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COSTS OF PRODUCING SELECTED CROPS IN THE UNITED STATES, 1974

A SUMMARY

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PREFACE

In compliance with the 1973 Agriculture and Consumer Protection Act, the Secretary of Agriculture directed the Commodity Economics Division, Economic Research Service, (ERS) to conduct a study of the cost of producing selected commodities. A Division task force, with the counsel of an advisory committee and assistance of the Statistical Reporting Service with the enumerative survey of farmers, conducted the study. This report contains a summary of the study results for crops in 1974. The complete report for crops is available as Committee Print No. 63-092, Senate Committee on Agriculture and Forestry, U.S. Government Printing Office, December 1975.

A large number of people contributed at various stages to the conduct of the study and preparation of the reports. The cooperation of the over 5,000 farmers in supplying necessary information on their farming operations is acknowledged with sincere appreciation. The enumerative survey was directed by Carroll Rock and Robert Scranton, Data Collection Branch, SRS. Within the Commodity Economics Division and the task force, those having a major responsibility included:

Burton French, Task Force Chairman
Thomas Little, Oil Crops
Duane Marquis, Grains and Technical Supervision
Irving Starbird, Cotton
Alan Walter, Oil Crops
Pius Weisgerber, Grains

Board of Directors:

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COSTS OF PRODUCING SELECTED CROPS IN THE
UNITED STATES, 1974
A SUMMARY

The Agriculture and Consumer Protection Act of 1973 directed the Secretary of Agriculture to conduct a cost of production study of wheat, feed grains, cotton, and dairy commodities and to annually update the cost estimates. 1/ The Commodity Economics Division, Economic Research Service conducted the study, aided by an advisory committee comprised of representatives of the general farm organizations, commodity organizations, land grant colleges, agricultural economic associations, and the Federal Extension Service. This report provides a summary of results of the study for crops in 1974. 2/ A separate report will be forthcoming on the cost of producing milk.

The objectives of the study were to:

- (1) establish benchmark estimates of national average cost of production for wheat, feed grains, cotton, and milk as required by law;
- (2) establish production cost estimates for soybeans, peanuts, and flaxseed--important competing crops in certain subregions;
- (3) measure the variability within and among the production subregions in practices, inputs, outputs, prices, and costs; and
- (4) provide a data base for annual updates of the estimates and for research purposes.

A survey was conducted early in 1975, in cooperation with the Statistical Reporting Service, to obtain data with which to estimate the costs of producing cotton, corn, grain sorghum, barley, winter wheat, durum wheat, other spring wheat, soybeans, peanuts, flaxseed and milk. The survey was conducted in 40 production subregions delineated to represent the major crop production areas of the United States (figure 1). The Act limited the study to those farms of a "size unit that requires at least one man to farm on a full-time basis." Thus, the farms selected for sampling ranged from a minimum of 50 acres of cropland in the Southeast to a minimum of 400 acres in the Northern Plains and the Pacific Northwest.

Detailed data on the major field crop enterprises were obtained for a maximum of four crops on each farm. Information requested of the farmer included quantities and costs of purchased inputs, detailed cropping practices and specifications of machinery used, quantity of labor hired, wages paid, share rent and cash rent payments, other general farm expenses, and value of cropland for agricultural purposes. From this information the costs of producing the crops were computed for each farm.

1/ Section 808, Public Law 93-86, 93rd Congress, Agriculture and Consumer Protection Act, 1973.

2/ The complete report is available as Committee Print No. 63-092, Senate Committee on Agriculture and Forestry, U.S. Government Printing Office, Dec. 1975.

Estimates of four major cost components are presented in the summary tables--total direct, overhead, management and alternative allocations to land. Total direct costs (shown in detail in the report) include costs of labor, power and machinery, seed, fertilizer and chemicals, custom services, irrigation, other materials, and operating capital. Overhead costs include an allocation of all costs paid such as personal property taxes, electricity, sales taxes, insurance, and farm auto costs that must be paid but are not directly related to production of a specific crop. A charge for management was computed at the rate of 7 percent of gross farm sales and allocated to specific crops in proportion to their importance in total value of production on the farm. Allocations for the land input were computed by six alternative methods: (1) owned land--assumes owner operator basis with land valued at current prices for agricultural purposes; (2) owned land--assumes owner operator basis with land valued at an average acquisition price; (3) net share rent; (4) cash rent; (5) composite basis reflecting actual combinations of cash rent, share rent, and owner operator arrangements with owned land valued at current prices; and (6) composite as in (5) above, except owned land valued at average acquisition prices.

Average costs per unit of production based on survey yields for cotton, corn, grain sorghum, barley, wheat, and soybeans are shown in table 1. Costs based on trend yields for these crops are shown in table 3. Adverse weather in 1974 resulted in unusually low yields for many crops, causing costs per bushel or pound to be somewhat higher than normal.

Cotton--Direct costs of producing a pound of cotton lint totaled 33.5 cents, overhead was 2.0 cents, management 2.3 cents, and the total costs excluding land were 37.8 cents (table 1). Land allocations varied from 3.3 cents per pound based on the average acquisition value of owned land to 10.7 cents based on the current value of owned land. Total costs per bale averaged \$243 using the acquisition value of owned land, and \$278 per bale with the current value of owned land. Assuming the cost of producing cotton seed is equal to its value, the total costs of producing only lint were \$197 and \$233 per bale, respectively. Costs per bale and per pound in 1974 were high primarily because the average yield of 410 pounds per acre was low compared with a "normal" yield of 480 pounds (table 3).

The distribution of production by cost level for the 1974 crop is shown in figure 2. The "total 1" line represents total costs including a composite land allocation, with owned land valued at current prices. The "total 2" line also represents total costs including a composite land allocation, but with owned land valued at average acquisition price. Approximately half of the crop was produced at a cost (total 1) of 40 cents or less per pound.

Estimates of average costs per harvested acre are shown in table 2. The cost components are total direct--\$166, overhead--\$10, management--\$12, and land allocation costs that range from \$21 for the average acquisition value of owned land to \$51 for the current value of owned land.

Corn--Direct costs of producing corn averaged \$1.31 per bushel, overhead, \$0.12; management, \$0.19; and total cost excluding land, \$1.62

(table 1). The land allocation varied from \$0.44 for owned land using average acquisition value to \$1.15 for net share rent. This results in a range of \$2.06 to \$2.77 in total cost per bushel. If "normal" yields had occurred, the costs would have ranged from \$1.64 to \$2.22 (table 3). The survey yield for 1974 was 74.3 bushels compared with a "normal" yield of 98 bushels, also resulting in relatively high costs per bushel.

