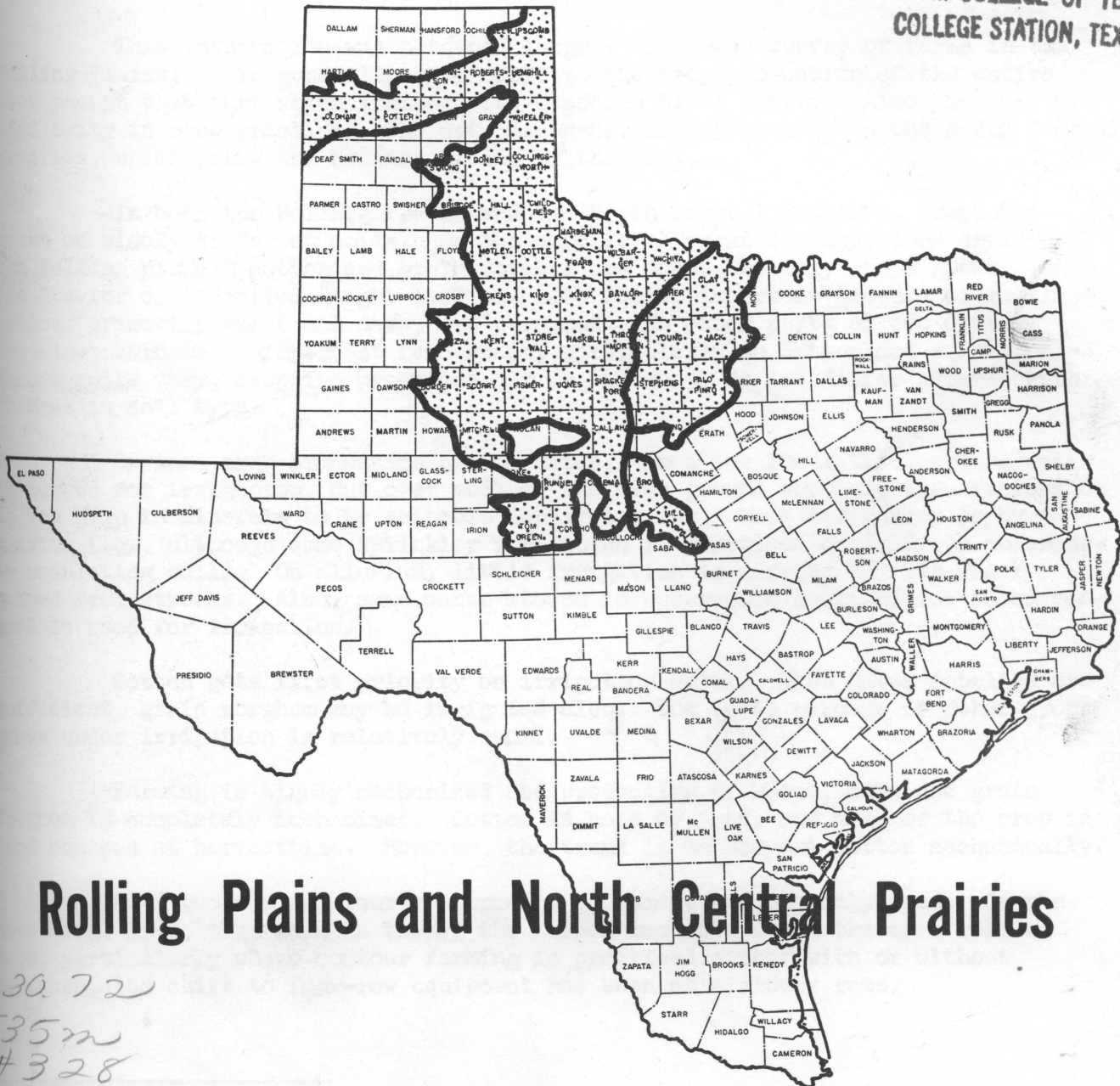


Production and Production Requirements of Crops

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Rolling Plains and North Central Prairies

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R. D. LEWIS, DIRECTOR, COLLEGE STATION, TEXAS

IN COOPERATION WITH THE UNITED STATES DEPARTMENT OF AGRICULTURE

PRODUCTION AND PRODUCTION REQUIREMENTS OF CROPS--ROLLING PLAINS
AND NORTH CENTRAL PRAIRIES

Produced by A. C. Magee, J. R. Martin and William F. Hughes*

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

This information was obtained largely through a survey of farms in the Rolling Plains; it is generally applicable to the crop production of the entire area except that part which includes the Canadian River valley. Also, because of similarity in crop practices, the data are generally applicable to the North Central Prairies, which joins the Rolling Plains to the east.

