

PRODUCTION AND PRODUCTION REQUIREMENTS OF CROPS--COAST PRAIRIE

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This is one in a series of reports on production and production requirements of crops in the various types-of-farming areas of Texas. It provides some of the information necessary for analyzing farm management problems and for planning adjustments in systems of farming or testing alternative uses of land and other farm resources.

Information was obtained from 75 farmers in the central part of the Coast Prairie. These farmers operated mainly on the dark prairie soils and on the numerous creek bottoms. Fifty-two of the farms grew cotton and other row crops and 23 were rice farms. Eighteen of the 52 irrigated 27 percent of the cropland. Cotton, corn and alfalfa were the principal crops irrigated.

Cotton and corn are the principal crops grown. Cotton occupies more than 40 percent of the cropland on row-crop farms, both dryland and irrigated. Grain sorghum tended to replace corn on the larger farms. Alfalfa, an important crop on some farms, is grown almost entirely on alluvial soils.

Of the 52 row-crop farms 31 used four-row tractors, planters and cultivators and 21 used two-row equipment. The former averaged 360 acres in size with 300 acres in cultivation and the latter 200 acres with 140 acres in cultivation. Practically all of the irrigation was on the larger farms.

A large portion of the land in the Coast Prairie area is used for rice and cattle production. Rice may be planted 1 or 2 years and then the land remains in pasture for several years. In some cases the operators manage both rice and cattle, while in others the rice is grown by one operator and the cattle by another. Four of the 23 rice farmers contacted specialized in rice production. The other 19 not only grew rice, but were running 6,700 head of cattle on 33,000 acres of old rice land pasture.

Farmers using two-row equipment depended largely on themselves and their families for labor. About one-third of the labor was hired. On dryland row-crop farms using four-row equipment, slightly over one-half of the labor force was hired labor. On irrigated row-crop farms, hired labor was about two-thirds of the labor force and on rice farms slightly more than two-thirds. The latter two groups depended largely on regular hired labor rather than day labor. A large percentage of the cotton, corn, grain sorghum and alfalfa is harvested by contract. Some of the insect control work also is contracted. There are more mechanical cotton pickers used on the Coast Prairie than in any other section of the State.

The production and production requirements of cotton, corn and grain sorghum are given in Tables 1 to 5. Yields and amounts of fertilizer were adjusted slightly on the advice of crop specialists. Rates of fertilization represent the amounts considered necessary for the maintenance of yields at the levels indicated. Various kinds and amounts of fertilizer were used. Reporting has been simplified by listing the total pounds per acre of the three common elements--nitrogen, phosphorus and potassium. Many insecticides were used. Reporting was simplified by listing the total amounts of dust and spray and by naming only those insecticides most commonly used.

Most of the available irrigation water in the Coast Prairie area is being used in rice production. Because of the recent drouth years in this area, producers of other crops have turned to irrigation wherever possible. Also, with sharply reduced rice acreage allotments, water companies are beginning to look to other crops as a market for water.

In most years in this area, irrigation is not needed for cotton until the crop is well established. Consequently, the amount of land preparation and cultivation, including hoeing, is not affected significantly by irrigation. The number of irrigations will vary from year to year, depending on the amount and distribution of rainfall. In dry years, three irrigations may be needed. Some years, a wet spring is followed by a hot, dry summer and there is seldom a year when there is not a damaging dry spell. During these dry periods, a timely irrigation will relieve stress on the crop, prevent boll shedding and greatly increase yields.

Irrigation of corn and grain sorghum is similar to that of cotton except that these two crops mature early in the summer and need less irrigation.

Alfalfa is adapted especially to the well-drained bottomland soils. Being a perennial and a long-season crop, it is a heavy user of water. Normally, alfalfa is seeded in the fall and irrigation often is essential to the establishment of a stand. Once established, the need for irrigation would be necessary during the dry part of the summer and early fall. Additional water at critical times increases annual yield and prolongs the life of the stand.

As far as possible the data are given in physical quantities and represent the usual or normal practices and rates of performance. The actual amounts will vary slightly from year to year with seasonal conditions. Normal amounts will change slowly through time with technological change.

In items such as contract operations, 1956 cost rates are listed. These will vary with changes in the market place or with changes in price levels and price relationships.