The distribution of production over varying cost levels is shown in figure 3. Considering direct costs, 92.5 percent of the corn was produced below \$2.00 per bushel. For total costs, using the composite land allocation with average acquisition value ("total 2"), only 30.4 percent of the crop was produced below \$2.00. Using the composite land allocation at current values ("total 1"), only 15 percent was produced below \$2.00.

Costs per harvested acre are more stable from year to year than costs per bushel because they are unaffected by yield variations. The total direct costs were \$97 per acre, overhead--\$9, management--\$14, and total costs (excluding land) were \$120. Land allocations varied from \$32 for owned land at average acquisition value to \$86 for net share rent. A value of secondary product of \$4.48 per acre included the value of grazing and silage harvested from acres planted for grain. This was unusually high because adverse weather in the western part of the Corn Belt caused a larger than normal acreage to be harvested as silage or used for grazing.

Grain Sorghum--Costs per bushel of production based on the survey average yield of 44.0 bushels were \$1.34 for total direct, \$0.13 for overhead, and \$0.19 for management, for total costs of \$1.66, excluding land (table 1). Land allocations ranged from \$0.85 for net share rent to \$0.32 for owned land using average acquisition value. Total costs ranged from \$1.93 to \$2.51 per bushel. With a normal yield of 58 bushels per acre, the total costs ranged from \$1.50 to \$1.90 per bushel (table 3).

The distribution of production by cost levels is shown in figure 4. Eighty percent of the crop was produced at a total direct cost of \$1.75 and below, and 94 percent was produced below \$2.50. Only 66 percent was produced at a total cost (including land at current value) below \$2.50 per bushel ("total 1") compared with 75 percent below \$2.50 (including land at average acquisition value) ("total 2").

Grain sorghum direct costs per harvested acre were \$53.94, overhead--\$6, management--\$8, and total costs excluding land were \$73. Land allocations varied from \$14 for owned land using average acquisition value, to \$37 for net share rent. The average value of grazing per acre was \$0.35 (table 2).

Barley--Barley costs represented production in scattered subregions ranging from southern California to Minnesota. Costs per bushel were total direct--\$1.24, overhead--\$0.16, and management--\$0.19 (table 1). Land allocations per bushel varied from \$0.40 for owned land, using average acquisition values, to \$0.91 for owned land using current value.

Figure 5 shows the distribution of production at varying cost levels. Ninety-five percent of the barley was produced for a total direct cost of

less than \$2.50. Eighty-one percent was produced at a total cost (composite land allocation using average acquisition value) below \$2.50 ("total 2"), and 68 percent below \$2.50 (composite land allocation using current value) ("total 1").

Costs per harvested acre were \$44 for total direct, \$6 for overhead, \$7 for management, and the totals (excluding land) were \$57 (table 2). Land allocations ranged from \$14 for owned land, using average acquisition value, to \$33 for owned land using current value.

Wheat--Costs of production were obtained for winter wheat, durum wheat and other spring wheat, and an average was calculated for all wheat. The all-wheat costs were obtained by weighting costs by the number of harvested acres in each class.

Direct costs for all wheat, based on a survey yield of 27 bushels per acre, averaged \$1.58 per bushel. Overhead and management costs averaged \$0.20 and \$0.26, respectively (table 1). Land allocations varied from \$0.60 per bushel for owned land, using average acquisition value, to \$1.47 for owned land using current value. Respective total costs ranged from \$2.64 to \$3.51. Costs per bushel were higher than normal in 1974 because average yields were well below a "normal" yield of 32 bushels per acre. Based on the normal yield, the total cost would range from \$2.23 to \$2.96 per bushel (table 3).

Distributions of production by cost levels are shown in figures 6, 7, 8, and 9 for all categories. About 42 percent of all wheat was produced for a total cost (composite land allocations using average acquisition value) of \$2.50 per bushel or less ("total 2"), and 25 percent below \$2.50 using current land value ("total 1").

Durum wheat and other spring wheat had a much smaller percentage of the production at cost levels below \$2.50 per bushel. For durum, only 3.2 percent was produced below \$2.50 and only 20 percent of other spring wheat was produced below \$2.50 (both based on composite land allocation using average acquisition value).

Total direct costs per harvested acre were \$43, overhead--\$6, and management--\$7, giving total costs per acre (excluding land) of \$56 (table 2). Land allocations varied from \$16 for owned land, using average acquisition value, to \$40 for owned land using current value. Value of grazing averaged \$2.13 per harvested acre.

Soybeans--Soybean costs per bushel, using a survey yield of 24.7 bushels (compared with a "normal" of 27 bushels) were \$2.16 for direct costs, \$0.24 for overhead, and \$0.39 for management (table 1). Total costs ranged from \$3.97 to \$5.69, including owned land at average acquisition value and current value, respectively. With normal yield, total costs per bushel would range from \$3.61 to \$5.17 (table 3).

The distribution of production by cost levels is shown in figure 10. Seventy-four percent of the production was at total direct costs of \$2.50

or less per bushel. Seventy percent was produced at a total cost (composite land allocation using average acquisition value) below \$5.00 ("total 2"), while only 53 percent was produced at less than \$5.00 when total cost includes the composite land allocation using current value ("total 1").

Per acre soybean costs averaged \$53 for total direct, \$6 for overhead, and \$10 for management, for a total of \$69 (excluding land) (table 2). Land allocations varied from \$29 for owned land, using average acquisition value, to \$71 for owned land using current value.

Flaxseed-- Cost estimates for flaxseed in two subregions, which account for over half of the U.S. production, are shown in table 4. Insufficient survey data in other subregions precluded obtaining national estimates. The average survey yield was 11.0 bushels per acre in NC-1 and 6.6 bushels in GP-7. The higher yields in NC-1 offset the greater per acre costs, resulting in lower per bushel costs (excluding land) in NC-1. Total costs (excluding land) were \$4.99 in NC-1 and \$6.37 in GP-7. Total costs including land ranged from \$6.00 to \$8.57 per bushel in NC-1 and \$7.49 to 9.15 in GP-7, with the range a result of the different land allocations.

Total per acre costs (excluding land) were \$42 in subregion GP-7 and \$55 in NC-1, with direct costs averaging \$33 and \$42 respectively. Land allocations ranged from \$7 to \$18 per acre in GP-7 and \$11 to \$40 in NC-1. For both subregions, net share rental gave the highest allocation, and owned land using average acquisition values gave the lowest. Total costs including land ranged from \$49 to \$60 an acre in GP-7 and \$66 to \$85 in NC-1, depending upon the land allocation.