In both the Rolling Plains and the North Central Prairies, crops are grown on widely different soils. On the more level areas of sandy loam soils of the Rolling plains, cotton and grain sorghum are about the only crops grown. On the heavier or so-called "tight land" of both areas, important amounts of small grains, primarily wheat and oats, are produced. In other parts of the Central Prairies, corn is an important feed grain, particularly on bottomland soils. Although soils vary, cropping practices and requirements do not differ greatly with changes in soil type.

Dryland crop production predominates. In a few localities, ground water is pumped for irrigation, but over much of the area ground water is insufficient or is too high in minerals to be suitable for irrigation. Most irrigation is by gravity flow, although some sprinkler irrigation is practiced on sandy or moderately undulating soils. On alluvium, little irrigation is carried on with water pumped from streams. Also, some water stored in reservoirs designed for flood control is used for irrigation.

Cotton gets first priority on irrigation water. When water supplies are sufficient, grain sorghum may be irrigated also. The total acreage of other crops grown under irrigation is relatively small.

Farming is highly mechanized and production of wheat, oats and grain sorghum is completely mechanized. Cotton is hoed by hand, and much of the crop is hand snapped at harvesttime. However, the trend is to harvest cotton mechanically.

Both two-row and four-row tractor equipment are commonly used. On the more level land, the trend is toward the larger machinery. On the more rolling land, particularly where contour farming is practiced either with or without terraces, the shift to four-row equipment has been at a slower rate.

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Family labor is used in growing all crops. Although the farm family may do some cotton hoeing, extra labor usually is hired for this work. Also, extra labor is depended upon largely for hand harvesting of cotton.

Production and production requirements for crops are shown in Tables 1-11. The cotton and grain sorghum information is for both irrigated and dryland production. Data for irrigation are for crops watered by means of gravity flow.

Most field crops are grown without commercial fertilizer, but the trend is toward greater use of fertilizer. Farmers use various kinds and amounts of insecticides with cotton. The total amounts of dust and spray materials are listed. The rates of insecticide and fertilizer application listed are not necessarily the recommended or the optimum rates. They represent common farm practices in the area.

As far as possible, the data are given in physical quantities and represent the usual practices and rates of performance. The actual amounts will vary from year to year as seasonal conditions vary.

Fertilizer None
 Usual planting period May - June
 Usual harvesting period September - December

Operation	Labor and power inputs					
	Two-row tractor			Four-row tractor		
	Times over	Man	Tractor	Times over	Man	Tractor
Preharvest						
Out stalks	1.0	.37	.17	1.0	.17	.17
Chisel				.2	.10	.10
List or bed	1.2	.60	.60	1.0	.30	.30
Knife or cultivate beds	.4	.20	.20	.4	.10	.10
Plant	1.5	.75	.75	1.5	.40	.40
Knife	1.7	.85	.85	1.7	.45	.45
Cultivate	2.3	1.15	1.15	2.3	.60	.60
Hoe	1.0	4.00		1.0	4.00	
Poison	2.0	.25	.25	2.0	.20	.20
Total preharvest		7.97	3.97		6.32	2.32
Harvest						
Sawp	1.5	12.00		1.5	12.00	
Machine strip	1.0	1.70	.85	1.0	1.70	.85
Haul and gin	1.0	.75	.75	1.0	.75	.75
Total		14.45	1.60		14.45	1.60

Grain contract operations
 Sawn and haul 1.0 at \$2.25 per cwt. \ 1.0 at \$2.25 per cwt.
 May cultivate rather than knife on heavier soils and in eastern parts of area.

