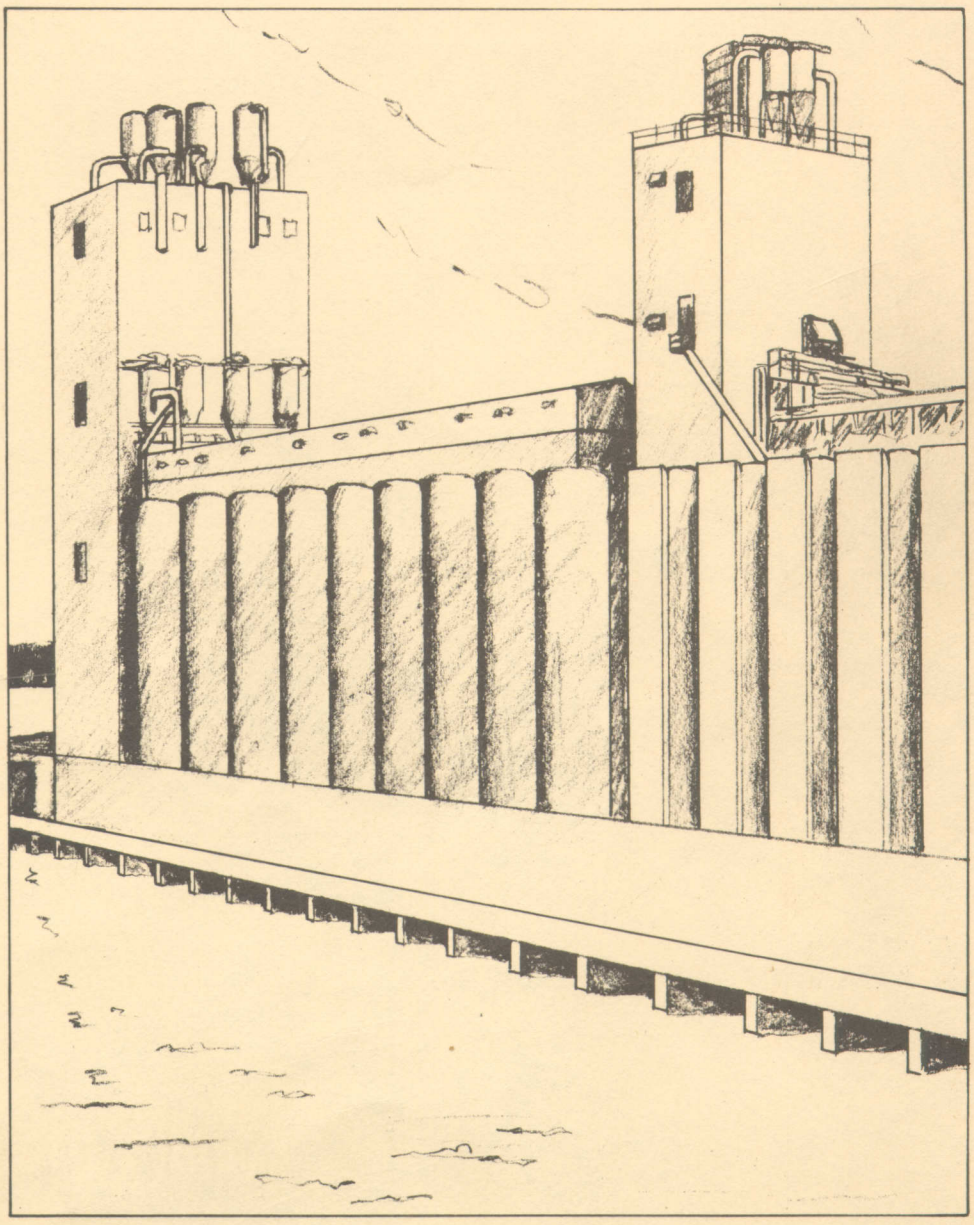
# The PUBLIC GRAIN ELEVATOR of the Alabama State Docks System

## Its Impact on the Alabama Economy



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Prepared by the Department of Agricultural Economics of the Auburn University
Agricultural Experiment Station and the Alabama Cooperative Extension Service Cooperating

AUBURN UNIVERSITY

AUBURN ALABAMA

36830

SCHOOL OF AGRICULTURE AND
AGRICULTURAL EXPERIMENT STATION SYSTEM

Office of Dean and Director

Telephone 205-826-4840

10 September 1979

Mr. Robert M. Hope, Director
Alabama State Docks Department
P. O. Box 1588
Mobile, AL 36601

Dear Mr. Hope:

On behalf of Auburn University, we are pleased to transmit to you this study, The Public Elevator of the Alabama State Docks System, Its Impact on the Alabama Economy.

We feel that this joint project of the Agricultural Experiment Station and Cooperative Extension Service utilized the personnel of Auburn University with the greatest knowledge and experience concerning the grain marketing systems of Alabama, the United States and the World.

This documentation of the economic importance of the private and public sectors of agriculture and agribusiness will hopefully contribute to advancement of Alabama's total economy.

Sincerely,

R. Dennis Rouse, Dean and Director
School of Agriculture and
Agricultural Experiment Station

J. Michael Sprott, Director
Cooperative Extension Service

Enclosure

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# FOREWORD

This publication was prepared jointly by the Department of Agricultural Economics and Rural Sociology of the Auburn University Agricultural Experiment Station and the Alabama Cooperative Extension Service. Its purpose is to document for the people of Alabama the importance of the Alabama State Docks System to the economy. While this particular publication deals specifically with the Public Grain Elevator only and the grains and processed products which pass through this facility, it is hoped that other aspects of the System will be covered in future studies.

While this is mostly a study of the impact on the agricultural sector of Alabama, it must be pointed out that many sectors of the economy are interrelated and separation of the agricultural sector from other sectors is not entirely possible. For instance, cotton lint may go to textile mills and become part of the manufacturing sector whose products may, in turn, be exported, while the cottonseed may be processed into meal and oil, the meal of which may pass through the Public Grain Elevator facility.

Benefits of the Public Grain Elevator to the Alabama economy are documented in three separate papers by three authors who each look at the Elevator from different aspects and whose papers could be used separately from the entire report:

1. James R. Hurst, Economist--Crops Marketing, Alabama Cooperative Extension Service, takes an overview of United States exports in general and the Alabama Public Grain Elevator in particular showing historical, present, and projected production and exports.
2. Harry B. Strawn, Economist--Resource Development, Alabama Cooperative Extension Service, looks at the importance of United States agricultural exports in general to the Alabama economy through the "export shares" approach.

3. James L. Stallings, Associate Professor, Department of Agricultural Economics and Rural Sociology of the Auburn University Agricultural Experiment Station, looks at the direct and multiplied impact of the Public Grain Elevator on employment and income, both in the agricultural sector and on the sectors from which agriculture buys inputs for production and goods and services for consumption.

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# S U M M A R Y


Hurst Paper:

1. In fiscal year 1978 the United States had a $43 billion trade deficit in non-agricultural trade but a $13 billion surplus in agricultural trade. These trends are continuing.

2. Total value of United States grain and soybean exports in fiscal 1978 were $18.7 billion or 70% of total agricultural exports. Markets for these products are expanding worldwide.

3. Planted acreage and exports of Alabama soybeans have been increasing rapidly in the last decade, faster than the United States average. This has been at the expense of cotton, corn, and pasture land.

4. The Public Grain Elevator of the Alabama State Docks System has the highest turnover (efficiency) rate of any other export elevator in the United States while the storage capacity ranks only twentieth out of a total of 25.

5. Exports through the Public Grain Elevator are expected to increase in the future as Alabama and United States production and exports increase.

Strawn Paper:

1. Demand for agricultural products grown in Alabama is significantly influenced by national exports of these products.

2. The value of Alabama's "export share" of national agricultural exports is relatively high.

3. In the 1977 Crop Year (10/1/76-9/30/77) the Alabama "export share" was $325.8 million. While dry weather and other problems reduced this amount to $299.5 million in 1978, Alabama's export share is expected to again pass the 1977 mark and increase in the future.

4. The 1978 Alabama "export share" of agricultural exports would amount to an average of nearly $4.5 million per county or approximately $80 for each man, woman, and child in Alabama.

Stallings Paper:

1. For every $1 worth of Alabama agricultural products exported through the Public Grain Elevator of the Alabama State Docks System, a total of $2.72 of business is generated in the Alabama economy. This includes a direct effect of $1 to the farmer for grains, seeds, or nuts plus an additional indirect effect of $1.72 to the suppliers of inputs and services to farmers and to businesses from which the farm families buy.

2. Total multiplied effect on the Alabama economy of agricultural exports through the Public Grain Elevator in calendar year 1977 was $282,713,040. Of this, $103,785,229 went directly for the raw grains, seeds, or nuts and $178,927,811 to suppliers of agricultural inputs and services and to businesses from which the farm families buy.

3. Trends are upward for increased volume through the Public Grain Elevator and for the multiplied effect on the Alabama economy.

4. Greatest impacts on Alabama local county economies are presently in counties around inland grain elevators on navigable rivers which collect and ship grains and products on to the Public Grain Elevator at Mobile. The Tennessee-Tombigbee waterway can potentially result in additional shipments to Mobile from Tennessee river locations, as well as from points north on the river system which normally have been shipped to the Port of New Orleans.

# THE VALUE OF AGRICULTURAL EXPORTS TO ALABAMA

James R. Hurst[1/]

The State of Alabama is expected to consider in the near future the need for a bond issue to finance an expansion and improvement of State Docks facilities at Mobile. In this paper the feasibility of these activities are considered from an economic standpoint. The question addressed is: "Are the expected economic returns to the State of Alabama sufficient to justify these expansions and improvements?"

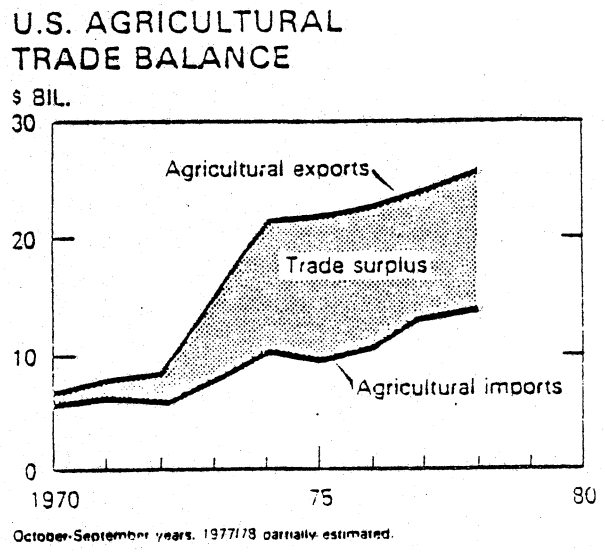
The present and future economic impact of export trade through the Port of Mobile is evident throughout most of the state's economy. The Alabama State Docks is aware that the agricultural economy of the State is a primary recipient of these benefits. Thus the Agricultural Experiment Station and Cooperative Extension Service at Auburn University were requested to conduct a study to determine the economic impact of exports from the State Docks on farmers and agribusinessmen in the State.

## UNITED STATES PRODUCTION AND EXPORT TRENDS

The United States has increased its share of world agricultural trade over the past decade to help offset its overall declining balance of trade. In fiscal 1978, the United States had a $43 billion trade deficit in its non-agricultural trade but a $13 billion surplus in agricultural trade (Figure 1).

[1/]Economist--Crops Marketing, Alabama Cooperative Extension Service, Auburn University.

FIGURE 1.




Oilseeds and grains now comprise the largest share of agricultural exports by value. Grains and feeds accounted for 43 percent of total agricultural exports in 1978 and oilseeds and products (mostly soybeans) accounted for 27 percent (Figure 2). Total value of grain and soybean exports was $18.7 billion or 70 percent of total agricultural exports (Table 1).

FIGURE 2.

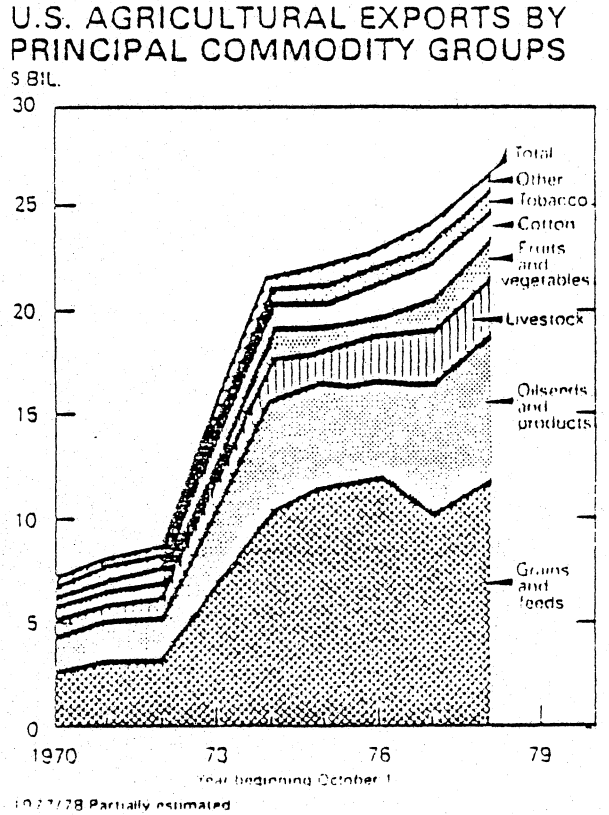


TABLE 1.