Peanuts--Average costs of producing peanuts for two of the major producing areas are also shown in table 4. National estimates were unobtainable because of insufficient survey data from the Southwest. On a farmers' stock basis per hundredweight, total nonland costs averaged \$9, with \$7.50 attributable to direct costs. Total costs including land ranged from \$9.40 to \$13.85 per hundredweight in SE-2-3 and from \$10.10 to \$14.26 in SE-9, depending upon the land allocation. Per unit costs are based upon survey average yields of 2,990 pounds per acre in SE-2-3 and 2,860 pounds in SE-9. Total costs (excluding land) averaged over \$260 per acre in both subregions, with \$215 or more being direct costs. Land allocations, which include peanut allotment rentals, ranged from \$16 to \$149 an acre in SE-2-3 and from \$55 to \$144 in SE-9. In both subregions the low allocation was based upon owned land at average acquisition value and the high allocation reflected net share rental.

PRODUCTION REGIONS FOR CROP COST ANALYSIS

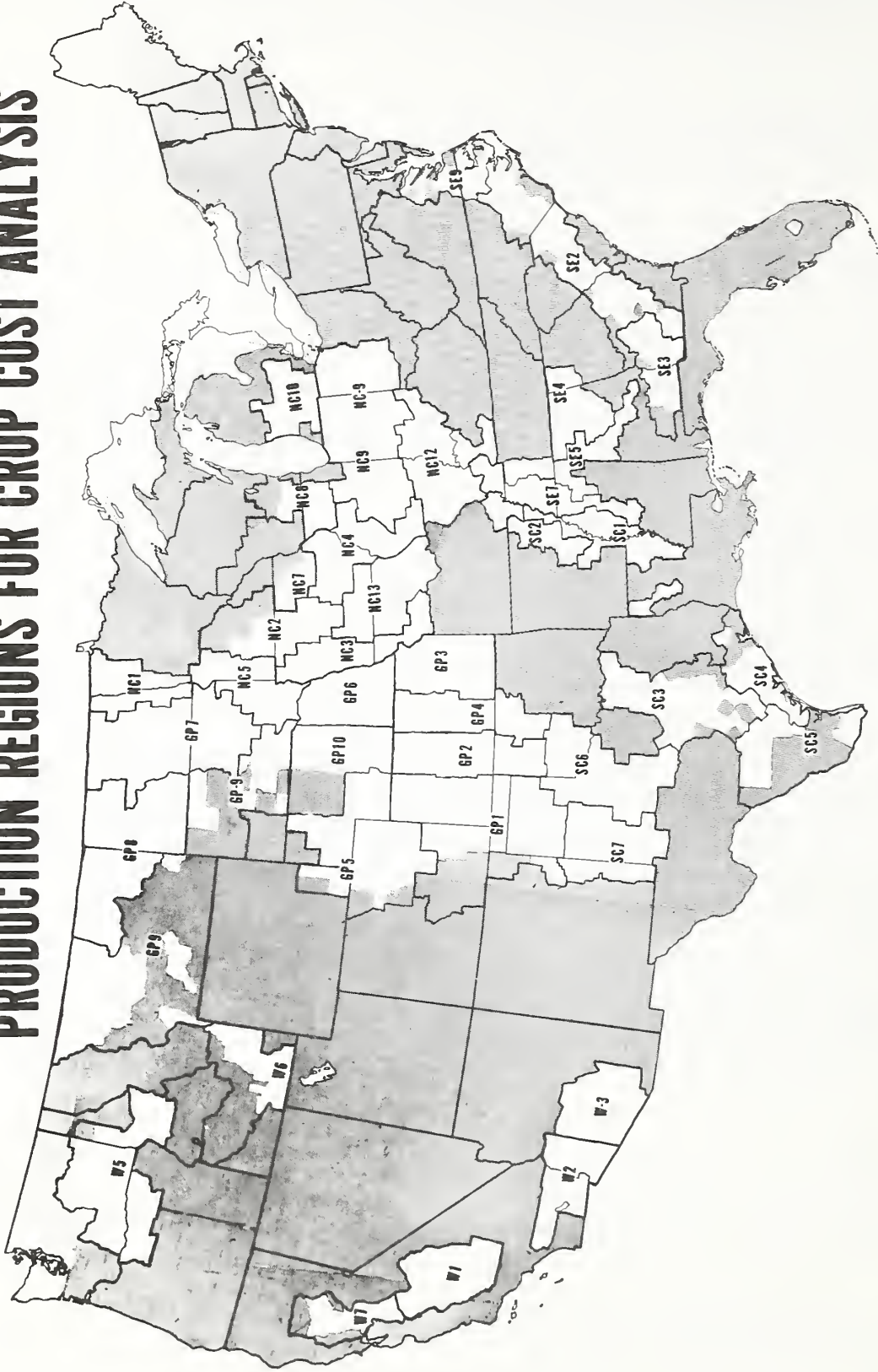


FIGURE 1

Table 1. Production costs per unit of production, selected crops, all subregions, 1974

Crop	Unit	Total direct costs	Overhead	Management	Management (excluding land)	Land Allocation					
						Ownership Basis	Net share	Cash	Composite Basis	Value	
						Current land value 1/	acquisition:rent 3/	land:rent 4/	Current:Average	Value	
						value 2/	value 5/	value 6/	value 6/	of secondary product 7/	
						Dollars					
Cotton	Pound 8/	0.335	0.020	0.023	0.378	0.107	0.033	0.088	0.062	0.053	0.095
Corn	Bushel	1.31	0.12	0.19	1.62	1.05	0.44	1.15	0.55	1.03	0.77
Grain Sorghum	Bushel	1.34	0.13	0.19	1.66	0.79	0.32	0.85	0.41	0.77	0.60
Barley	Bushel	1.24	0.16	0.19	1.59	0.91	0.40	0.90	0.58	0.81	0.53
All Wheat	Bushel	1.58	0.20	0.26	2.04	1.47	0.60	1.27	0.99	1.31	0.90
Durum Wheat	Bushel	2.34	0.28	0.38	3.00	1.67	0.64	1.85	1.37	1.73	1.15
Other Spring Wheat	Bushel	1.90	0.24	0.28	2.42	1.46	0.58	1.33	0.98	1.34	0.85
Winter Wheat	Bushel	1.45	0.19	0.25	1.89	1.46	0.60	1.22	0.97	1.28	0.91
Soybeans	Bushel	2.16	0.24	0.39	2.79	2.90	1.18	2.42	1.48	2.43	1.82

1/ Estimated current agricultural value of cropland multiplied by current interest rates on Federal Land Bank mortgage loans.