Acknowledgment

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...	5.0	.70	.70	6.0	.84	.84
Total hours preharvest	18.85	6.85		28.96	7.96	
Contract operations						
Harvest						
Pick and haul	50 percent at \$2.65 per			67 percent at \$2.65 per		
	100 pounds			100 pounds		
Machine pick and haul	50 percent at \$2.50 per			33 percent at \$2.50 per		
	100 pounds			100 pounds		
Airplane dusting	1.0 at 75 cents per			3.0 at 75 cents per		
	acre			acre		
	3-10-40 at \$9.35 per 100 pounds, Topphens (2) and DUF (1) at \$2.25 per gallon.					

Table 1. Cotton production and production requirements

Variety	Dryland			Irrigated		
	D.P.L.			D.P.L.		
Normal yield, pounds	300			795		
Seed per acre, pounds	22			27		
Average price of seed dollars per 100 pounds						
Bought, 80 percent	10.00			10.00		
Home grown, 20 percent	5.00			5.00		
Insecticides						
Dust, pounds ^{1/2}	45			95		
Spray, pints ^{1/2}	5			6		
Fertilizer, pounds	<u>N</u> 20	<u>P₂O₅</u> 30	<u>K₂O</u> 5	<u>N</u> 30	<u>P₂O₅</u> 40	<u>K₂O</u> 10
Usual planting period		March			March	
Usual harvesting period		August - September			August - September	

Labor and power inputs per acre, two-row equipment

Operation	X Over	Total hours		X Over	Total hours	
		Man	Tractor		Man	Tractor
Cut stalks	1.0	.40	.40	1.0	.42	.42
Disk	1.0	.50	.50	1.0	.50	.50
Bed	1.0	.50	.50	1.0	.50	.50
Fertilize	1.0	.50	.50	1.0	.50	.50
Cultivate beds	1.0	.48	.48	1.0	.48	.48
Harrow	1.0	.24	.24	1.0	.24	.24
Plant	1.25	.62	.62	1.25	.62	.62
Roll	1.0	.21	.21	1.0	.21	.21
Cultivate	6.0	2.70	2.70	7.0	3.15	3.15
Hoe	2.0	12.00		2.0	15.00	
Ditch work			1.50	2.0	.50	.50
Irrigate				2.0	6.00	
Poison	5.0	.70	.70	6.0	.84	.84
Total hours preharvest		18.85	6.85		28.96	7.96
Contract operations						
Harvest						
Pick and haul		50 percent at \$2.65 per			67 percent at \$2.65 per	
		100 pounds			100 pounds	
Machine pick and haul		50 percent at \$2.50 per			33 percent at \$2.50 per	
		100 pounds			100 pounds	
Airplane dusting		1.0 at 75 cents per			3.0 at 75 cents per	
		acre			acre	

^{1/2} 3-10-40 at \$9.35 per 100 pounds, Toxaphene (2) and DDT (1) at \$2.25 per gallon.

Table 2. Cotton production and production requirements

Variety	Dryland			Irrigated		
	D.P.L.			D.P.L.		
Normal yield, lint, pounds	300			795		
Seed per acre, pounds	24			27		
Average price of seed						
dollars per 100 pounds						
Bought, 80 percent	10.00			10.00		
Home grown, 20 percent	5.00			5.00		
Insecticides						
Dust, pounds ^{1/}	45			95		
Spray, pints ^{1/}	6			6		
Fertilizer, pounds	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>
	20	30	5	30	40	10
Usual planting period	March			March		
Usual harvesting period	August - September			August - September		
Labor and power inputs per acre, four-row equipment						
Operation	X Over	Total hours		X Over	Total hours	
		Man	Tractor		Man	Tractor
Cut stalks	1.0	.36	.36	1.0	.37	.37
Bed	2.0	.80	.80	2.0	.80	.80
Fertilize	1.0	.33	.33	1.0	.33	.33
Cultivate beds	2.0	.50	.50	2.0	.50	.50
Harrow	1.0	.20	.20	1.0	.20	.20
Plant	1.25	.32	.32	1.25	.32	.32
Roll	1.25	.20	.20	1.0	.20	.20
Rotary hoe				1.0	.15	.15
Cultivate	6.0	1.50	1.50	7.0	1.75	1.75
Hoe	2.0	12.00		2.0	15.00	
Poison	5.0	.70	.70	6.0	.66	.66
Ditch work				1.0	.50	.50
Irrigate				2.0	6.00	
Total hours preharvest		16.91	4.91		26.78	5.78
Contract operations						
Harvest						
Pick and haul	50 percent at \$2.65 per			67 percent at \$2.65 per		
	100 pounds			100 pounds		
Machine pick and haul	50 percent at \$2.50 per			33 percent at \$2.50 per		
	100 pounds			100 pounds		
Airplane dusting	1.0 at 75 cents per			3.0 at 75 cents per		
	acre			acre		

^{1/} 3-10-40 at \$9.35 per 100 pounds, Toxaphene (2) and DDT (1) at \$2.25 per gallon.