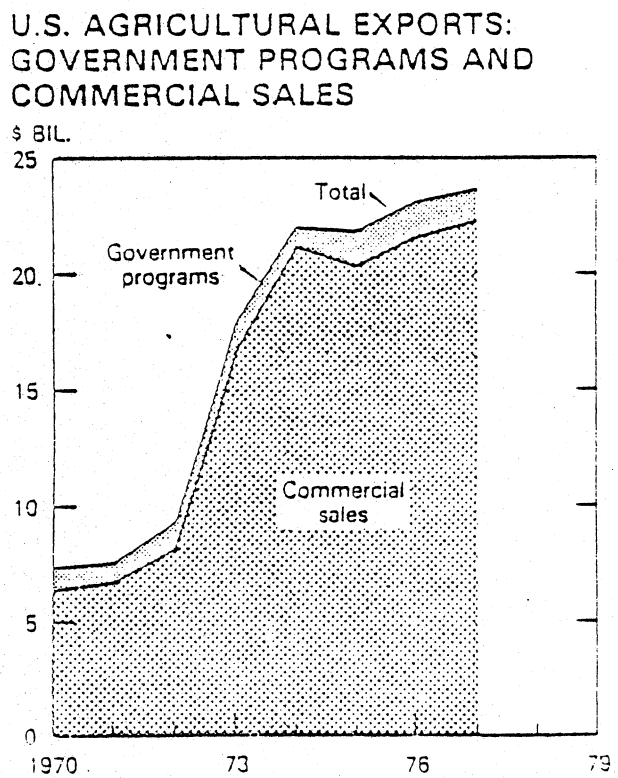
U.S. Agricultural Exports by Principal Commodity Groups[1]

| | 1975 | 1976 | 1977[2] | 1978[3] |
|---|---|---|---|---|
| | *Million dollars* | | | |
| Total exports | 21,854 | 22,760 | 24,013 | 26,600 |
| Grains and feeds | 11,561 | 11,920 | 9,895 | 11,400 |
| Oilseeds and products | 4,753 | 4,692 | 6,404 | 7,300 |
| Livestock and products | 1,666 | 2,207 | 2,645 | 2,800 |
| Fruits, nuts, and vegetables | 1,373 | 1,537 | 1,742 | 1,800 |
| Cotton and linters | 1,055 | 919 | 1,538 | 1,600 |
| Tobacco, unmanufactured | 897 | 929 | 1,085 | 1,100 |
| Other | 549 | 561 | 537 | 600 |

[1] October-September years. [2] Preliminary. [3] Partially estimated.

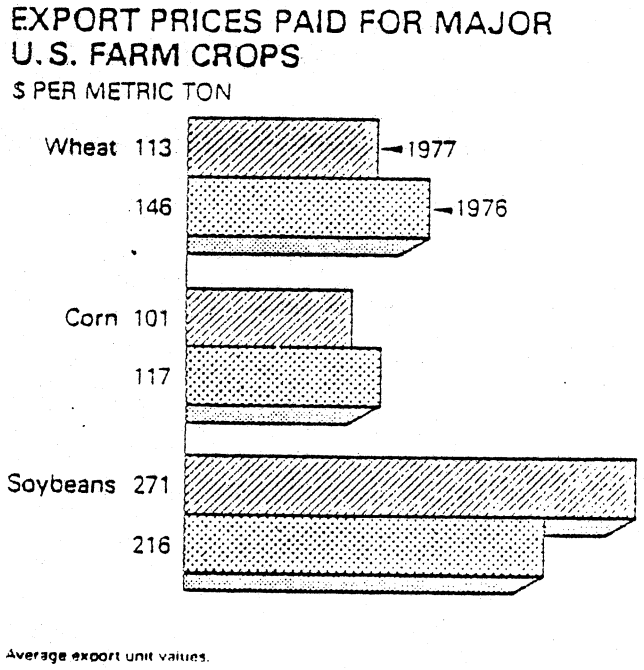
Commercial sales accounted for over 94 percent of total agricultural exports in 1977 (Figure 3). There has been a shift away from dependence on government financed exports in recent years from a percentage standpoint. Ten years ago almost 20 percent of export sales were government financed; the percentage has now dropped to about 5 percent.

FIGURE 3.



The above trends which are occurring in agricultural exports have significant implications for Alabama agriculture and the Alabama State Docks Public Grain Elevator. The growth in agricultural exports is creating larger markets for high-value crops being produced in Alabama. Export prices for soybeans in 1977 were $271 per metric ton compared with $113 for wheat and $101 for corn (Figure 4).

FIGURE 4.




The production of grain and soybeans in the United States has increased significantly during the 1970's in response to increased demand in world markets. From 1969 to 1978 production of soybeans increased 710 million bushels or about 63 percent (Table 2). Exports during the same period increased 367 million bushels or about 85 percent. Approximately 52 percent of the increased production was sold in export markets. The percentage of total use of soybeans attributable to exports increased from 35 to 42 percent during this 10-year period.

Exports of soy products totaled a 269 million bushels equivalent for 1978. Exports of 800 million bushels of raw beans along with the 269 million bushels equivalent in products totals 1,069 million bushels or about 56 percent of the total soybean market.

Corn production in the United States increased over 50 percent or 2.4 billion bushels over the period 1969-78 (Table 3). During the same decade, exports increased 1.3 billion bushels to almost 2 billion bushels and now account for almost 30 percent of the total corn market.

Wheat production in the United States increased 356 million bushels or 25 percent during the 10 years, 1969-78 (Table 4). Exports increased about 95 percent during the same 10 years and now account for 58 percent of the total wheat market.

Soybeans, corn, and wheat now account for over 75 percent of the acreage planted to major crops in the United States. These three crops also account for more than 55 percent of the total value of agricultural exports for the 1978 crop year.

The United States will export 4,194 million bushels of grain and oilseeds during the 1978-79 marketing year. This is approximately 40 percent of the total United States market for these commodities. Without export demand the United States would be encountering serious problems of excess supply and low prices. This would result in low farm incomes or costly government subsidy programs similar to those which plagued American agriculture from the 1930's until the expansion of export markets during the 1970's.

Exports are vital to the economic well being of American agriculture as well as Alabama agriculture. The continuity of government policies, both federal and state, that aid in developments of export markets are essential to the economy.

TABLE 2. Soybeans: Area, Yield, Supply, Disappearance, and Prices, U.S., 1969-78

| Marketing year[1] | Area | | Yield per harvested acre | Supply | | | Disappearance | | | Crushed for oil | Prices received by farmers |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Planted | Harvested | | Beginning stocks | Production | Total | Domestic use | Exports | Total | | |
| | 1,000 acres | | Bushels | Million bushels | | | | | | | Dollars/bushel |
| 1969 | 42,534 | 41,337 | 27.4 | 326.8 | 1,133.1 | 1,460.0 | 797.5 | 432.6 | 1,230.1 | 737.3 | 2.35 |
| 1970 | 43,082 | 42,249 | 26.7 | 229.8 | 1,127.1 | 1,356.9 | 824.4 | 433.8 | 1,258.2 | 760.1 | 2.85 |
| 1971 | 43,476 | 42,705 | 27.5 | 98.8 | 1,176.1 | 1,274.9 | 786.1 | 416.8 | 2,202.9 | 720.4 | 3.03 |
| 1972 | 46,866 | 45,683 | 27.8 | 72.0 | 1,270.6 | 1,342.6 | 803.5 | 479.4 | 1,282.9 | 721.8 | 4.37 |
| 1973 | 56,549 | 55,667 | 27.8 | 59.6 | 1,547.5 | 1,607.2 | 897.3 | 539.1 | 1,436.4 | 821.3 | 5.68 |
| 1974 | 52,479 | 51,341 | 23.7 | 170.8 | 1,216.3 | 1,387.0 | 778.2 | 420.7 | 1,198.9 | 701.3 | 6.64 |
| 1975 | 54,550 | 53,579 | 28.9 | 188.2 | 1,547.4 | 1,735.5 | 935.5 | 555.1 | 1,490.6 | 865.1 | 4.92 |
| 1976 | 50,226 | 49,358 | 26.1 | 244.9 | 1,287.6 | 1,532.5 | 865.6 | 564.0 | 1,429.6 | 790.2 | 6.81 |
| 1977 | 59,080 | 57,911 | 29.6 | 102.9 | 1,716.3 | 1,819.3 | 994.0 | 700.0 | 1,694.0 | 935.0 | 5.79 |
| 1978[2] | 64,000 | 63,000 | 29.2 | 161.0 | 1,843.0 | 2,004.0 | 1,089.0 | 800.0 | 1,889.0 | 1,010.0 | 6.75 |

[1]Marketing year beginning Sept. 1.

[2]Estimated.

Source: Fact Book of U.S. Agriculture. Miscellaneous Publication No. 1063, USDA.

TABLE 3. Corn (grain only): Area, Yield, Supply, Disappearance, and Prices, U.S. 1969-78.

| Marketing year[1] | Area | | Yield per harvested acre | Supply | | | | Disappearance | | | Prices received by farmers |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Planted for all purposes | Harvested for grain | | Beginning stocks | Production | Imports[2] | Total | Domestic use | Exports[2] | Total | |
| | 1,000 acres | | Bushels | Million bushels | | | | | | | Dollars/bushel |
| 1969 | 64,264 | 54,574 | 85.9 | 1,118 | 4,687 | 1 | 5,806 | 4,189 | 612 | 4,801 | 1.16 |
| 1970 | 66,863 | 57,358 | 72.4 | 1,005 | 4,152 | 4 | 5,161 | 3,978 | 517 | 4,495 | 1.33 |
| 1971 | 74,179 | 64,123 | 88.1 | 667 | 5,646 | 1 | 6,314 | 4,392 | 796 | 5,187 | 1.08 |
| 1972 | 67,126 | 57,513 | 97.0 | 1,127 | 5,580 | 1 | 6,708 | 4,742 | 1,258 | 6,000 | 1.57 |
| 1973 | 72,253 | 62,143 | 91.3 | 708 | 5,671 | 1 | 6,380 | 4,653 | 1,243 | 5,896 | 2.55 |
| 1974 | 77,935 | 65,405 | 71.9 | 484 | 4,701 | 2 | 5,187 | 3,677 | 1,149 | 4,826 | 3.02 |
| 1975 | 78,583 | 67,505 | 86.3 | 361 | 5,829 | 2 | 6,192 | 4,022 | 1,711 | 5,793 | 2.54 |
| 1976 | 84,374 | 71,300 | 87.9 | 399 | 6,266 | 3 | 6,668 | 4,100 | 1,684 | 5,784 | 2.15 |
| 1977 | 82,680 | 79,006 | 91.0 | 884 | 6,371 | 1 | 7,256 | 4,285 | 1,800 | 6,085 | 2.03 |
| 1978[3] | 79,700 | 70,000 | 101.2 | 1,104 | 7,082 | 1 | 8,187 | 4,675 | 1,950 | 6,625 | 2.11 |

[1]Marketing year beginning Oct. 1.

[2]Grain and grain equivalent of corn products.

[3]Estimated.

SOURCE: Fact Book of U.S. Agriculture, Miscellaneous Publication No. 1063, USDA.

TABLE 4. Wheat: Area, Yield, Supply, Disappearance, and Prices, U.S., 1969-78

| Marketing year[1] | Area | | Yield per harvested acre | Supply | | | | Disappearance | | | Prices received by farmers |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Planted | Harvested | | Beginning stocks | Production | Imports[3] | Total | Domestic use[4] | Exports[3] | Total | |
| | 1,000 acres | | Bushels | Million bushels | | | | | | | Dollars/bushel |
| 1969 | 53,450 | 47,146 | 30.6 | 905 | 1,443 | 3 | 2,351 | 764 | 603 | 1,367 | 1.25 |
| 1970 | 48,739 | 43,564 | 31.0 | 984 | 1,352 | 2 | 2,336 | 772 | 741 | 1,513 | 1.33 |
| 1971 | 53,822 | 47,685 | 33.9 | 822 | 1,619 | 1 | 2,443 | 849 | 610 | 1,459 | 1.34 |
| 1972 | 54,913 | 47,303 | 32.7 | 985 | 1,546 | 1 | 2,531 | 799 | 1,135 | 1,934 | 1.76 |
| 1973 | 59,254 | 54,148 | 31.6 | 599 | 1,711 | 3 | 2,311 | 754 | 1,217 | 1,971 | 3.95 |
| 1974 | 71,044 | 65,368 | 27.3 | 340 | 1,782 | 3 | 2,125 | 672 | 1,018 | 1,690 | 4.09 |
| 1975 | 74,786 | 69,391 | 30.6 | 435 | 2,122 | 2 | 2,569 | 721 | 1,173 | 1,894 | 3.56 |
| 1976 | 80,202 | 70,771 | 30.3 | 665 | 2,142 | 3 | 2,810 | 748 | 950 | 1,698 | 2.73 |
| 1977 | 74,804 | 66,216 | 30.6 | 1,112 | 2,026 | 2 | 3,140 | 842 | 1,124 | 1,966 | 2.31 |
| 1978 | 66,100 | 56,800 | 31.6 | 1,177 | 1,799 | 2 | 2,978 | 852 | 1,175 | 2,027 | 2.91 |

[1] Marketing year beginning June 1.