2/ Estimated average value of cropland at time of acquisition by present operator multiplied by current interest rates on Federal Land Bank mortgage loans.

3/ The landlord's share of receipts minus any shared crop expenses. For operators not share renting prevailing share rental rates of the subregion were applied.

4/ Average cash rent payments per acre of cropland. For operators not cash renting, prevailing average cash rental rates in the subregion were applied.

5/ Prevailing tenure arrangements on each farm, reflecting actual combinations of cash rent, net share rent, and owner-operation. Current values of owned cropland are used in this method.

6/ Same as in footnote (5), except that for owned land, the average value of cropland at time of acquisition is used.

7/ Seed for cotton, silage and grazing for corn, and grazing for grain sorghum and wheat.

8/ Costs for lint are obtained by subtracting a share of the value of seed from each cost item, then dividing by yield.

Table 2. Production costs and yields per harvested acre, selected crops, all subregions, 1974

Crop	Land allocation											
	Average yield per acre	Total direct cost	Overhead	Management	Cost excluding land	Current land value	Average acquisition value	Net share rent	Cash rent	Composite basis	Value of secondary product	
	Bushels	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	
Cotton	410.3 ^{8/}	165.52	9.70	11.52	186.74	50.72	20.68	43.25	32.61	41.23	28.79	38.82
Corn	74.3	97.43	8.85	14.18	120.46	78.18	32.35	85.56	40.66	76.20	57.23	4.48
Grain Sorghum	44.0	58.94	5.81	8.14	72.89	34.68	14.02	37.44	18.18	33.90	26.32	0.35
Barley	35.7	44.41	5.59	6.76	56.76	32.50	14.41	32.21	20.71	29.07	18.84	0.00
All Wheat	27.1	42.72	5.52	7.11	55.35	39.64	16.24	34.24	26.70	35.43	24.53	2.13
Durum Wheat	19.6	46.01	5.51	7.49	59.01	32.78	12.53	36.41	27.00	33.94	22.58	0.00
Other Spring Wheat	21.9	41.42	5.21	6.20	52.83	31.94	12.71	29.11	21.44	29.29	18.64	1.73
Winter Wheat	29.5	42.89	5.63	7.40	55.92	43.00	17.83	35.87	28.55	37.75	26.80	2.46
Soybeans	24.7	53.18	6.00	9.67	68.85	71.49	29.10	59.70	36.40	60.02	44.96	0.00

1/ Estimated current agricultural value of cropland multiplied by current interest rates on Federal Land Bank mortgage loans.
 2/ Estimated average value of cropland at time of acquisition by present operator multiplied by current interest rates on Federal Land Bank mortgage loans.
 3/ The landlord's share of receipts minus any shared crop expenses. For operators not share renting prevailing share rental rates of the subregion were applied.
 4/ Average cash rent payments per acre of cropland. For operators not cash renting, prevailing average cash rental rates in the subregion were applied.
 5/ Prevailing tenure arrangements on each farm, reflecting actual combinations of cash rent, net share rent, and owner-operation. Current values of owned cropland are used in this method.
 6/ Same as in footnote (5), except that for owned land, the average value of cropland at time of acquisition is used.
 7/ Seed for cotton, silage and grazing for corn, and grazing for grain sorghum and wheat.
 8/ Pounds of lint per acre.

Table 3. Production costs per unit of production with trend yields, selected crops, all subregions, 1974

Crop	Unit	Total direct costs	Overhead	Management	Total (excluding land)	Land allocation								
						Ownership Basis	Net share	Cash rent	Composite Basis	Current	Average	Trend	Yield	
						value1/	land acquisition	rent3/	value5/	value6/				
						Dollars								
Cotton	:Pound8/	0.286	0.019	0.023	0.328	0.089	0.026	0.073	0.051	0.069	0.043	480.0		
Corn	:Bushel	0.95	0.09	0.14	1.22	1.26	0.33	0.87	0.41	0.78	0.58	98.2		
Grain Sorghum	:Bushel	1.02	0.10	0.14	1.26	0.50	0.24	0.65	0.31	0.58	0.45	58.0		
Barley	:Bushel	1.03	0.13	0.16	1.32	0.76	0.34	0.75	0.48	0.68	0.44	43.0		
All Wheat	:Bushel	1.29	0.17	0.22	1.68	1.20	0.49	1.04	0.81	1.07	0.74	32.0		
Durum Wheat	:Bushel	1.47	0.18	0.24	1.89	1.05	0.40	1.16	0.87	1.09	0.72	31.2		
Other Spring Wheat	:Bushel	1.47	0.18	0.22	1.87	1.13	0.45	1.03	0.76	1.04	0.66	28.2		
Winter Wheat	:Bushel	1.29	0.17	0.22	1.65	1.27	0.53	1.06	0.84	1.11	0.79	33.9		
Soybeans	:Bushel	1.96	0.22	0.36	2.54	2.63	1.07	2.20	1.34	2.21	1.66	27.1		

1/ Estimated current agricultural value of cropland multiplied by current interest rates on Federal Land Bank mortgage loans.

2/ Estimated average value of cropland at time of acquisition by present operator multiplied by current interest rates on Federal Land Bank mortgage loans.

3/ The landlord's share of receipts minus any shared crop expenses. For operators not share renting prevailing share rental rates of the subregion were applied.

4/ Average cash rent payments per acre of cropland. For operators not cash renting, prevailing average cash rental rates in the subregion were applied.

5/ Prevailing tenure arrangements on each farm, reflecting actual combinations of cash rent, net share rent, and owner-operation. Current values of owned cropland are used in this method.

6/ Same as in footnote (5), except that for owned land, the average value of cropland at time of acquisition is used.

7/ Trend yields are based on periods of 10 to 25 years data using United States average yields as reported by Statistical Reporting Service.

8/ Costs for lint are obtained by subtracting a share of the value of seed from each cost item, then dividing by yield.