Table 1. Cotton production and production requirements, per acre

		<u>Dryland</u>					
Normal yield							
Lint, pounds		165					
Seed, pounds		265					
Seed per acre, pounds		20					
Average value of seed (dollars per 100 pounds)							
Bought, 20 percent		10.00					
Homegrown, 80 percent		6.50					
Insecticides							
Spray, pints		2					
Fertilizer		None					
Usual planting period		May - June					
Usual harvesting period		September - December					
		September - December					
		Labor and power inputs					
Operation	Two-row tractor			Four-row tractor			
	Times over	Man	Tractor	Times over	Man	Tractor	
Preharvest							
Cut stalks	1.0	.17	.17	1.0	.17	.17	
Chisel				.2	.10	.10	
List or bed	1.2	.60	.60	1.0	.30	.30	
Knife or cultivate beds	.4	.20	.20	.4	.10	.10	
Plant	1.5	.75	.75	1.5	.40	.40	
Knife ^{1/}	1.7	.85	.85	1.7	.45	.45	
Cultivate	2.3	1.15	1.15	2.3	.60	.60	
Hoe	1.0	4.00		1.0	4.00		
Poison	2.0	.25	.25	2.0	.20	.20	
Total preharvest		7.97	3.97		6.32	2.32	
Harvest							
Snap	1.5	12.00		1.5	12.00		
Machine strip	1.0	1.70	.85	1.0	1.70	.85	
Haul and gin	1.0	.75	.75	1.0	.75	.75	
Total		14.45	1.60		14.45	1.60	
Common contract operations							
Snap and haul	1.0	at \$2.25 per cwt.		1.0	at \$2.25 per cwt.		

^{1/} May cultivate rather than knife on heavier soils and in eastern parts of area.

Total 32.70 1.85 32.70 1.85

Common contract operations
 Snap and haul to gin 1.0 at \$2.25 per cwt. 1.0 at \$2.25 per cwt.
 Poison, late season 2.0 at \$1.00 per acre 2.0 at \$1.00 per acre

Table 2. Cotton production and production requirements, per acre

	Irrigated					
Normal yield						
Lint, pounds	450					
Seed, pounds	730					
Seed per acre, pounds	30					
Average value of seed (dollars per 100 pounds)						
Bought, 25 percent	10.00					
Homegrown, 75 percent	6.50					
Insecticides						
Spray, pints	2					
Dust, pounds	10					
Fertilizer	None					
Usual planting period	May					
Usual harvesting period	September - December					
	Labor and power inputs					
	Two-row tractor			Four-row tractor		
	Times	Hours		Times	Hours	
	over	Man	Tractor	over	Man	Tractor
Preharvest						
Cut stalks	1.0	.17	.17	1.0	.17	.17
Chisel				.5	.50	.50
List or bed	1.2	.60	.60	1.0	.30	.30
Preplant ditching	1.0	.25	.25	1.0	.25	.25
Preplant irrigation	1.0	1.50	.60	1.0	1.50	.60
Knife or cultivate beds	1.4	.20	.20	.4	.10	.10
Plant	1.3	.65	.65	1.3	.35	.35
Knife or cultivate	1.7	1.85	1.85	1.7	1.45	1.45
Cultivate	2.3	1.15	1.15	2.3	.60	.60
Hoe	1.0	5.00		1.0	5.00	
Poison	4.0	.50	.50	4.0	.50	.50
Ditch work	2.0	.50	.50	2.0	.50	.50
Irrigation	2.0	1.50		2.0	1.50	
Total preharvest		12.87	4.87		11.72	3.72
Harvest						
Snap	2.0	30.00		2.0	30.00	
Machine strip	1.0	1.70	.85	1.0	1.70	.85
Haul and gin	1.0	1.00	1.00	1.0	1.00	1.00
Total		32.70	1.85		32.70	1.85
Common contract operations						
Snap and haul to gin	1.0	at \$2.25 per cwt.		1.0	at \$2.25 per cwt.	
Poison, late season	2.0	at \$1.00 per acre		2.0	at \$1.00 per acre	

Table 3. Grain sorghum production and production requirements, per acre

	Dryland
Normal yield, pounds	800
Seed per acre, pounds	5
Average value of seed (dollars per 100 pounds) Bought, 100 percent	7
Fertilizer	None
Usual planting period	May - June
Usual harvesting period	August - September