[2] Stocks are reported as of June 1.

[3] Includes flour and other products in terms of wheat.

[4] Total U.S. domestic disappearance, including shipments to possessions.

[5] Estimated.

Source: Fact Book of U.S. Agriculture, Miscellaneous Publication No. 1063, USDA.

## ALABAMA CROP PRODUCTION

Alabama's agricultural production has been characterized over the past decade by a significant shift of acreage from cotton, corn and pasture to soybeans. Acreage of soybeans tripled during this period and now exceeds the total acreage of all other crops combined (Table 5). They accounted for 57 percent of the 3.5 million acres of cropland in Alabama in 1978. The shift to soybeans has resulted in a higher per acre income to Alabama farmers.

The rate of increase in soybean production in Alabama and other Southeastern states has been significantly faster than the U.S. average. Soybean acreage in the United States increased about 60 percent while Alabama acreage more than tripled during the past decade. The direction of 1969-78 trends in acreage and production of major crops in Alabama are expected to continue. Soybeans should continue to increase at the expense of cotton, corn, and pasture.

TABLE 5. PLANTED ACREAGE OF MAJOR FIELD CROPS, ALABAMA, 1969-78

| Year | Grain | Cotton | Peanuts | Soybeans | Total |
|---|---|---|---|---|---|
| | | | 1,000 acres | | |
| 1969 | 1,071 | 566 | 192 | 660 | 2,489 |
| 1970 | 992 | 565 | 195 | 625 | 2,377 |
| 1971 | 1,091 | 579 | 199 | 680 | 2,549 |
| 1972 | 938 | 601 | 201 | 830 | 2,570 |
| 1973 | 965 | 525 | 204 | 1,000 | 2,694 |
| 1974 | 975 | 600 | 204 | 950 | 2,729 |
| 1975 | 1,056 | 400 | 208 | 1,300 | 2,964 |
| 1976 | 1,175 | 460 | 216 | 1,200 | 3,051 |
| 1977 | 1,142 | 420 | 216 | 1,650 | 3,428 |
| 1978 | 927 | 360 | 216 | 2,000 | 3,503 |
| Percent Change | -13 | -36 | +12 | +203 | +41 |

SOURCE: Alabama Agricultural Statistics.

Soybean acreage, which tripled from 1969 to 1978, is projected to reach 2,800,000 by 1984 (Table 6). Yields should be maintained near current levels with advancement in technology offsetting the expected buildup in the insect and disease complex that occurs without benefit of crop rotation. Projected production in 1984 will be almost 64 million bushels with an average projected price of $7 per bushel, which will result in a total projected value of the crop of $446,880,000.

Corn acreage in Alabama increased during the mid-70's in response to higher prices but has since declined (Table 7). Acreage is projected to decline slightly from the current 544,000 to 480,000 harvested acres by 1984. Yields of 55 bushels per acre should produce about 26,400,000 bushels valued at $72,600,000 in 1984, based on a projected price of $2.75 per bushel.

Wheat acreage fluctuated significantly during the decade 1969-78 but showed a general downtrend (Table 8). A projected harvested acreage in 1984 of 78,000 acres should produce about 2 million bushels worth $3.50 per bushel for a total value of $7 million.

TABLE 6. SOYBEANS: ACREAGE, YIELD, PRODUCTION, PRICE, AND VALUE, ALABAMA, 1969-78 WITH PROJECTIONS TO 1984

| Year | Planted acres | Acres harvested for beans | Yield per harvested acre | Production | Season average price | Value of production |
|---|---|---|---|---|---|---|
| | | 1,000 acres | Bushels | 1,000 bu. | Dollars | 1,000 dol. |
| 1969 | 660 | 630 | 22.5 | 14,175 | 2.31 | 32,744 |
| 1970 | 625 | 600 | 23.0 | 13,800 | 2.82 | 38,916 |
| 1971 | 680 | 655 | 26.0 | 17,030 | 2.92 | 49,728 |
| 1972 | 830 | 800 | 20.0 | 16,000 | 3.81 | 60,960 |
| 1973 | 1,000 | 970 | 21.0 | 20,370 | 5.64 | 114,887 |
| 1974 | 950 | 920 | 23.0 | 21,160 | 7.01 | 148,332 |
| 1975 | 1,300 | 1,260 | 24.5 | 30,870 | 4.88 | 150,646 |
| 1976 | 1,200 | 1,170 | 24.0 | 28,080 | 6.44 | 180,835 |
| 1977 | 1,650 | 1,600 | 21.0 | 33,600 | 5.75 | 193,200 |
| 1978[1/] | 2,000 | 1,950 | 22.0 | 42,900 | 6.40 | 274,560 |
| 1984[2/] | 2,900 | 2,800 | 22.8 | 63,840 | 7.00 | 446,880 |

SOURCE: Alabama Agricultural Statistics, 1969-78.

[1/] Preliminary.

[2/] Stallings and Headley, Unpublished data from S-115 Grain Marketing Project, Alabama Agricultural Experiment Station, Auburn University, Auburn, Ala., 1977.

TABLE 7. CORN: AVERAGE YIELD, PRODUCTION, PRICE, AND VALUE, ALABAMA, 1969-78 WITH PROJECTIONS TO 1984

| Year | Planted | Harvested for grain | Yield per harvested acre | Production | Season average price | Value of production |
|---|---|---|---|---|---|---|
| | | 1,000 acres | Bushels | 1,000 bu. | Dollars | 1,000 dol. |
| 1969 | 785 | 654 | 33.0 | 21,582 | 1.36 | 29,352 |
| 1970 | 699 | 555 | 26.5 | 14,708 | 1.58 | 23,239 |
| 1971 | 699 | 626 | 45.0 | 28,170 | 1.17 | 32,959 |
| 1972 | 631 | 545 | 48.0 | 26,160 | 1.50 | 39,240 |
| 1973 | 694 | 610 | 46.0 | 28,060 | 2.57 | 72,114 |
| 1974 | 695 | 630 | 43.0 | 27,090 | 3.36 | 91,022 |
| 1975 | 750 | 660 | 50.0 | 33,000 | 2.77 | 91,410 |
| 1976 | 880 | 800 | 60.0 | 48,000 | 2.45 | 117,600 |
| 1977 | 840 | 375 | 29.0 | 10,875 | 2.10 | 22,838 |
| 1978 1/ | 640 | 544 | 50.0 | 27,200 | 2.25 | 61,200 |
| 1984 2/ | 550 | 480 | 55.0 | 26,400 | 2.75 | 72,600 |

SOURCE: Alabama Agricultural Statistics, 1969-78.

1/ Preliminary.

2/ Stallings and Headley, Unpublished data from S-115 Grain Marketing Project, Alabama Agricultural Experiment Station, Auburn University, Auburn, Ala., 1977.

TABLE 8. WHEAT: ACREAGE, YIELD, PRODUCTION, PRICE, AND VALUE, ALABAMA, 1969-78 WITH PROJECTIONS TO 1984

| Year | Planted | Harvested | Yield per harvested acre | Production | Season average price | Value of production |
|---|---|---|---|---|---|---|
| | | 1,000 acres | Bushels | 1,000 bu. | Dollars | 1,000 dol. |
| 1969 | 123 | 87 | 29.0 | 2,523 | 1.20 | 3,028 |
| 1970 | 120 | 85 | 28.0 | 2,380 | 1.26 | 2,999 |
| 1971 | 164 | 120 | 29.0 | 3,480 | 1.48 | 5,150 |
| 1972 | 161 | 110 | 20.0 | 2,200 | 1.36 | 2,992 |
| 1973 | 127 | 80 | 23.0 | 1,840 | 2.72 | 5,005 |
| 1974 | 135 | 95 | 23.5 | 2,233 | 3.66 | 8,173 |
| 1975 | 146 | 105 | 24.0 | 2,520 | 2.98 | 7,510 |
| 1976 | 140 | 85 | 27.0 | 2,295 | 3.20 | 7,344 |
| 1977 | 135 | 90 | 28.0 | 2,520 | 2.05 | 5,166 |
| 1978[1/] | 130 | 65 | 26.0 | 1,690 | 3.00 | 5,070 |
| 1984[2/] | 135 | 78 | 25.8 | 2,012 | 3.50 | 7,042 |

SOURCE: Alabama Agricultural Statistics, 1969-78.

[1/] Preliminary.

[2/] Stallings and Headley, Unpublished data from S-115 Grain Marketing Project, Alabama Agricultural Experiment Station, Auburn University, Auburn, Ala., 1977.

## U.S. PORT FACILITIES ORIGINATING GRAIN FOR EXPORT

The marketing system for grain in the United States, including soybeans, is a complex system involving ownership transfers, financing, transportation, handling, and storage. The physical handling and storage includes thousands of privately, publicly, and cooperatively owned facilities.

A 1978 survey by USDA's Agricultural Stabilization and Conservation Service[1/] put total grain storage capacity in the United States (excluding ear corn and wet type storage) at 15,126 million bushels. Approximately 54 percent of this was on-farm storage leaving 46 percent or 6,993 million bushels of commercial capacity to handle 12,341 million bushels of grain and soybeans marketed in 1978.

Only about 360 million bushels or 5 percent of total U.S. commercial grain storage capacity is in export facilities.[2/] Yet these facilities handled about 3,325 million bushels in 1976. This is a turnover of 9.2 times capacity.

The estimated volume of export facilities in 1978 was approximately 4,395 million bushels for a turnover rate of approximately 12.2 based on 360 million bushels capacity. This compares to a turnover rate of less than two for the total commerical grain marketing system in 1978.

According to the Ohio study noted previously, there were 25 major port facility locations in the United States in 1976 with 360.5 million bushels total storage capacity (Table 9). Capacities ranged from one million to 88.8 million bushels.

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1/ Grain Storage Capacity Survey, USDA, ASCS, October 1978.

2/ Sharp, John W., Grain Facilities in the U.S., Specializing in Originating Grain for Export and Soybean Processing Plants, Ohio Agricultural Research and Development Center, Wooster, Ohio, September 1978.

The Port of Mobile ranked twentieth in storage capacity with 2.2 million bushels, less than 1 percent of the total. But when the ports were ranked according to volume of grain handled, Mobile was tenth with 82.8 million bushels, about two and one-half percent of the 3,325 million bushels handled by the 25 ports in 1976. The Port of Mobile ranked first in terms of annual handling efficiency. The annual rate of turnover was 37.6 compared to 27.8 for the next most efficient Port at New Orleans. Mobile had a turnover rate of more than four times the U.S. average of 9.2.

The rate of turnover is not a complete measure of handling efficiency. The volume handled per unit of time (i.e. bushels per hour) is a more important criteria used by exporters and ship owners to measure port efficiency and economic feasibility related to export shipments. Ocean freight rates are influenced significantly by the time it takes to load and unload, and Mobile's ship loading capacity of 38,000 bushels per hour is less than half of some other port elevators.

Mobile's ability to compete with other port elevators and generate sufficient volume of business will depend more on the time required to load each ship than on its annual rate of inventory turnover.

TABLE 9. PORT FACILITIES, RANKED BY STORAGE CAPACITY, VOLUME AND RATE OF TURN, U.S., 1976

| Port | Storage capacity (000 bu.) | Volume exported (000 bu.) | Rate of turn | Storage capacity rank | Volume | Efficiency |
|---|---|---|---|---|---|---|
| Duluth | 88,799 | 151,024 | 1.70 | 1 | 6 | 19 |
| Chicago | 58,758 | 69,394 | 1.18 | 2 | 12 | 21 |
| New Orleans | 54,427 | 1,514,749 | 27.83 | 3 | 1 | 2 |
| Houston | 30,500 | 264,465 | 8.67 | 4 | 2 | 12 |
| Portland | 12,800 | 257,201 | 9.34 | 5 | 3 | 11 |
| Galveston | 12,400 | 13,218 | 1.03 | 6 | 17 | 22 |
| Baltimore | 12,400 | 206,187 | 16.63 | 7 | 4 | 5 |
| Corpus Christi | 12,100 | 129,165 | 10.67 | 8 | 7 | 9 |
| Toledo | 10,300 | 121,845 | 11.83 | 9 | 8 | 8 |
| Norfolk | 8,800 | 190,308 | 21.63 | 10 | 5 | 4 |
| Philadelphia | 5,650 | 85,742 | 15.18 | 11 | 9 | 6 |
| Seattle | 5,000 | 41,513 | 8.30 | 12 | 14 | 13 |
| Saginaw | 5,000 | 6,750 | 1.35 | 13 | 20 | 20 |
| Brownsville | 3,800 | 52,256 | 13.75 | 14 | 13 | 7 |
| Beaumont | 3,500 | 81,578 | 23.31 | 15 | 11 | 3 |
| Milwaukee | 3,200 | 9,103 | 2.84 | 16 | 18 | 16 |
| Port Arthur | 3,200 | ---- | ---- | 17 | NA | NA |
| Pascagoula | 3,100 | 2,143 | 0.69 | 18 | 23 | 23 |
| Long Beach | 2,250 | 15,129 | 6.72 | 19 | 15 | 15 |
| Mobile | 2,200 | 82,805 | 37.64 | 20 | 10 | 1 |
| San Francisco | 2,000 | 4,789 | 2.39 | 21 | 21 | 17 |
| Charleston | 1,500 | 15,038 | 10.02 | 22 | 16 | 10 |
| San Diego | 1,360 | 2,829 | 2.08 | 23 | 22 | 18 |
| Huron | 1,300 | 7,884 | 6.06 | 24 | 19 | 15 |
| Oakland | 1,000 | ---- | ---- | 25 | NA | NA |
| Total | 360,494 | 3,325,115 | 9.2 | -- | -- | -- |

SOURCE: Sharp, John W., Grain Facilities in the U.S. Specializing in Originating Grain for Export and Soybean Processing Plants, Ohio Agricultural Research and Development Center, September 1978.