Table 4. Flaxseed and peanut production costs per acre and per unit of production, by subregion, 1974

Crop and subregion:	Unit	Total direct costs	Overhead:	Management:	Total (excluding land)	Land allocation					
						Ownership basis:	Net share:	Cash rent:	Composite basis:	Average acquisition:	Average acquisition:
						1/:	2/:	3/:	4/:	5/:	6/:
						Dollars					
Flaxseed:											
GP-7	:Per acre:	33.33	4.24	4.22	41.79	18.30	7.37	18.48	14.44	18.06	13.81
NC-1	:Per acre:	42.01	6.07	7.20	55.28	28.66	11.17	39.52	16.28	29.81	26.23
GP-7	:Per bu.:	5.09	.64	.64	6.37	2.78	1.12	2.81	2.20	2.75	2.10
NC-1	:Per bu.:	3.79	.55	.65	4.99	2.59	1.01	3.58	1.47	2.70	2.37
Peanuts:											
SE-2-3	:Per acre:	215.08	17.30	32.97	265.35	43.95	15.90	149.10	73.70	70.43	57.47
SE-9	:Per acre:	218.03	15.81	29.46	263.30	67.31	25.33	144.38	60.89	93.75	78.72
SE-2-3	:Per cwt.:	7.19	.58	1.10	8.87	1.47	.53	4.98	2.46	2.35	1.92
SE-9	:Per cwt.:	7.63	.55	1.03	9.21	2.35	.89	5.05	2.13	3.28	2.75

1/ Estimated current agricultural value of cropland multiplied by current interest rates on Federal Land Bank mortgage loans.

2/ Estimated average value of cropland at time of acquisition by present operator multiplied by current interest rates on Federal Land Bank mortgage loans.

3/ The landlord's share of receipts minus any shared crop expenses. For operators not share renting prevailing share rental rates of the subregion were applied.

4/ Average cash rent payments per acre of cropland. For operators not cash renting, prevailing average cash rental rates in the subregion were applied.

5/ Prevailing tenure arrangements on each farm, reflecting actual combinations of cash rent, net share rent, and owner-operation. Current values of owned cropland are used in this method.

6/ Same as in footnote (5), except that for owned land, the average value of cropland at time of acquisition is used.