Operation	Labor and power inputs					
	Two-row tractor			Four-row tractor		
	Times over	Hours		Times over	Hours	
	Man	Tractor		Man	Tractor	
Preharvest						
Cut stalks	.6	.10	.10	.3	.05	.05
Chisel				.4	.20	.20
List or bed	1.0	.50	.50	1.0	.30	.30
Knife	1.4	.70	.70	1.4	.35	.35
Plant	1.3	.65	.65	1.3	.35	.35
Knife ^{1/}	1.2	.50	.50	1.2	.25	.25
Cultivate	1.7	.85	.85	1.7	.45	.45
Total preharvest	1.7	3.30	3.30	1.7	1.95	1.95
Harvest						
Combine	1.0	.60	.60	1.0	.60	.60
Haul grain	1.0	.45	.45	1.0	.45	.45
Total		1.05	1.05		1.05	1.05
Common contract operations						
Combine	1.0	at \$2.50 per acre		1.0	at \$2.50 per acre	
^{1/} Cultivation may be substituted for knifing.						

Common contract operations

Combine

1.0 at \$3.00 per acre

1.0 at \$3.00 per acre

^{1/} Cultivation may be substituted for knifing.

Table 4. Grain sorghum production and production requirements, per acre

	<u>Irrigated</u>					
Normal yield, pounds	2800					
Seed per acre, pounds	5					
Average value of seed (dollars per 100 pounds) Bought, 100 percent	7					
Fertilizer	None					
Usual planting period	May - June					
Usual harvesting period	August - September					
	<u>Labor and power inputs</u>					
	<u>Two-row tractor</u>			<u>Four-row tractor</u>		
	<u>Times</u>	<u>Hours</u>		<u>Times</u>	<u>Hours</u>	
Operation	<u>over</u>	<u>Man</u>	<u>Tractor</u>	<u>over</u>	<u>Man</u>	<u>Tractor</u>
Preharvest						
Cut stalks	.6	.10	.10	.3	.05	.05
Chisel				.4	.20	.20
List or bed	1.0	.50	.50	1.0	.30	.30
Preplant ditching	1.0	.25	.25	1.0	.25	.25
Preplant irrigation	1.0	1.50		1.0	1.50	
Knife beds ^{1/}	1.0	.50	.50	1.0	.30	.30
Plant	1.1	.55	.55	1.1	.30	.30
Knife ^{1/}	1.2	.50	.50	1.2	.25	.25
Cultivate	1.7	.85	.85	1.7	.45	.45
Seasonal ditching	2.0	.50	.50	2.0	.50	.50
Seasonal irrigation	2.0	1.35		2.0	1.35	
Total preharvest	1.0	6.60	3.75	1.0	5.45	2.60
Harvest						
Combine	1.0	.70	.70	1.0	.70	.70
Haul grain	1.0	.50	.50	1.0	.50	.50
Total		1.20	1.20		1.20	1.20
Common contract operations						
Combine	1.0 at \$3.00 per acre			1.0 at \$3.00 per acre		
^{1/} Cultivation may be substituted for knifing.						

Table 5. Sorghum silage production and production requirements, per acre

	Dryland					
Normal yield, tons	6					
Seed per acre, pounds	32 8					
Average value of seed (dollars per 100 pounds)	9					
Fertilizer	None					
Usual planting period	May - June					
Usual harvesting period	August - September					
	August - October					
	June					
	Labor and power inputs					
	Two-row tractor			Four-row tractor		
	Times	Hours		Times	Hours	
Operation	over	Man	Tractor	over	Man	Tractor
Preharvest						
Cut stalks	.6	.10	.10	.3	.05	.05
Chisel				.4	.20	.20
List or bed	1.0	.50	.50	1.0	.30	.30
Knife	1.4	.70	.70	1.4	.35	.35
Plant	1.3	.65	.65	1.3	.35	.35
Knife ^{1/}	1.0	.40	.40	1.0	.20	.20
Cultivate	1.0	.50	.50	1.0	.25	.25
Total preharvest		2.85	2.85		1.70	1.70
Harvest (own equipment)						
Cut in field	1.0	1.10	1.10	1.0	1.10	1.10
Haul to silo	1.0	2.20	2.20 ^{2/}	1.0	2.20	2.20 ^{2/}
Spread and pack	1.0	1.10	1.10	1.0	1.10	1.10
Total		4.40	4.40		4.40	4.40

^{1/} Cultivation may be substituted for knifing.