## ALABAMA AGRICULTURAL EXPORTS

The Alabama State Docks Public Grain Elevator at the Port of Mobile is Alabama's only export facility, with a rated storage capacity of 2,200,000 bushels of raw grain and 17,000 tons of oilseed meals and feed ingredients. The primary raw grains handled are soybeans, corn, and wheat. The meal house handles a variety of products, but most of the annual tonnage is composed of soybean, cottonseed, and peanut meals.

There has been a general uptrend in the volume of exports through the Public Grain Elevator over the past decade, but most of the increase is attributable to raw grain (Table 10). Export of meal and hulls has generally declined.

Soybeans has contributed most to export volume over the past 10 years comprising 44 percent of the volume for the period, and increasing to 76 percent of the volume in the most recent year. Corn accounted for about 40 percent of export volume for the 1968-78 decade with a maximum of 57 percent in the 1976-77 season. Wheat and other small grains have accounted for about 15 percent of export volume over the past decade with no significant trend.

The relative volume of exports of soybeans, corn, and wheat have been closely correlated with the production of these grains in Alabama and adjacent states. This indicates that the Port of Mobile is probably dependent on production within Alabama and adjacent Southeastern states for a significant amount of its export volume. Availability of transportation and lower rates are economic justification for this pattern of procurement.

Assuming that this correlation continues and exports continue to increase at the same rate as production, as in the past 10 years, indicated exports for 1984-85 would be: Soybeans-69,589,000 bushels; Corn-12,855,000

bushels; Wheat and Other Grains-2,838,000 bushels; Meal and Hulls (Soybean Equivalents)-8,901,000. Total exports would be 120,183,000 bushels in the 1984-85 fiscal year, an increase of 78 percent.

TABLE 10. EXPORTS, BY COMMODITY, ALABAMA STATE DOCKS PUBLIC GRAIN ELEVATOR, MOBILE, 1968-78, WITH PROJECTIONS TO 1984-85

| Fiscal year | Soybeans | Corn | Wheat and other grain | Meal and Hulls | Total |
|---|---|---|---|---|---|
| | | | (1,000 bu.) | | |
| 1968-69 | 9,744 | 6,680 | 6,222 | 26,417 | 49,063 |
| 1969-70 | 9,129 | 3,251 | 3,031 | 10,279 | 25,690 |
| 1970-71 | 8,776 | 3,223 | 5,550 | 11,144 | 28,693 |
| 1971-72 | 9,848 | 3,449 | 4,333 | 10,100 | 27,730 |
| 1972-73 | 17,979 | 15,138 | 12,581 | 13,318 | 59,016 |
| 1973-74 | 15,741 | 17,328 | 6,143 | 9,718 | 48,930 |
| 1974-75 | 16,291 | 24,104 | 9,418 | 4,210 | 54,023 |
| 1975-76 | 29,047 | 43,332 | 10,440 | 2,554 | 46,373 |
| 1976-77 | 19,081 | 33,284 | 6,055 | 2,687 | 61,107 |
| 1977-78 | 46,763 | 12,488 | 2,384 | 5,982 | 67,567 |
| 1984-85 | 69,589 | 12,855 | 2,838 | 8,901 | 120,183 |

SOURCE: Annual Reports, Alabama State Docks, 1969-78.

A recent survey by the Alabama Agricultural Experiment Station revealed that the following percentages of exports of three unprocessed grains came from Alabama farmers in calendar year 1977: Soybeans - 57 percent; Corn - 12 percent; Wheat - 27 percent.[3/] This indicates that Alabama's actual exports in the 1977-78 crop year were: Soybeans-12,197,000 bushels; Corn-2,393,000 bushels; Wheat-1,364,000 bushels. The value of exports of these three Alabama-produced commodities was an estimated $77,956,000 in 1977-78 (Table 11). Meal exports added another $19,365,040 for a total farm value of grain, seed, and peanut exports of $97,321,040.

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[3/] Stallings, J. L. and L. M. Headley, Jr. Unpublished data from S-115 Grain Marketing project, Agricultural Experiment Station, Auburn University, 1977.

TABLE 11. PRODUCTION, CASH RECEIPTS AND EXPORT VALUE OF SOYBEANS, CORN, AND WHEAT, ALABAMA, 1977.

| Commodity | Production | Value of production | Valued sales | Exports | Value of exports |
|---|---|---|---|---|---|
| | (000 bu.) | (000 dol.) | (000 dol.) | (000 bu.) | (1,000 dol.) |
| Soybeans | 33,600 | 193,200 | 191,464 | 12,197 | 70,135 |
| Corn | 10,875 | 22,838 | 5,252 | 2,393 | 5,024 |
| Wheat | 2,250 | 5,166 | 3,827 | 1,364 | 2,797 |
| Total | 46,995 | 221,204 | 200,543 | 15,954 | 77,956 |

SOURCE: Adapted from previous tables in this publication.

Also, approximately 45,681,000 bushels of grain and soybeans from adjacent states were handled by the Elevator in 1977. This increases revenue resulting in lower unit handling costs for Alabama commodities.

The direct value of exports to Alabama farmers should continue to increase as a result of an increased production and prices. Value of soybeans exported are projected to increase from $70,135,000 in 1977 to $93,309,000 in 1984-85. Corn could increase from $5,024,000 to $15,975,000 and wheat from $2,797,000 to $3,803,000. Total value of exports of these three major crops are projected to exceed $113 million, up from about $78 million in 1977, an increase of $35 million.

## SUMMARY

Trends of increasing agricultural production and U.S. world trade is impacting on Alabama in a positive manner. Grain and soybeans are the most important agricultural exports for both the United States and Alabama. If present trends continue, increased production should increase the volume of exports through the Public Grain Elevator at Mobile from 67 to 120 million bushels by 1984-85. Alabama farm income could increase by about $35 million from 1977-78 to 1984-85 because of exports.

The Public Grain Elevator at Mobile has been one of the most efficient in the nation in past years. However, the storage capacity of 2.2 million bushels and ship loading capacity of about 38,000 bushels per hour will probably not be adequate to compete for export trade and handle the volume necessary for Alabama to realize its full potential.

The 1984-85 projection of 120 million bushels of grain and soybeans to be handled by the Public Grain Elevator at Mobile is based on present transportation systems and rates. The anticipated opening of the Tennessee-Tombigbee Waterway by 1985 would obviously increase the potential volume of grain and soybeans originating at river elevators on the Tennessee, Ohio, and Mississippi Rivers.

The additional impact of the Tennessee-Tombigbee Waterway should increase the economic justification for improvement and expansion of State Docks facilities at Mobile. However, the magnitude of this impact would require additional and complex analysis beyond the scope of this study.

The implication is clear that Alabama needs to further expand and modernize its only export facility if Alabama's agriculture and other related segments of the economy are to share in the increasing volume from agricultural exports. Expansion of the State's grain and soybean marketing system of interior elevators, both public and private, has kept pace with increasing production. This indicates that further expansion of the grain marketing system with public funds should be concentrated in the State's export facilities at Mobile.

# SHARES OF NATIONAL EXPORTS OF SELECTED AGRICULTURAL PRODUCTS WHICH ACCRUE TO ALABAMA COUNTIES

Harry B. Strawn[1/]

Total demand for most agricultural products may be divided into various components. The broadest categories would be domestic demand and foreign demand. Within each of these broad categories, demand may be functionally separated into such things as edible products for human consumption, animal feeds, non-edible products, etc., depending on the objectives of the analyst. This report deals with the broad effects of foreign demand for specified agricultural products on Alabama's 67 counties.

Raw agricultural products such as corn and soybeans normally are homogeneous products within types and grades. A European customer who buys a shipload of number 2 soybeans has no way of knowing whether they came from Alabama, Mississippi, the Midwest, etc. They were bought on the basis of grade specification.

Likewise, most feed grains and soybeans move through several levels of the domestic marketing system before transformation by a processor or sale to a foreign country. Once the commodity has been sold several times and has been blended to grade by various elevators, it has lost any geographic identity it may have had.

## Export Shares

The idea of computing export shares was developed by USDA as a means of systematically allocating the value of total exports of selected homogeneous agricultural commodities to the states that produce the commodities in question. From a conceptual basis, the statistic rests on the idea that if

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exports had not occurred, the total quantity demanded of each grade would have been reduced by the amount of the exports. Since domestic demand is relatively inelastic, small annual fluctuations in production would cause large price swings. Thus, a certain amount of foreign trade may tend to stabilize domestic prices.

The procedure undertaken in this paper involves further allocation of Alabama's export shares of selected commodities to each of the 67 counties. That is, a quantity equal in value to the computed share of each county's production was exported. It is also implicitly assumed that the total value of production for each county would have been reduced by this amount if the United States had not exported the commodity.

## Mathematics of Allocation

The calculations involved in allocating export shares use the mathematics of proportionate allocation. These procedures are a generally accepted part of the literature of economics, management, accounting,[2] etc. The allocation of national exports to states was done on the basis of the following relationships.[3]

(1) $X = A \cdot (C/B)$

where

X = The state export share in dollars for any state.

A = The value of each commodity or commodity group exported during the year under consideration.

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[2]Glenn A. Welsch, Charles T. Zlatkovich, and John A. White, Intermediate Accounting (fourth edition; Homewood, Illinois: Richard D. Irwin, Inc., 1976) pp. 342-343.

[3]Economics, Statistics and Cooperative Service, FATUS: Foreign Agricultural Trade of the United States (Washington, United States Department of Agriculture, March/April 1979) p. 14.

B = The total national volume of commodity produced or sold during the year.

C = The total volume of a commodity produced or sold during the year.

The county allocations may be performed as a continuation of the same procedure. This may be done as follows:

(2) $Z = X \cdot (P/S)$

Z = Where the portion of the state export share allocated to each county.

X = The state export share calculated as shown in (1) above.

P = County production[4] of the commodity in question.

S = State production of the commodity in question.

Crop Years and Calendar Years

Unlike manufacturing, agricultural production is based on biological processes. Crops are planted at certain times of the year and harvested 7 months later. At harvest, output is placed in inventory at various stages in the marketing channel. Sales are made from these inventories until the next harvest.

Since many of the most important commercial crops are planted in the spring and harvested in the fall, the crop year does not coincide with the calendar year. For statistical reporting purposes, the USDA has defined the crop year as extending from October 1 through September 30.[5] This approximates the period during which most fall-harvested crops will be stored and sold from inventory. Total commodity supply from domestic sources

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[4]Alabama Crop and Livestock Reporting Service, Alabama Agricultural Statistics, 1978 (Montgomery: Alabama Department of Agriculture and Industries and United States Department of Agriculture).

[5]Soybeans are an exception. The marketing year for soybeans extends from September 1 through August 31.

is fixed between harvests. Domestic and foreign buyers must bid for these inventories.

Year to Year Variation in Production

On a national basis, the production of agricultural commodities tend to be relatively stable. However, production by various states and regions may be subject to considerable variation. For example, in calendar year 1976, Alabama produced about 48 million bushels of corn and in calendar year 1977 Alabama produced only 10.9 million bushels.[6] As a result, Alabama's share of exported feed grains and products was $22.6 million in the 1977 marketing year and only $3.5 million in the 1978 marketing year.[7]

Allocation to Counties

The Alabama share of national agricultural exports amounted to $299.5 million in crop year 1978. This provided significant benefits to the Alabama agricultural economy. Table 1 presents an allocation of the value of these exports to the 67 Alabama counties.

Soybeans, wheat, feed grains, cotton, and peanuts plus their basic products were treated individually. The allocation bases respectively were the bushels, pounds, or bales of each commodity harvested in 1977. Since county statistics were not available for all feed grains, allocation was made on the basis of total corn and grain sorghum produced by counties. Some additional difficulties in allocation were encountered for cotton and peanuts because disclosure regulations precluded publishing county data in situations where the output of individual growers might be revealed. As a result, some

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[6] Alabama Agricultural Statistics 1978, pp. 32-33.