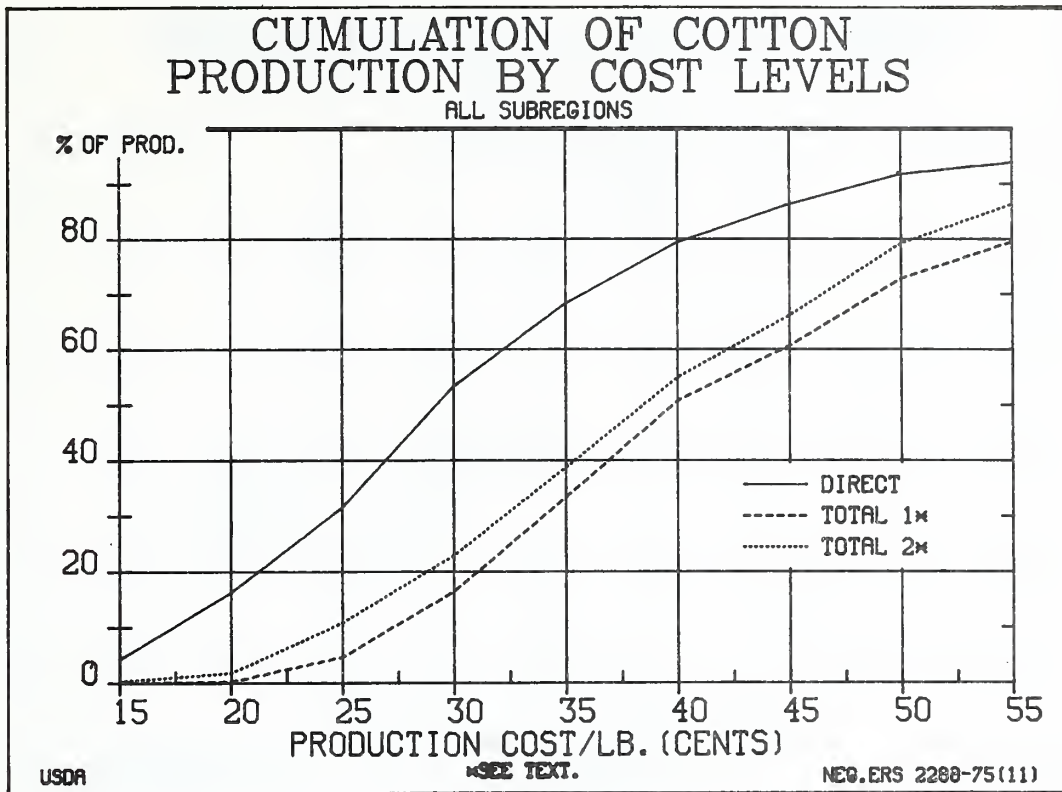


FIGURE 2

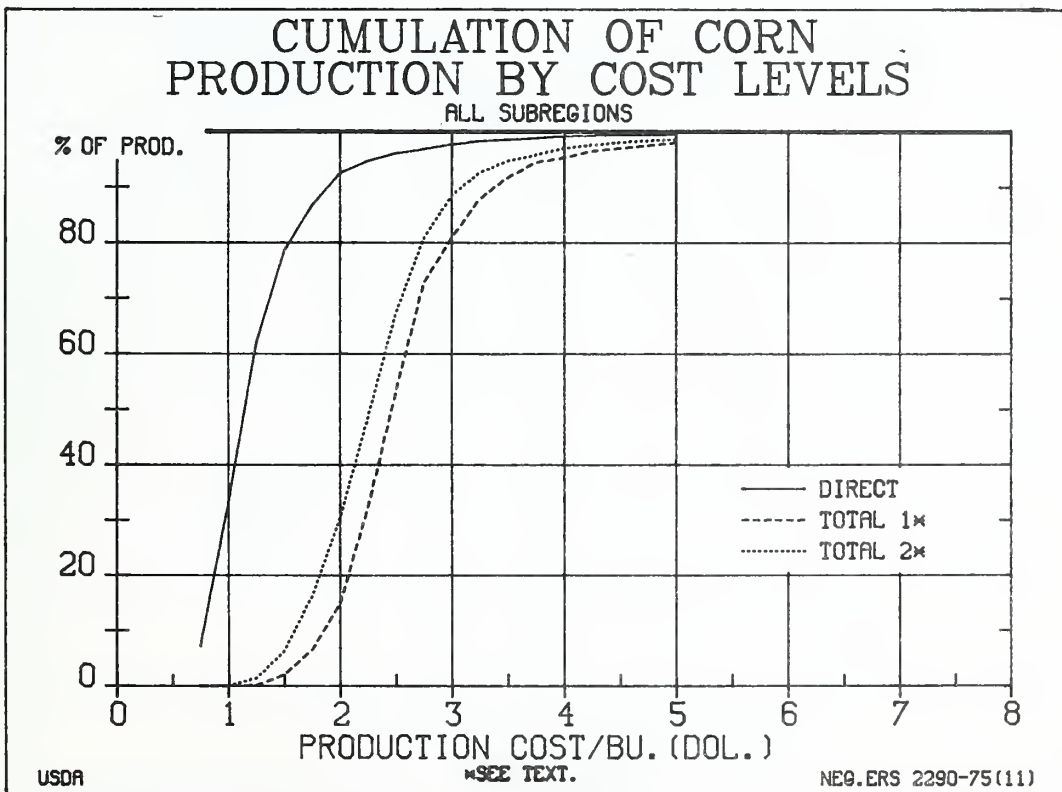


FIGURE 3

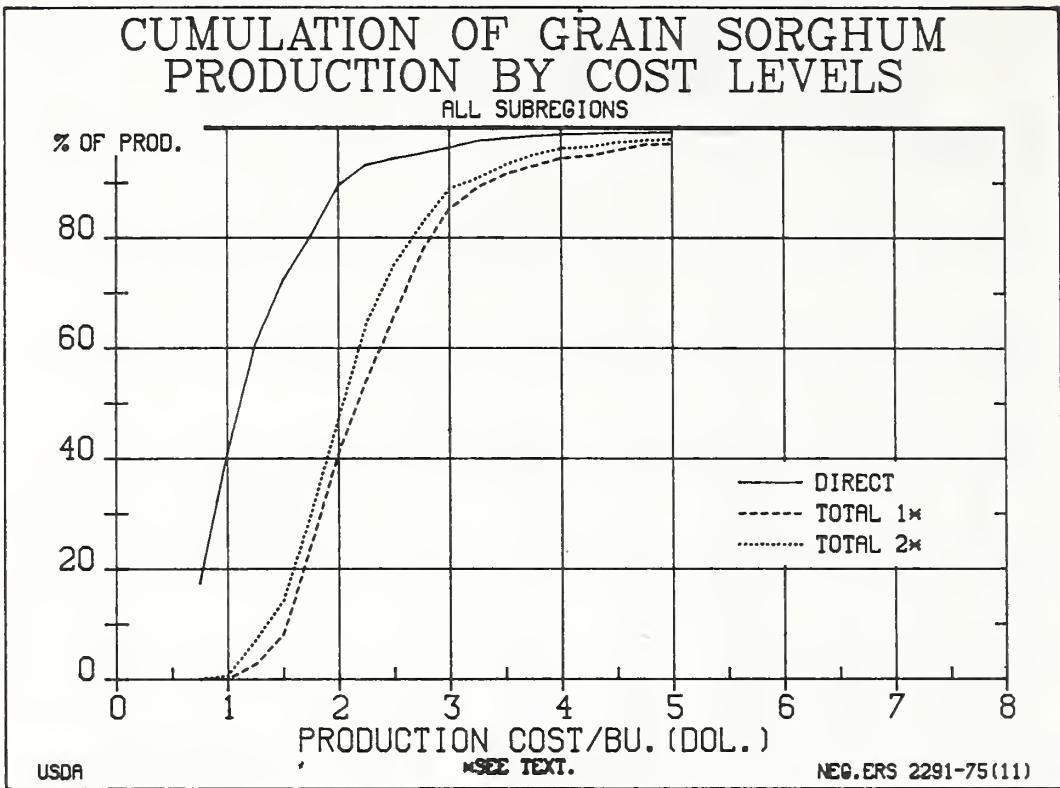