Table 3. Corn production and production requirements

Variety	<u>Dryland</u>			<u>Irrigated</u>		
	Hybrids 28 and 30			Hybrids 28 and 30		
Normal yield, bushels	30			60		
Seed per acre, pounds	8			9		
Average cost of seed cents per pound	16			16		
Fertilizer, pounds	<u>N</u> 20	<u>P₂O₅</u> 20	<u>K₂O</u> 0	<u>N</u> 40	<u>P₂O₅</u> 20	<u>K₂O</u> 0
Usual planting period	March			March		
Usual harvesting period	July - October			July - October		

Labor and power inputs per acre, two-row equipment

<u>Operation</u>	<u>X Over</u>	<u>Total hours</u>		<u>X Over</u>	<u>Total hours</u>	
		<u>Man</u>	<u>Tractor</u>		<u>Man</u>	<u>Tractor</u>
Cut stalks	1.0	.40	.40	1.0	.42	.42
Bed	1.0	.50	.50	1.0	.50	.50
Fertilize	1.0	.50	.50	1.0	.50	.50
Cultivate beds	1.0	.48	.48	1.0	.48	.48
Harrow	1.0	.20	.20	1.0	.20	.20
Plant	1.2	.62	.62	1.2	.62	.62
Roll	1.0	.21	.21	1.0	.21	.21
Cultivate	3.0	1.20	1.20	3.0	1.20	1.20
Hoe	spot	2.00		spot	4.00	
Ditch work				1.0	.25	.25
Irrigate				1.0	3.00	
Total hours preharvest		6.11	4.11		11.38	4.38
Contract operations						
Harvest and haul		\$5.00 per acre			\$6.00 per acre	

Table 4. Corn production and production requirements

Variety	Dryland			Irrigated		
	Hybrids 28 and 30			Hybrids 28 and 30		
Normal yield, bushels	30 0			60 800		
Seed per acre, pounds	8 7			9 8		
Average cost of seed cents per pound	16 00			16 7.00		
Fertilizer, pounds	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>
	20 0	20 0	0 0	40 0	20 0	0 0
Usual planting period	March April			March April		
Usual harvesting period	July - October			July - October		

Labor and power inputs per acre, four-row equipment

Operation	X Over	Total hours		X Over	Total hours	
		Man	Tractor		Man	Tractor
Cut stalks	1.0	.34	.34	1.0	.36	.36
Bed	1.0	.40	.40	1.0	.40	.40
Fertilize	1.0	.34	.34	1.0	.34	.34
Cultivate beds	2.0	.50	.50	2.0	.50	.50
Harrow	1.0	.20	.20	1.0	.20	.20
Plant	1.2	.36	.36	1.2	.36	.36
Roll	1.0	.16	.16	1.0	.16	.16
Cultivate	3.0	.75	.75	3.0	.75	.75
Hoe	spot	2.00		spot	4.00	
Ditch work				1.0	.25	.25
Irrigate				1.0	3.00	
Total hours preharvest		5.05	3.05		10.32	3.32
Contract operations						
Harvest and haul		\$5.00 per acre			\$6.00 per acre	

Table 5. Grain sorghum production and production requirements

Variety	Dryland			Irrigated		
	Martin			Martin		
Normal yield, pounds	2,000			3,800		
Seed per acre, pounds	7			8		
Average price of seed dollars per 100 pounds	7.00			7.00		
Fertilizer, pounds	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>
	0	0	0	40	0	0
Usual planting period	March - April			March - April		
Usual harvesting period	July			July		
<u>Labor and power inputs per acre, four-row equipment</u>						
Operation	X Over	Total hours		X Over	Total hours	
		Man	Tractor		Man	Tractor
Cut stalks	1.0	.34	.34	1.0	.36	.36
Bed	1.0	.40	.40	2.0	.80	.80
Cultivate	2.0	.50	.50	2.0	.50	.50
Harrow	1.0	.20	.20	1.0	.20	.20
Plant	1.25	.35	.35	1.25	.35	.35
Cultivate	3.0	.75	.75	3.0	.75	.75
Hoe	spot	2.00	.80	spot	4.00	.80
Ditch work	1.0	.22	.22	1.0	.25	.25
Irrigate	1.0	.40	.40	1.0	3.00	.40
Total hours preharvest	1.0	4.54	2.54	1.0	10.21	3.21
Contract operations						
Harvest and haul		\$5.00 per acre			\$7.00 per acre	