[7] FATUS, March/April 1979, pp. 18-19.

small divergencies occurred between Alabama's export shares and the amount allocated to counties. Alabama's export shares of these five crops accounted for about $213 million.

A residual category was included in Table 1 to show county allocations of the Alabama export shares of other agricultural products. The total of these products amounted to $85.4 million and was allocated to counties on the basis of preliminary data for each agricultural income excluding government transfer payments for the year 1978.[8] This statistic was considered most representative of general agricultural activity in the various counties.

Table 2 shows a summary of the state export shares that made up the "other" category in Table 1. Poultry accounted for the largest portion and possibly should have been treated separated. The poultry category, however, is comprised of poultry meat and meat products plus commercial eggs and egg products. Difficulties associated with sub-dividing the total plus those associated with finding suitable allocation bases precluded specific treatment in this report.

The theme developed in this paper is that foreign trade in agricultural products is important to the State of Alabama. It benefits all Alabama citizens whether they are farmers or non-farmers. Farmers benefit from broader markets for many of their products and from reduced price fluctuations caused by local gluts. Firms in the grain business benefit from the increased volumes handled. Consumers and other firms benefit from the income effects of increased foreign trade in agricultural products.

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[8]Alabama Crop and Livestock Reporting Service and the Alabama Cooperative Extension Service, Alabama Farm Income by Counties: 1977 Final and 1978 Preliminary Montgomery: Alabama Crop and Livestock Reporting Service, April 1979) pp. 2-3.

Table 1. ESTIMATED VALUE OF ALABAMA'S SHARE OF AGRICULTURAL COMMODITIES EXPORTED IN THE 1978 MARKETING YEAR ALLOCATED TO COUNTIES

| State and counties | Soybeans and products[c] | Wheat and products[c] | Feed grains[a,d] | Cotton including linters and il | Peanuts and oil | Other | Totals |
|---|---|---|---|---|---|---|---|
| | Thousands of Dollars | | | | | | |
| Alabama[b] | 122,300 | 5,400 | 3,500 | 36,800 | 45,900 | 85,600 | 299,500 |
| Autauga | 491 | 123 | 27 | 1,714 | 44 | 786 | 3,185 |
| Baldwin | 12,207 | 670 | 563 | e | e | 2,945 | 16,385 |
| Barbour | 130 | 16 | 25 | 226 | 5,149 | 1,308 | 6,854 |
| Bibb | 192 | 18 | 4 | 80 | e | 258 | 552 |
| Blount | 750 | 15 | 18 | 106 | e | 2,442 | 3,331 |
| Bullock | 1,551 | 17 | 11 | e | 409 | 850 | 2,838 |
| Butler | 382 | 42 | 13 | e | 458 | 815 | 1,710 |
| Calhoun | 1,398 | 7 | 8 | 239 | e | 916 | 2,568 |
| Chambers | 58 | 63 | 13 | e | e | 484 | 618 |
| Cherokee | 1,536 | 79 | 40 | 1,767 | e | 1,235 | 4,657 |
| Chilton | 328 | 48 | 20 | 213 | e | 597 | 1,206 |
| Choctaw | 85 | 7 | 28 | 40 | e | 380 | 540 |
| Clarke | 282 | 15 | 22 | e | e | 380 | 699 |
| Clay | 28 | 3 | 4 | e | e | 808 | 843 |
| Cleburne | 111 | 26 | 19 | 0 | e | 677 | 833 |
| Coffee | 1,238 | 43 | 36 | e | 6,414 | 3,056 | 10,787 |
| Colbert | 1,171 | 199 | 24 | 3,481 | e | 925 | 5,800 |
| Conecuh | 1,396 | 54 | 85 | 80 | 484 | 645 | 2,744 |
| Coosa | 14 | 4 | 2 | e | e | 274 | 294 |
| Covington | 5,177 | 56 | 29 | e | 2,850 | 1,794 | 9,906 |
| Crenshaw | 484 | 28 | 39 | 53 | 2,203 | 1,320 | 4,127 |
| Cullman | 1,922 | 27 | 63 | 266 | e | 6,687 | 8,965 |
| Dale | 201 | 8 | 36 | e | 4,091 | 1,019 | 5,355 |
| Dallas | 3,700 | 171 | 42 | 2,033 | 11 | 1,472 | 7,429 |
| DeKalb | 1,143 | 18 | 339 | 120 | e | 3,911 | 5,531 |
| Elmore | 1,017 | 35 | 12 | 1,422 | 12 | 803 | 3,301 |
| Escambia | 5,753 | 370 | 99 | 518 | 171 | 859 | 7,770 |
| Etowah | 1,206 | 25 | 36 | 306 | e | 1,020 | 2,593 |
| Fayette | 677 | 19 | 16 | 266 | e | 347 | 1,325 |

Table 1, continued.

| State and counties | Soybeans and products | Wheat and products | Feed grains | Cotton, including linters and oil | Peanuts and oil | Other | Totals |
|---|---|---|---|---|---|---|---|
| | Thousands of Dollars | | | | | | |
| Franklin | 1,643 | 21 | 44 | 173 | e | 1,141 | 3,022 |
| Geneva | 3,576 | 51 | 218 | e | 4,206 | 1,982 | 10,033 |
| Greene | 1,101 | 24 | 4 | 412 | e | 566 | 2,107 |
| Hale | 4,805 | 240 | 9 | 279 | e | 1,303 | 6,636 |
| Henry | 397 | 128 | 54 | e | 7,564 | 1,538 | 9,681 |
| Houston | 3,954 | 134 | 138 | e | 6,858 | 2,153 | 13,237 |
| Jackson | 5,404 | 174 | 200 | 213 | e | 1,772 | 7,763 |
| Jefferson | 114 | 15 | 3 | e | e | 780 | 912 |
| Lamar | 1,238 | 21 | 15 | 146 | e | 396 | 1,816 |
| Lauderdale | 4,514 | 138 | 40 | 2,378 | e | 1,224 | 8,294 |
| Lawrence | 3,363 | 206 | 63 | 3,587 | e | 2,272 | 9,491 |
| Lee | 131 | 14 | 10 | 664 | e | 465 | 1,284 |
| Limestone | 5,212 | 208 | 69 | 4,517 | e | 1,654 | 11,660 |
| Lowndes | 1,638 | 43 | 13 | 837 | 12 | 1,072 | 3,615 |
| Macon | 1,931 | 45 | 15 | 651 | e | 582 | 3,224 |
| Madison | 6,367 | 274 | 170 | 4,942 | e | 2,241 | 13,994 |
| Marengo | 2,079 | 279 | 5 | 239 | e | 942 | 3,544 |
| Marion | 1,683 | 36 | 48 | 93 | e | 576 | 2,436 |
| Marshall | 2,476 | 16 | 158 | 186 | e | 3,252 | 6,088 |
| Mobile | 3,731 | 78 | 138 | e | e | 2,015 | 5,962 |
| Monroe | 2,779 | 90 | 129 | 1,050 | 23 | 910 | 4,981 |
| Montgomery | 2,939 | 108 | 23 | 292 | 42 | 1,581 | 4,985 |
| Morgan | 2,296 | 58 | 61 | 385 | e | 1,774 | 4,574 |
| Perry | 3,134 | 75 | 8 | 120 | e | 1,361 | 4,698 |
| Pickens | 1,813 | 89 | 15 | 412 | 12 | 1,182 | 3,523 |
| Pike | 305 | 51 | 18 | e | 4,444 | 1,593 | 6,411 |
| Randolph | 161 | 5 | 21 | e | e | 1,077 | 1,264 |
| Russell | 889 | 15 | 4 | 266 | 256 | 434 | 1,864 |
| St. Clair | 183 | 18 | 10 | 0 | e | 1,174 | 1,385 |
| Shelby | 721 | 27 | 2 | 385 | e | 782 | 1,917 |
| Sumter | 2,042 | 180 | 28 | 93 | e | 1,042 | 3,385 |

Table 1, continued.

| State and counties | Soybeans and products | Wheat and products | Feed grains | Cotton including linters and oil | Peanuts and oil | Other | Totals |
|---|---|---|---|---|---|---|---|
| | Thousands of Dollars | | | | | | |
| Talladega | 1,343 | 68 | 6 | 120 | e | 851 | 2,388 |
| Tallapoosa | 87 | 10 | 5 | 173 | e | 539 | 814 |
| Tuscaloosa | 563 | 93 | 6 | 691 | e | 679 | 2,032 |
| Walker | 127 | 18 | 5 | e | e | 921 | 1,071 |
| Washington | 693 | 17 | 28 | 226 | e | 584 | 1,548 |
| Wilcox | 2,109 | 122 | 21 | 146 | 16 | 657 | 3,071 |
| Winston | 131 | 5 | 23 | e | e | 1,520 | 1,679 |
| Total Allocated | 122,300 | 5,400 | 3,500 | 36,606 | 45,729 | 85,600 | 299,135 |

[a]Feed grains include corn, grain sorghum, oats, and barley.

[b]Source: Economics, Statistics, and Cooperative Service, FATUS: Foreign Agricultural Trade of the United States (Washington: United States Department of Agriculture, March/April 1979), pp.18-19.

[c]County allocations were based on the ratio of county production of these crops to state production in 1977 as reported in Alabama Agricultural Statistics 1978, prepared by the Alabama Crop and Livestock Reporting Service.

[d]Due to the lack of published county data for all feed grains, county allocations were based on the ratio of county production of corn and grain sorghum in 1977 to the corresponding state production published in Alabama Agricultural Statistics, 1978.

[e]Disclosure regulations prevented the Alabama Crop and Livestock Reporting Service from publishing data that might reveal the operations of individual producers. Therefore no allocation base existed for these counties. However, all in-state production was included in state totals and the computations of Alabama's export share of various agricultural commodities.

Table 2. ESTIMATED VALUE OF ALABAMA'S SHARE OF AGRICULTURAL COMMODITIES EXPORTED IN THE 1978 MARKETING YEAR AND NOT ALLOCATED TO COUNTIES ON AN INDIVIDUAL BASIS[a]

| Commodities | Export Shares |
|---|---|
| | ($1,000) |
| Fruits and preparations | 500 |
| Hides and skins | 9,400 |
| Lard and tallow | 8,600 |
| Meat and meat products | 9,400 |
| Nuts and preparations | 3,800 |
| Poultry products | 28,800 |
| Tabacco, Unmanufactured | 800 |
| Vegetables and preparations | 3,500 |
| Other | 20,800 |
| Total | 85,600 |

[a]These commodities were included in the "other" category in Table 1.

Source: Economic Statistics and Cooperative Service: FATUS: Foreign Agricultural Trade of the United States (Washington: United States Department of Agriculture, March/April 1979), pp. 18-19.

# INCOME AND EMPLOYMENT GENERATED IN THE ALABAMA ECONOMY BY THE ALABAMA STATE DOCKS PUBLIC GRAIN ELEVATOR

James L. Stallings[1/]

## Introduction

Alabama farmers and citizens are sometimes unaware of how important an impact the Port of Mobile in general, the Public Grain Elevator in particular, has on the Alabama economy and their own incomes. The farmer, hauling his soybeans to his local grain elevator, for instance, may not be aware that some or all of his crop may end up in the Port of Rotterdam and help feed Dutch, German, or Danish hogs. He may also be unaware that without the pressure on local demand that these foreign sales have, his local price for soybeans would probably be much lower. The cotton farmer may only think of the bale of cotton lint going to a U.S. textile mill. He may be unaware that cottonseed meal may leave the Public Grain Elevator in Mobile for foreign destinations, helping to keep the local price up for cottonseed.

Another idea which may not have occurred to Alabama farmers and citizens is that these exports out of the Public Grain Elevator in Mobile mean jobs for Alabamians. This can be in terms of keeping a certain number of self-employed Alabama farmers in business or jobs for hired farm labor. Even more important, and more often unrecognized, is that it means a certain number of extra jobs and income in the various businesses supplying inputs to the farmers for production as well as for the various goods and services businesses where the farmer and his family spend their income. If the extra income from foreign demand were not there, there would be less

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money spent locally at the grocery store, car dealer, hair dresser, tractor or machinery dealer, fertilizer and chemical dealer, etc., and, in the long run, fewer people employed in these activities.

Procedure

Employment and income impacts of various activities or facilities in local economics are frequently analyzed through the technique called "input-output analysis." With this technique, a table called a "matrix" is prepared in which various sectors of an economy are broken down to various levels of detail such as "agriculture, manufacturing, and government." Agriculture may further be broken down into crops and livestock or even further into soybeans, broilers, etc. Then, for each sector designated, research is carried out through surveys or personal contact to find out amounts that each sector purchases from all other sectors designated. Then, with a mathematical technique, "income and employment multipliers" are estimated which indicate for each sector how much income and employment would be generated throughout the whole economy with a one-unit increase in any specific sector. For instance, with a $1 export of soybeans from the foreign export sector, it might be determined that $2.72 of business is generated throughout the Alabama economy, first as income to the farmer of $1 and secondly $1.72 to fertilizer and chemical dealers, the grocery store, the doctor, etc., and through their spending in turn as the effect multiplies throughout the whole economy. These secondary effects may take several months to work themselves out.