FIGURE 4

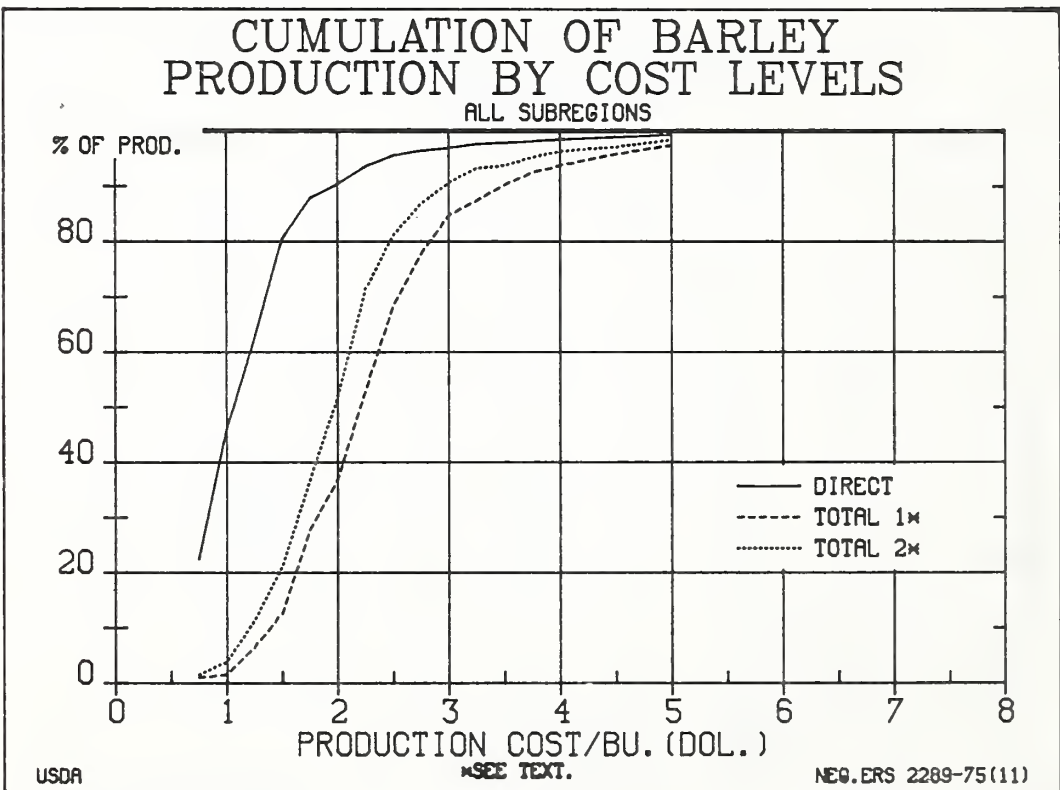


FIGURE 5

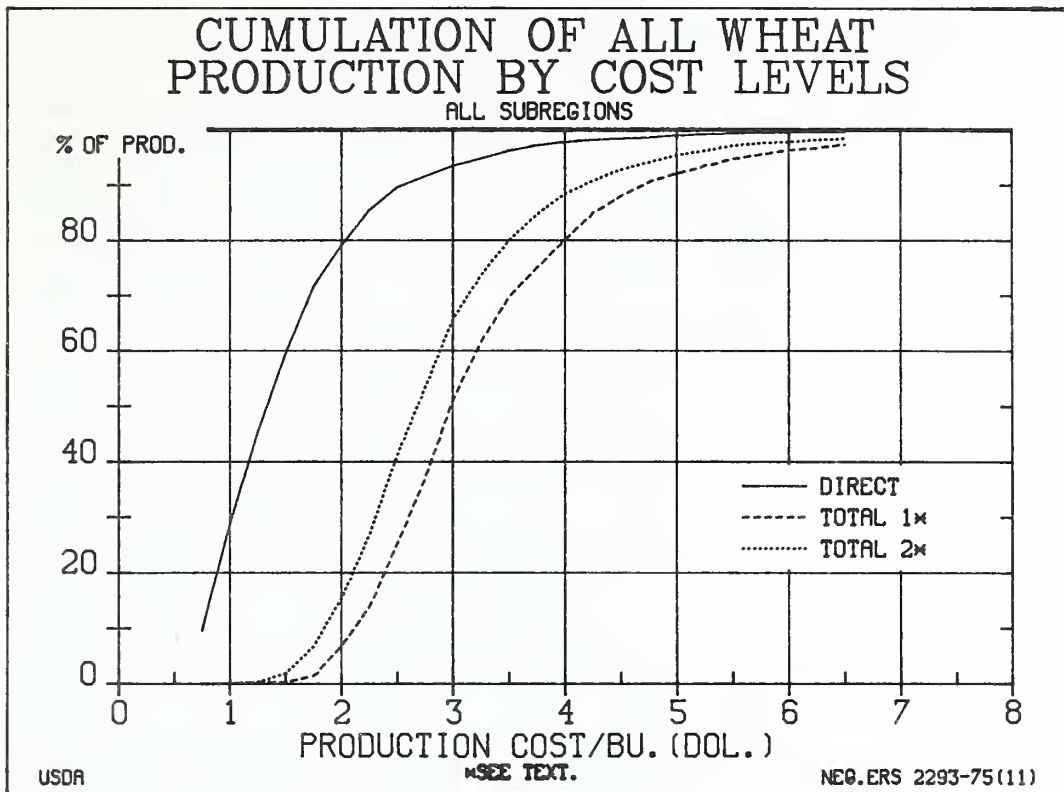


FIGURE 6.