Annual operations						
Poison ^{1/}	3.0	.45	.45	3.0	.45	.45
Irrigate	3.0			3.0	7.50	
Mow ^{2/}	4.0	1.60	1.60	6.0	2.40	2.40
Make ^{3/}	4.0	1.00	1.00	6.0	1.50	1.50
Bale ^{3/}	4.0	2.00	2.00	6.0	3.00	3.00
Haul	4.0	5.00	2.00	6.0	9.00	3.00
Total annual input		13.05	7.05		23.85	10.35

^{1/} Malathion at \$3.09 per gallon.
^{2/} May be contracted at 75 cents per acre per application.
^{3/} May be contracted at 25 cents per 60-pound bale.

Table 6. Alfalfa production and production requirements

Variety	Dryland			Irrigated		
	Hairy Peruvian			Southwest Common		
Normal yield, tons	3			5		
Seed per acre, pounds	20			25		
Average price of seed cents per pound	30			30		
Insecticides, pints ^{1/}	3			3		
Fertilizer, pounds	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>
	In seed bed	60	30	0	120	60
	Top dress each year	0	0	0	0	
Usual planting period	October - November			October - November		
Usual harvesting period	March - September			March - September		

Operation	Labor and power inputs per acre					
	Every 3 years			Every 5 years		
	X Over	Total hours		X Over	Total hours	
	Man	Tractor		Man	Tractor	
Flat break	1.0	1.50	1.50	1.0	1.50	1.50
Fertilize	1.0	.40	.40	1.0	.40	.40
Disk	2.0	.80	.80	2.0	.80	.80
Harrow	1.0	.22	.22	1.0	.22	.22
Plant	1.0	.40	.40	1.0	.40	.40
Roll	1.0	.30	.30	1.0	.30	.30
Ditch and border				1.0	1.00	.80
Irrigate				1.0	2.50	
Total to establish stand		3.62	3.62		7.12	4.42
<u>Annual operations</u>						
Poison ^{2/}	3.0	.45	.45	3.0	.45	.45
Irrigate				3.0	7.50	
Mow ^{3/}	4.0	1.60	1.60	6.0	2.40	2.40
Rake ^{3/}	4.0	1.00	1.00	6.0	1.50	1.50
Bale ^{3/}	4.0	2.00	2.00	6.0	3.00	3.00
Haul	4.0	6.00	2.00	6.0	9.00	3.00
Total annual input		11.05	7.05		23.85	10.35

^{1/} Malathion at \$8.09 per gallon.

^{2/} May be contracted at 75 cents per acre per application.

^{3/} May be contracted at 25 cents per 60-pound bale.

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Table 7. Rice production and production requirements

Varieties	Century Patna, Texas Patna Bluebonnet, Rexora		
Normal yield, pounds	3,000		
Seed per acre, pounds	95		
Average price of seed dollars per 100 pounds			
Bought, 50 percent	8.25		
Home grown, 50 percent	6.00		
Fertilizer, pounds ^{1/}	<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>
	50	40	10
Usual planting period	March - April		
Usual harvesting period	August - October		

Labor and power inputs per acre

Operation	X Over	Total hours	
		Man	Tractor
Flat break	1.0	1.00	1.00
Disk	2.0	.84	.84
Harrow	2.0	.68	.68
Level	0.5	.25	.25
Ditches and levees	1.0	.25	.18
Plant	1.0	.30	.30
Flush, flood and drain	3.0	6.90	
Total hours preharvest		10.22	3.25
Combine ^{2/}	1.0	.60	.60
Haul from field	1.0	.60	.60

Contract operations

Haul to drier and warehouse - contracted at 25 cents per barrel.

^{1/} Distribute by air at 70 cents per acre.
^{2/} May contract at 70 cents per barrel.