Such an input-output study of the Port of Mobile was done in 1973 by Dunphy and Chang of the Department of Economics of the University of South

Alabama.[2/] In this study, the basic income and employment multipliers were estimated for the Public Grain Elevator activity. While the data in this study are now somewhat out of date, experience has shown that basic multiplier relationships in such studies tend to remain fairly stable over time or change slowly. It was therefore assumed for this paper that the basic multiplier of 2.72402 for income and employment in this 1973 study has not changed appreciably and that only amounts of grains and products moving through the Public Grain Elevator and their prices have changed. Therefore, the basic multipliers presented in the Dunphy and Chang study have applied in updating the impact of the Elevator to calendar year 1977. This year was chosen because it corresponded to data from another detailed study of grain movements from farmers to elevators to the Port by the Auburn University Department of Agricultural Economics and Rural Sociology. These latter data, along with other secondary data, were used to estimate in more detail than was possible in the Dunphy and Chang study the specific impact of the Public Grain Elevator on the 67 county economies of Alabama. While the income impact has increased from 1973, it was assumed that the employment impact has remained the same. While some increased volume has occurred since then, it is assumed that technology has also increased to offset it. Therefore only dollar figures will have changed since 1973. Future studies beyond 1977, however, should probably consider revision of the employment figures.

Summary of Assumptions for This Study

1. The study period is the 1977 calendar year.

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[2/] Dunphy, L. M. and S. Chang, Economic Analysis of the Port of Mobile, Department of Economics, University of South Alabama, Mobile, 1974.

2. Multipliers for income and employment have not changed since estimated by Dunphy and Chang in 1973. These are 2.72402 for income and employment as estimated in 1973.
3. Employment has stayed the same, even though there has been increased volume through the Port, because of increased technology.
4. Income is 1977 season average prices times physical volumes of raw grain or grain, seed, or nut equivalent of products moving through the Public Grain Elevator.
5. Exports of soybeans for meal, cottonseed for meal, and peanuts for meal were assumed to be the raw physical amounts of grains needed for production of corn gluten and screenings were assumed to be contained in the amount of raw physical grain exported.
6. Benefit to agriculture is only from those agricultural products passing through the Public Grain Elevator. All other effects of the Port are contained in other studies.
7. Benefits to Mobile County do not contain the non-agriculture direct effects of the port operation located in the county--only the multiplied effects of the agricultural operations in the county.

Objectives of This Paper

1. To determine the physical amounts of grain and the grain, seed, or nut equivalents passing through the Public Grain Elevator in calendar year 1977.
2. To determine the origins of all these grains and products by counties.
3. To estimate the employment and income generated at the county level in Alabama by the Public Grain Elevator in calendar year 1977.

4. To present information useful in assessing the future potential benefits of the Public Grain Elevator to the Alabama economy.

The above objectives are met with data in the following tables:

Objective 1 - Table 1,

Objective 2 - Table 2,

Objective 3 - Table 3,

Objective 4 - Tables 4-8 and Figures 1 and 2.

## Products Shipped Through the Public Grain Elevator

By far the largest amount of products passing through the Public Grain Elevator is unprocessed soybeans, accounting for nearly three-fourths of the tonnage and value in calendar year 1977 (Tables 1 and 2). If the value of the soybean meal is also included, soybean and soybean products accounted for $85,158,017 or over 82 percent of the value of products passing through the Elevator in 1977.

An important aspect of the importance of soybeans is that more than 50 percent of them came from Alabama farmers rather than from out-of-state as with corn and wheat (Table 1). Many of the unprocessed soybeans came from counties on the southern border of Alabama or along navigable rivers with access to Mobile, while the meal is from the northern part of the State (Figure 1).

## Future Trends in Products Through the Public Grain Elevator

The dominance of soybeans and soybean products in exports from the Elevator is not only expected to continue, but is expected to expand (Tables 4, 5, and 6). Unpublished work done under project S-115 by the Department of Agricultural Economics and Rural Sociology of Auburn University indicates that soybean acres and production will continue to expand while corn and

wheat production will stabilize. Also, minor feed grains such as grain sorghums, barley, and rye are expected to be relatively unimportant from an export standpoint. This increase in soybean acreage and production is expected to continue to be dramatic, expanding to over 3 million acres in Alabama in the late 1980's and 1990's. Some of these acres will come at the expense of the other crops now exported and from pasture lands.

The Impact of the Tennessee-Tombigbee Waterway

No extensive study was made of the impact of the new waterway for this study, but some indication can be obtained from a past study (Table 7), and by merely comparing potential distances saved (Table 8 and Figure 2).

While the data are now out of date, the Gardner study (Table 7) indicated a substantial potential rate saving from selected Corn Belt points to different points in Alabama. This study was more concerned with getting corn to Alabama farmers for use rather than for export, however. The big savings, of course, is in shipment of corn by water to points in southern Alabama.

A look at physical distances with and without the new waterway (Table 8 and Figure 2) gives further indication of potential savings. Two points were selected to represent grain movements from the Corn Belt (Mt. Vernon, Ind.) to Alabama and grain movements from north (Decatur) to south Alabama. The 31 percent savings in shipments to Mobile for export is expected to be enough to divert a significant amount of grain from New Orleans through Mobile. The 57 percent savings to Demopolis should also be a stimulus in opening new potential in this area as well as in other southern Alabama areas. Also, very important will be the opening of profitable potentials for shipments from the Tennessee Valley of Alabama, represented by Decatur, to Mobile for export and to points in southern Alabama for use. The unpublished survey mentioned earlier (S-115) indicated that some products are now

shipped by water from the Tennessee Valley to the Port of New Orleans, a distance of about 1,275 miles at the present. With the opening of the new waterway, savings in miles from Decatur in going to Mobile, rather than New Orleans, would be 732 miles or more than 57 percent.

## Summary and Conclusions

Two main factors indicate an expansion of activity through the Public Grain Elevator and through the Port of Mobile in general in the future. These are the expected significant expansion of soybean acres in Alabama and the opening of the Tennessee-Tombigbee Waterway. As indicated in the Hurst paper, storage capacity of the Elevator relative to the volume handled already gives it the highest turnover rate of any other export elevator in the United States. Forseeable increases in activity through the Public Grain Elevator should further tax the present facilities.

Table 1. Origin of Products Flowing Through the Alabama State Docks Public Grain Elevator, Calendar Year 1977

| Origin | Unprocessed soybeans | Unprocessed corn | Unprocessed wheat | Soybean meal | Cottonseed meal | Peanut meal | Misc. | Total |
|---|---|---|---|---|---|---|---|---|
| | Bu. | Bu. | Bu. | Tons | Tons | Tons | | Tons Equ. |
| From Alabama farms to elevators to port | 12,197,340<br>56.7% | 2,392,607<br>12.3% | 1,364,202<br>27.1% | 44,837<br>100.0% | 39,570<br>100.0% | 2,508<br>100.0% | 1,671<br>100.0% | 562,425<br>39.3% |
| From out-of-state to Alabama elevator to port | 710,459<br>3.3% | 1,050,031<br>5.4% | 84,971<br>1.7% | -- | -- | -- | -- | 53,264<br>3.7% |
| Direct to port from out-of-state | 8,600,706<br>40.0% | 16,028,061<br>82.3% | 3,588,570<br>71.2% | -- | -- | -- | -- | 814,464<br>57.0% |
| Total through port in 1977 | 21,508,505 | 19,470,699 | 5,037,743 | 44,837 | 39,570 | 2,508 | 1,671 | 1,430,153 |

Source: Unpublished data from survey taken of grain firms in the State under project S115 by the Department of Agricultural Economics and Rural Sociology, Auburn University.

Table 2. Estimated Farm Value of Grains, Seeds, and Nuts, or Their Equivalent, Originating from Alabama Farms and Firms Passing Through the Alabama State Docks Public Grain Elevator, By Counties, 1977

| County | Unprocessed soybeans | Unprocessed corn | Unprocessed wheat | Soybeans for meal | Cottonseed for meal | Peanuts for meal | Total |
|---|---|---|---|---|---|---|---|
| Autauga | $ 188,634 | $ 29,494 | $ 31,509 | $ 11,575 | $ 276,018 | $ 2,375 | $ 539,605 |
| Baldwin | 19,997,942 | 2,531,420 | 688,548 | 185,656 | 1,423 | * | 23,405,288 |
| Barbour | 110,854 | 11,972 | * | * | 36,374 | 280,417 | 439,881 |
| Bibb | 109,411 | * | 18,509 | 42,544 | 12,838 | * | 183,451 |
| Blount | * | * | * | 165,974 | 17,117 | * | 183,195 |
| Bullock | 294,101 | 49,157 | * | * | 1,832 | 22,279 | 367,369 |
| Butler | 712,218 | 57,677 | 43,185 | * | 2,140 | 24,952 | 840,172 |
| Calhoun | * | * | * | 309,396 | 38,513 | * | 347,997 |
| Chambers | * | * | * | * | 2,140 | * | 2,450 |
| Cherokee | * | * | * | 340,009 | 284,583 | * | 624,868 |
| Chilton | 72,272 | 70,566 | * | 72,674 | 34,234 | * | 249,860 |
| Choctaw | 25,777 | * | 7,491 | * | 6,419 | * | 39,715 |
| Clarke | 203,952 | 21,309 | 15,865 | * | 1,428 | * | 242,589 |
| Clay | * | * | * | * | 2,140 | * | 2,188 |
| Cleburne | * | * | * | 24,489 | * | * | 24,552 |
| Coffee | 94,104 | * | 27,542 | * | 1,837 | 349,335 | 472,818 |
| Colbert | * | * | * | 259,112 | 560,602 | * | 819,960 |
| Conecuh | 485,910 | 197,841 | 55,524 | * | 12,838 | 26,354 | 778,467 |
| Coosa | * | 6,554 | * | * | 2,139 | * | 8,731 |
| Covington | 962,165 | 59,581 | 42,712 | * | 2,139 | 155,231 | 1,221,828 |
| Crenshaw | 398,429 | 179,913 | 29,085 | * | 8,558 | 120,008 | 735,993 |
| Cullman | * | * | * | 425,414 | 42,793 | * | 468,296 |
| Dale | 5,204 | 5,622 | 4,957 | * | 1,837 | 222,789 | 240,817 |
| Dallas | 2,635,426 | 173,032 | 176,269 | 87,182 | 327,376 | * | 3,399,880 |
| DeKalb | * | * | * | 252,994 | 19,257 | * | 272,489 |
| Elmore | 418,502 | 58,989 | * | * | 228,946 | * | 707,117 |
| Escambia | 8,253,631 | 333,761 | 383,476 | * | 83,446 | 9,337 | 9,063,651 |
| Etowah | * | * | * | 266,846 | 49,211 | * | 316,145 |
| Fayette | 385,411 | * | * | 174,616 | 42,793 | * | 603,006 |
| Franklin | * | * | * | 363,774 | 27,815 | * | 391,928 |

Table 2. Estimated Farm Value of Grains, Seeds, and Nuts, or Their Equivalent, Originating from Alabama Farms and Firms Passing Through the Alabama State Docks Public Grain Elevator, By Counties, 1977 (cont'd)

| County | Unprocessed soybeans | Unprocessed corn | Unprocessed wheat | Soybeans for meal | Cottonseed for meal | Peanuts for meal | Total |
|---|---|---|---|---|---|---|---|
| Geneva | 666,672 | 5,622 | 88,133 | * | 1,837 | 229,091 | 991,355 |
| Greene | 1,150,040 | * | 24,237 | 40,244 | 66,329 | * | 1,281,032 |
| Hale | 5,865,150 | * | 152,018 | * | 44,932 | * | 6,062,365 |
| Henry | 243,760 | 14,053 | 7,854 | 811 | 1,831 | 411,948 | 680,257 |
| Houston | 3,164,702 | 120,395 | 30,123 | 8,056 | 1,832 | 373,522 | 3,698,630 |
| Jackson | * | * | * | 1,196,236 | 34,234 | * | 1,230,989 |
| Jefferson | 61,048 | * | * | 25,139 | * | * | 87,063 |
| Lamar | 704,513 | * | * | 319,188 | 23,536 | * | 1,047,407 |
| Lauderdale | * | * | * | 999,235 | 383,006 | * | 1,382,440 |
| Lawrence | * | * | * | 744,470 | 577,719 | * | 1,322,397 |
| Lee | 77,464 | 32,771 | 3,717 | * | 106,987 | * | 221,075 |
| Limestone | * | * | * | 1,153,760 | 727,499 | * | 1,881,545 |
| Lowndes | 1,024,604 | 11,798 | 44,067 | 38,594 | 134,803 | * | 1,254,503 |
| Macon | 970,439 | 78,651 | * | * | 104,848 | * | 1,154,096 |
| Madison | * | * | * | 1,409,434 | 795,967 | * | 2,205,984 |
| Marengo | 5,538,481 | * | 286,436 | 48,990 | 38,513 | * | 5,912,083 |
| Marion | * | * | * | 372,474 | 14,977 | * | 387,612 |
| Marshall | * | * | * | 548,038 | 29,955 | * | 578,061 |
| Mobile | 4,513,210 | 1,589,209 | 196,574 | * | 1,428 | * | 6,300,517 |
| Monroe | 2,055,544 | 373,792 | 92,541 | * | 169,037 | 1,230 | 2,692,144 |
| Montgomery | 1,925,066 | 404,397 | 32,206 | * | 47,072 | 2,290 | 2,411,031 |
| Morgan | * | * | * | 508,156 | 62,049 | * | 570,303 |
| Perry | 3,403,097 | * | 50,785 | 73,842 | 19,257 | * | 3,547,661 |
| Pickens | 828,408 | * | 91,660 | 66,286 | 66,329 | * | 1,053,431 |
| Pike | 49,887 | 51,996 | 13,220 | * | 1,832 | 242,056 | 358,991 |
| Randolph | * | * | * | * | 2,140 | * | 2,195 |
| Russell | 1,864,684 | 106,568 | 4,408 | * | 42,793 | 13,962 | 2,032,415 |
| St. Clair | * | * | * | 40,606 | * | * | 40,745 |
| Shelby | 410,280 | * | * | 159,534 | 62,049 | * | 632,007 |
| Sumter | 1,383,893 | * | 90,190 | 74,658 | 14,977 | * | 1,564,110 |