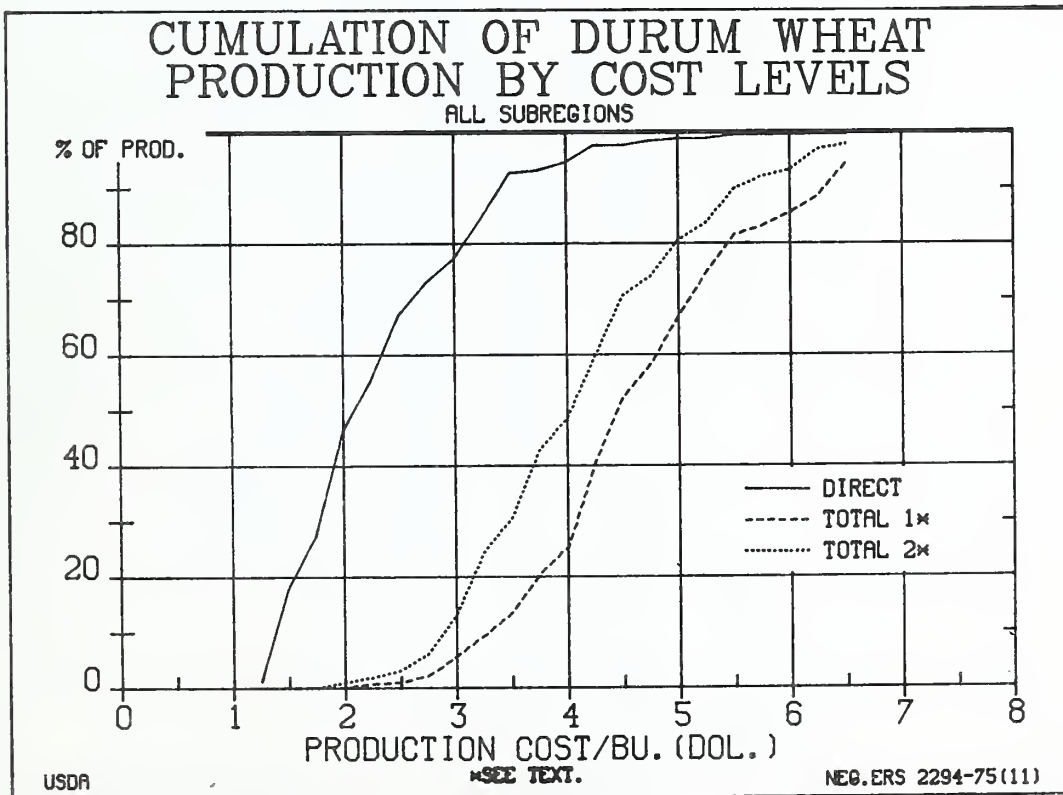


FIGURE 7

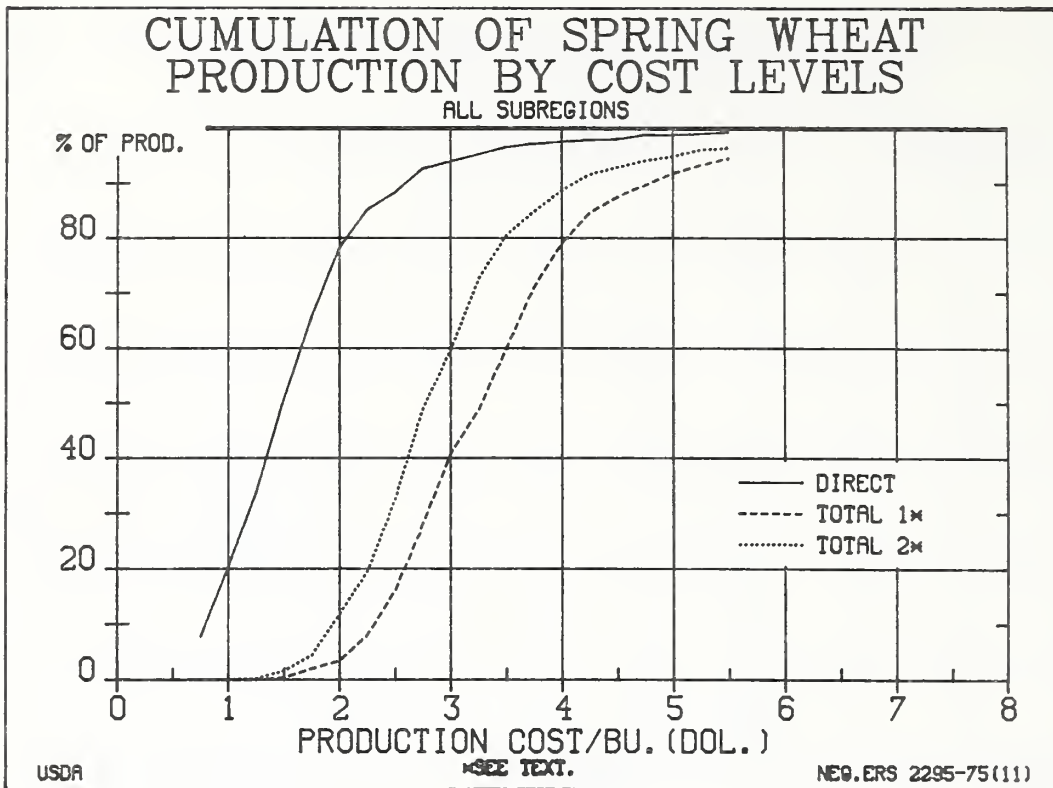


FIGURE 8

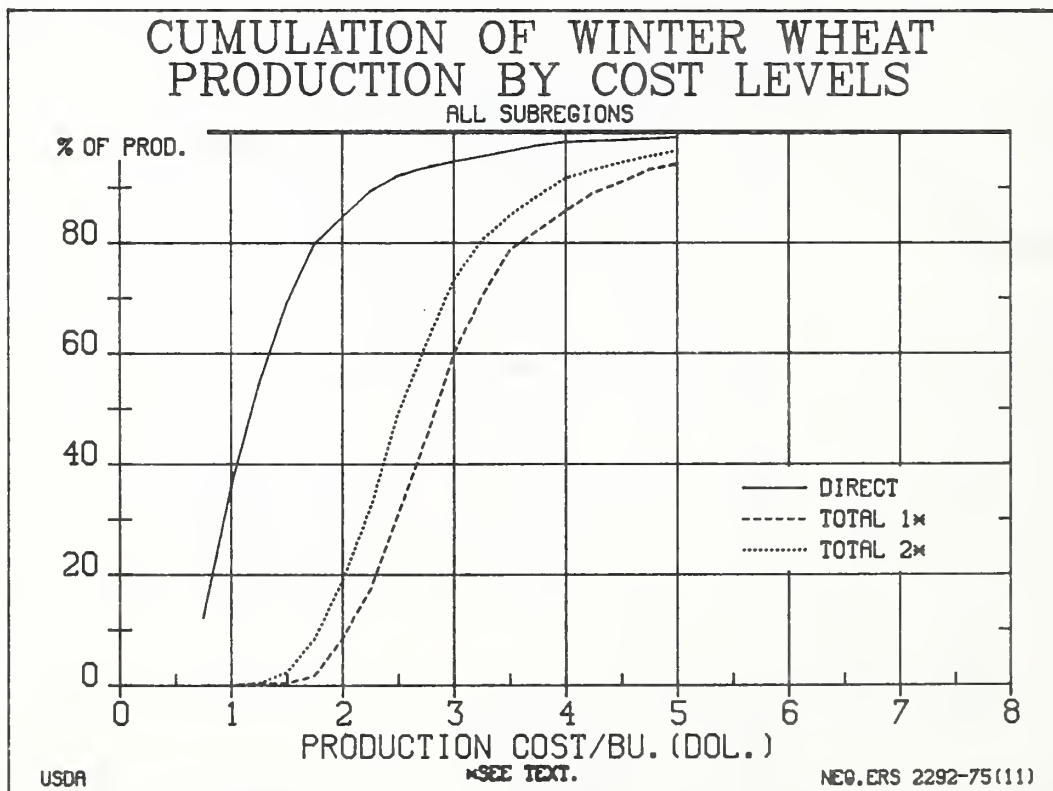


FIGURE 9

CUMULATION OF SOYBEAN PRODUCTION BY COST LEVELS

ALL SUBREGIONS

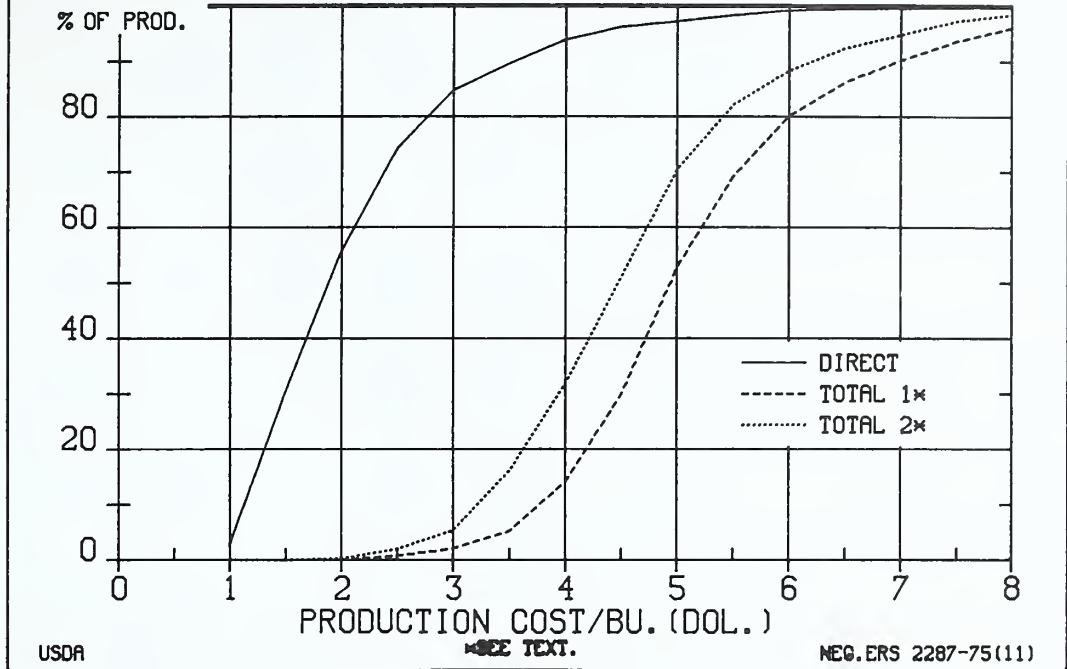


FIGURE 10

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