Table 2. Estimated Farm Value of Grains, Seeds, and Nuts, or Their Equivalent, Originating from Alabama Farms and Firms Passing Through the Alabama State Docks Public Grain Elevator, By Counties, 1977 (cont'd)

| County | Unprocessed soybeans | Unprocessed corn | Unprocessed wheat | Soybeans for meal | Cottonseed for meal | Peanuts for meal | Total |
|---|---|---|---|---|---|---|---|
| Talladega | * | * | * | * | 19,257 | * | 19,375 |
| Tallapoosa | * | 18,024 | * | * | 27,815 | * | 45,995 |
| Tuscaloosa | 1,049,335 | 560,295 | 95,846 | 20,591 | 111,273 | * | 1,838,042 |
| Walker | 67,833 | * | * | 28,198 | * | * | 96,932 |
| Washington | 749,593 | 75,081 | 17,187 | * | 36,374 | * | 878,287 |
| Wilcox | 1,098,198 | * | 124,931 | 49,703 | 23,536 | * | 1,297,218 |
| Winston | * | * | * | 29,003 | * | * | 29,910 |
| State | $74,219,844 | $7,229,540 | $2,970,805 | $10,938,173 | $5,926,960 | $2,499,907 | $103,785,229 |

Source: Unpublished data from survey taken of grain firms in the State under project S-115 by the Department of Agricultural Economics and Rural Sociology, Auburn University, for the unprocessed soybeans, corn, and wheat data. This included the percent of receipts from different distances from the firm. Soybean, cottonseed, and peanut meal reported shipped through the Port was allocated on the basis of production reported by the Alabama Crop and Livestock Reporting Service and the 1974 Census of Agriculture.

*Zero to less than $1,000 worth.

Table 3. Estimated Direct and Indirect Effects of Port of Mobile Access on the Economies of the Counties of Alabama

| County | Farm value of grain shipped[1] | Value of indirect goods and services[2] | Total multiplied effect | Created jobs or employment[3] |
|---|---|---|---|---|
| Autauga | $ 539,605 | $ 930,290 | $ 1,469,895 | $ 45 |
| Baldwin | 23,405,288 | 40,351,185 | 63,756,473 | 1,931 |
| Barbour | 439,881 | 758,364 | 1,198,245 | 36 |
| Bibb | 183,451 | 316,273 | 499,724 | 15 |
| Blount | 183,195 | 315,832 | 499,027 | 15 |
| Bullock | 367,369 | 633,352 | 1,000,721 | 30 |
| Butler | 840,172 | 1,448,473 | 2,288,645 | 69 |
| Calhoun | 347,997 | 599,954 | 947,951 | 29 |
| Chambers | 2,450 | 4,224 | 6,674 | * |
| Cherokee | 624,868 | 1,077,285 | 1,702,153 | 52 |
| Chilton | 249,860 | 430,764 | 680,624 | 21 |
| Choctaw | 39,715 | 68,469 | 108,184 | 3 |
| Clarke | 242,589 | 418,228 | 660,817 | 20 |
| Clay | 2,188 | 3,772 | 5,960 | * |
| Cleburne | 24,552 | 42,328 | 66,880 | 2 |
| Coffee | 472,818 | 815,148 | 1,287,966 | 39 |
| Colbert | 819,960 | 1,413,627 | 2,233,587 | 68 |
| Conecuh | 778,467 | 1,342,093 | 2,120,560 | 64 |
| Coosa | 8,731 | 15,052 | 23,783 | 1 |
| Covington | 1,221,828 | 2,106,456 | 3,328,284 | 101 |
| Crenshaw | 735,993 | 1,268,867 | 2,004,860 | 61 |
| Cullman | 468,296 | 807,352 | 1,275,648 | 39 |
| Dale | 240,817 | 415,173 | 655,990 | 20 |
| Dallas | 3,399,880 | 5,861,461 | 9,261,341 | 280 |
| DeKalb | 272,489 | 469,776 | 742,265 | 22 |
| Elmore | 707,117 | 1,219,084 | 1,926,201 | 58 |
| Escambia | 9,063,651 | 15,625,916 | 24,689,567 | 75 |
| Etowah | 316,145 | 545,040 | 861,185 | 26 |
| Fayette | 603,006 | 1,039,594 | 1,642,600 | 50 |
| Franklin | 391,928 | 675,692 | 1,067,620 | 32 |

Table 3. Estimated Direct and Indirect Effects of Port of Mobile Access on the Economies of the Counties of Alabama (cont'd)

| County | Farm value of grain shipped[1] | Value of indirect goods and services[2] | Total multiplied effect | Created jobs or employment[3] |
|---|---|---|---|---|
| Geneva | 991,355 | 1,709,116 | 2,700,471 | 82 |
| Greene | 1,281,032 | 2,208,525 | 3,489,557 | 106 |
| Hale | 6,062,365 | 10,451,639 | 16,514,004 | 500 |
| Henry | 680,257 | 1,172,777 | 1,853,034 | 56 |
| Houston | 3,698,630 | 6,376,512 | 10,075,142 | 305 |
| Jackson | 1,230,989 | 2,122,250 | 3,353,239 | 102 |
| Jefferson | 87,063 | 150,098 | 237,161 | 7 |
| Lamar | 1,047,407 | 1,805,751 | 2,853,158 | 86 |
| Lauderdale | 1,382,440 | 2,383,354 | 3,765,794 | 114 |
| Lawrence | 1,322,397 | 2,279,839 | 3,602,236 | 109 |
| Lee | 221,075 | 381,138 | 602,213 | 18 |
| Limestone | 1,881,545 | 3,243,821 | 5,125,366 | 155 |
| Lowndes | 1,254,503 | 2,162,788 | 3,417,291 | 103 |
| Macon | 1,154,096 | 1,989,685 | 3,143,781 | 95 |
| Madison | 2,205,984 | 3,803,161 | 6,009,145 | 182 |
| Marengo | 5,912,803 | 10,193,791 | 16,106,594 | 488 |
| Marion | 387,612 | 668,251 | 1,055,863 | 32 |
| Marshall | 578,061 | 996,589 | 1,574,650 | 48 |
| Mobile | 6,300,517 | 10,862,217 | 17,162,734 | 520 |
| Monroe | 2,692,144 | 4,641,310 | 7,333,450 | 222 |
| Montgomery | 2,411,031 | 4,156,666 | 6,567,697 | 199 |
| Morgan | 570,303 | 983,214 | 1,553,517 | 47 |
| Perry | 3,547,661 | 6,116,239 | 9,663,900 | 293 |
| Pickens | 1,053,431 | 1,816,136 | 2,869,567 | 87 |
| Pike | 358,991 | 618,908 | 977,899 | 30 |
| Randolph | 2,195 | 3,784 | 5,979 | * |
| Russell | 2,032,415 | 3,503,924 | 5,536,339 | 168 |
| St. Clair | 40,745 | 70,245 | 110,990 | 3 |
| Shelby | 632,007 | 1,089,593 | 1,721,600 | 52 |
| Sumter | 1,564,110 | 2,696,557 | 4,260,667 | 129 |

Table 3. Estimated Direct and Indirect Effects of Port of Mobile Access on the Economies of the Counties of Alabama (cont'd)

| County | Farm value of grain shipped[1/] | Value of indirect goods and services[2/] | Total multiplied effect | Created jobs or employment[3/] |
|---|---|---|---|---|
| Talladega | 19,375 | 33,403 | 52,778 | 2 |
| Tallapoosa | 45,995 | 79,296 | 125,291 | 4 |
| Tuscaloosa | 1,838,042 | 3,168,821 | 5,006,863 | 152 |
| Walker | 96,932 | 167,113 | 264,045 | 8 |
| Washington | 878,287 | 1,514,184 | 2,392,471 | 72 |
| Wilcox | 1,297,218 | 2,236,430 | 3,533,648 | 146 |
| Winston | 29,910 | 51,565 | 81,475 | 2 |
| State | $103,785,229 | $178,927,811 | $282,713,040 | 8,562 |

1/ Includes value of raw grain plus grain, seed, or nut equivalents of products such as SBM, CSM, and peanut meal.

2/ Includes income from sale locally of farm inputs and services, including hired labor, plus multiplied spending of direct income for goods and services by farm families.

3/ Includes hired farm labor, man equivalents of self-employed farmers, and equivalent jobs in businesses servicing agriculture.

* Less than 1.

Table 4. Acres, Yield, and Production of Corn, Alabama, 1960-79, with Projections to 1984, 1989, and 1999[1/]

| | (000) | Yield Bu./A | Production (000 Bu.) |
|---|---|---|---|
| 1960 | 1,705 | 26.0 | 44,330 |
| 1961 | 1,330 | 33.0 | 43,890 |
| 1962 | 1,144 | 27.5 | 31,460 |
| 1963 | 1,133 | 35.5 | 40,222 |
| 1964 | 1,020 | 35.5 | 36,210 |
| 1965 | 945 | 43.0 | 40,635 |
| 1966 | 872 | 34.0 | 29,648 |
| 1967 | 899 | 47.0 | 42,253 |
| 1968 | 711 | 36.0 | 25,596 |
| 1969 | 654 | 33.0 | 21,582 |
| 1970 | 555 | 26.5 | 14,708 |
| 1971 | 626 | 45.5 | 28,170 |
| 1972 | 545 | 48.0 | 26,160 |
| 1973 | 610 | 46.0 | 28,060 |
| 1974 | 630 | 43.0 | 27,090 |
| 1975 | 660 | 50.0 | 33,000 |
| 1976 | 800 | 60.0 | 48,000 |
| 1977 | 375 | 29.0 | 10,875 |
| 1978 | 544 | 49.6 | 27,000 |
| 1979 | (495)* | | |
| 1984 | 480 | 55.0 | 26,400 |
| 1989 | 450 | 62.5 | 28,125 |
| 1999 | 450 | 75.0 | 33,750 |

[1/] Unpublished data from S115 project.

* Estimated from prospective plantings, as of April 16, 1979, USDA.

Source: Actual data: Alabama Crop and Livestock Reporting Service; Projections: Statistical fitting of four equations plus judgment of different knowledgeable experts.

Table 5. Acres, Yield, and Production of Soybeans, Alabama, 1960-79, with Projections to 1984, 1989, and 1999[1/]

| | Acres harvested (000) | Yield Bu./A | Production (000 Bu.) |
|---|---|---|---|
| 1960 | 135 | 24.0 | 3,240 |
| 1961 | 157 | 23.0 | 3,611 |
| 1962 | 176 | 20.5 | 3,608 |
| 1963 | 192 | 20.0 | 3,840 |
| 1964 | 207 | 22.0 | 4,554 |
| 1965 | 228 | 22.0 | 5,016 |
| 1966 | 280 | 24.5 | 6,860 |
| 1967 | 484 | 26.5 | 12,826 |
| 1968 | 550 | 22.0 | 12,100 |
| 1969 | 630 | 22.5 | 14,175 |
| 1970 | 600 | 23.0 | 13,800 |
| 1971 | 655 | 26.0 | 17,030 |
| 1972 | 800 | 20.0 | 16,000 |
| 1973 | 970 | 21.0 | 20,370 |
| 1974 | 920 | 23.0 | 21,160 |
| 1975 | 1,260 | 24.5 | 30,870 |
| 1976 | 1,170 | 24.0 | 28,080 |
| 1977 | 1,600 | 21.0 | 33,600 |
| 1978 | 1,950 | 22.0 | 42,900 |
| 1979 | (2,340)* | | |
| 1984 | 2,800 | 22.8 | 63,840 |
| 1989 | 3,020 | 22.8 | 68,856 |
| 1999 | 3,200 | 22.9 | 73,280 |

[1/] Unpublished data from S115 project.

* Estimated from prospective plantings, as of April 16, 1979, USDA.

Source: Actual data: Alabama Crop and Livestock Reporting Service; Projections: Statistical fitting of four equations plus judgment of different knowledgeable experts.

Table 6. Acres, Yield, and Production of Wheat, Alabama, 1960-79, with Projections to 1984, 1989, and 1999[1/]

| | Acres harvested (000) | Yield Bu./A | Production (000 Bu.) |
|---|---|---|---|
| 1960 | 48 | 25.0 | 1,200 |
| 1961 | 56 | 26.0 | 1,456 |
| 1962 | 35 | 24.0 | 840 |
| 1963 | 42 | 23.5 | 987 |
| 1964 | 64 | 25.0 | 1,600 |
| 1965 | 55 | 24.5 | 1,348 |
| 1966 | 59 | 28.0 | 1,652 |
| 1967 | 112 | 24.0 | 2,688 |
| 1968 | 111 | 25.0 | 2,775 |
| 1969 | 87 | 29.0 | 2,523 |
| 1970 | 85 | 28.0 | 2,380 |
| 1971 | 120 | 29.0 | 3,480 |
| 1972 | 110 | 20.0 | 2,200 |
| 1973 | 80 | 23.0 | 1,840 |
| 1974 | 95 | 23.5 | 2,233 |
| 1975 | 105 | 24.0 | 2,520 |
| 1976 | 85 | 27.0 | 2,295 |
| 1977 | 90 | 28.0 | 2,520 |
| 1978 | 65 | 26.0 | 1,690 |
| 1979 | (70)* | | |
| 1984 | 78 | 25.8 | 2,012 |
| 1989 | 82 | 26.0 | 2,132 |
| 1999 | 86 | 26.4 | 2,270 |

[1/] Unpublished data from S115 project.

* Estimated from prospective plantings, as of December 22, 1978.

Source: Actual data: Alabama Crop and Livestock Reporting Service; Projections: Statistical fittings of four equations plus judgment of different knowledgeable experts.

Figure 1. County Estimates of Direct and Indirect Value of All Grains and Grain, Seed, or Nut Equivalents Shipped Through the Public Grain Elevator, Calendar Year 1977.

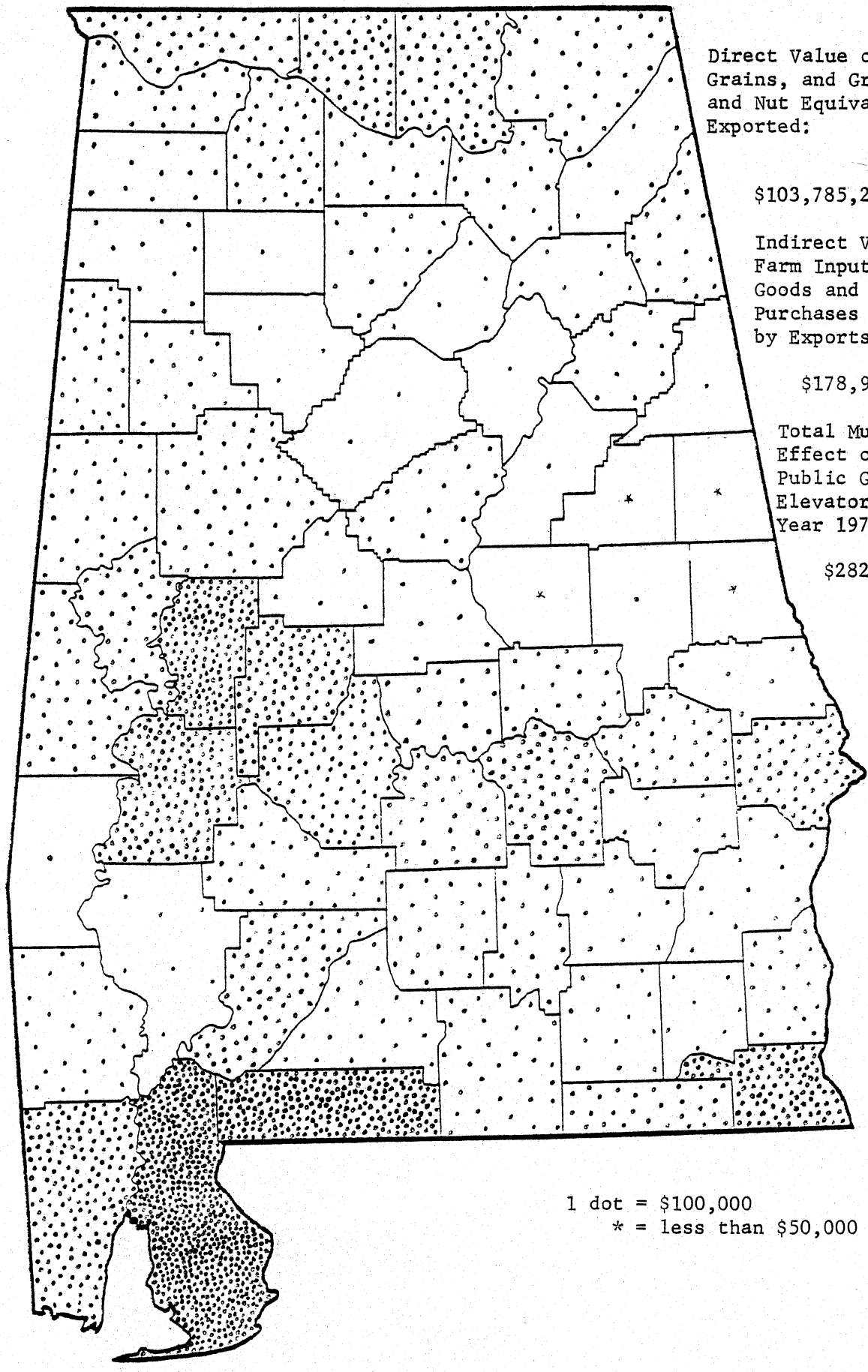


Table 7. Example of Transportation Charges for Corn From Mt. Vernon, Indiana to Selected Points in Alabama, with Present Waterways and Assumed Completion of the Tennessee-Tombigbee Waterway, 1970[1/]

| Destination | Truck | Rail | | Water | | | |
|---|---|---|---|---|---|---|---|
| | | Multiple cars rate | Single car rate | Miles | | Charge/T. | |
| | | | | Present | W/Ten.-Tom. | Present | W/Ten.-Tom. |
| | ($/T.) | ($/T.) | ($/T.) | (mi.) | (mi.) | ($/T.) | ($/T.) |
| Guntersville | 6.07 | 3.50 | 4.16 | 463 | 463 | 2.60 | 2.60 |
| Demopolis | NA | NA | 5.25 | 1,386 | 573 | 4.55 | 2.40 |
| Claiborne | NA | NA | 5.98[2/] | 1,296 | 825 | 4.25 | 3.50 |
| Columbia | NA | NA | 6.12 | 1,504 | 1,183 | 6.15 | 5.00 |

NA = Not Available or Not Applicable

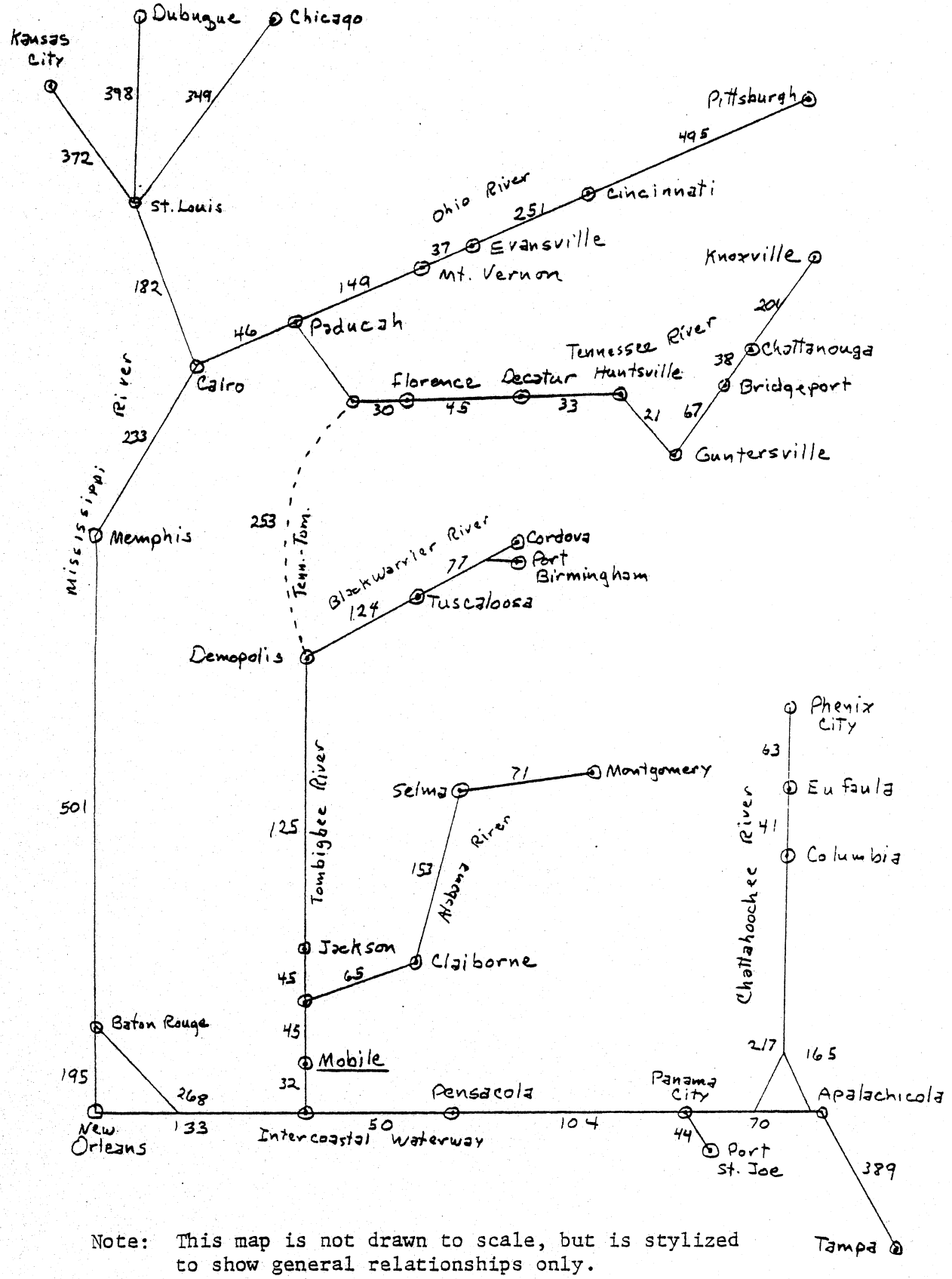
1/ Source: Gardner, George Ray, Jr. Optimal Transportation of Corn to Alabama, 1970. Unpublished M.S. Thesis, Auburn University. (Actual miles and rates and estimated rates with the Tenn.-Tom. completed provided by the Navigation Economics Branch, Tennessee Valley Authority, Knoxville, Tenn.)

2/ to Mexia, Ala., the nearest rail point.

Table 8. Comparison of Approximate Distances and Savings in Miles With and Without the Tennessee-Tombigbee Waterway Between Two Selected Points Using Water Transportation

| Origins and destinations: | Without Tenn.-Tom. | With Tenn.-Tom. | Savings in miles | Pct. savings |
|---|---|---|---|---|
| Mt. Vernon, Ind. To: | | | | |
| Mobile, Ala. | 1,229 | 842 | 842 | 31 |
| New Orleans, La. | 1,124 | 1,007 | 117 | 10 |
| Tampa, Fla. | 1,810 | 1,487 | 323 | 18 |
| Panama City, Fla. | 1,351 | 1,028 | 323 | 24 |
| Demopolis, Ala. | 1,444 | 627 | 817 | 57 |
| Montgomery, Ala. | 1,563 | 1,086 | 477 | 31 |
| Columbia, Ala. | 1,568 | 1,245 | 323 | 21 |
| Phenix City, Ala. | 1,672 | 1,349 | 323 | 19 |
| Cordova and Port B'ham, Ala. | 1,645 | 828 | 817 | 50 |
| Decatur, Ala. To: | | | | |
| Mobile, Ala. | 1,380 | 543 | 837 | 61 |
| New Orleans, La. | 1,275 | 708 | 567 | 44 |
| Tampa, Fla. | 1,961 | 1,188 | 773 | 39 |
| Panama City, Fla. | 1,502 | 729 | 773 | 51 |
| Demopolis, Ala. | 1,595 | 328 | 1,267 | 79 |
| Montgomery, Ala. | 1,714 | 787 | 927 | 54 |
| Columbia, Ala. | 1,719 | 896 | 823 | 48 |
| Phenix City, Ala. | 1,823 | 1,000 | 823 | 45 |
| Cordova and Port B'ham, Ala. | 1,796 | 529 | 1,267 | 71 |

Figure 2. Approximate Mileages Between Selected Points on Selected River Systems.




Note: This map is not drawn to scale, but is stylized to show general relationships only.