^{2/} Hauling may be with tractors and trailers or trucks.

Table 6. Wheat production and production requirements, per acre

	<u>Dryland</u>		
Normal yield, bushels	9		
Seed per acre, pounds	32		
Average value of seed (dollars per bushel)			
Bought, 20 percent	2.50		
Homegrown, 80 percent	2.00		
Fertilizer	None		
Usual planting period	August - October		
Usual harvesting period	June		
	<u>Labor and power inputs</u>		
	<u>Times</u>	<u>Hours</u>	
Operation	<u>over</u>	<u>Man</u>	<u>Tractor</u>
Preharvest			
Oneway	2.5	.36	.36
Drill	1.0	.24	.24
Total preharvest		.60	.60
Harvest			
Combine	1.0	.54	.27
Haul grain	1.0	.35	.35 ^{1/}
Total		.89	.62
Common contract operations			
Combining	1.0 at \$3.50 per acre		
Haul grain	1.0 at 10 cents per cwt.		

^{1/} Truck operation.

Table 7. Oats production and production requirements, per acre

	<u>Dryland</u>		
Normal yield, bushels	26		
Seed per acre, pounds	32		
Average value of seed (dollars per bushel)			
Bought, 50 percent	1.25		
Homegrown, 50 percent	1.00		
Fertilizer	None		
Usual planting period	August - October		
Usual harvesting period	June		
	<u>Labor and power inputs</u>		
	<u>Times</u>	<u>Hours</u>	
Operation	<u>over</u>	<u>Man</u>	<u>Tractor</u>
Preharvest			
Oneway	2.5	.40	.40
Drill	1.0	<u>.40</u>	<u>.40</u>
Total preharvest		.80	.80
Harvest			
Combine	1.0	.60	.30
Haul grain	1.0	<u>.35</u>	<u>.35</u>
Total		.95	.65
Common contract operations			
Combine	1.0 at \$3.50 per acre		
Truck operation.			

Table 8. Barley production and production requirements, per acre

	<u>Dryland</u>			
Normal yield, bushels	20			
Seed per acre, pounds	40			
Average value of seed (dollars per bushel)	5			
Bought, 50 percent	1.25			
Homegrown, 50 percent	1.10			
Fertilizer	None			
Usual planting period	August - October			
Usual harvesting period	June			
	Two-row tractor		Four-row tractor	
	Times	Hours	Times	Hours
	over	Man	Tractor	Tractor
		<u>Labor and power inputs</u>		
		<u>Times Hours</u>		
Operation		<u>over</u>	<u>Man</u>	<u>Tractor</u>
Preharvest	1.0	.50		.30
Oneway	1.0	.50	1.0	.25
Drill	1.2	.60	1.2	.35
	1.0	2.5	.40	.40
		1.0	.40	.40
		2.10	2.10	1.15
Total preharvest			.80	.80
Harvest				
Combine		1.0	.60	.30
Haul grain		1.0	.35	.35
Total			.95	.65
Common contract operations				
Combine			1.0 at \$3.50 per acre	
I/ Truck operation.				

Table 9. Sudan pasture production and production requirements, per acre

	<u>Dryland</u>					
Normal yield, grazing days	65					
Seed per acre, pounds	8					
Average value of seed, cents per pound	5					
Bought, 100 percent						
Fertilizer	None					
Usual planting period	April - May					
Usual harvesting period	June - October					
	Labor and power inputs					
	Two-row tractor			Four-row tractor		
	Times	Hours		Times	Hours	
Operation	over	Man	Tractor	over	Man	Tractor
List or bed	1.0	.50	.50	1.0	.30	.30
Knifed/ or disk	1.0	.50	.50	1.0	.25	.25
Plant bed	1.2	.60	.60	1.2	.35	.35
Cultivate cultivate beds	1.0	.50	.50	1.0	.25	.25
Total or rotary hoe	1.0	2.10	2.10	1.0	1.15	1.15
1/ Beds may be cultivated or land relisted instead of knifing.						
Total preharvest		3.05	3.05		1.80	1.80
Harvest						
Snap and haul	1.0	6.00	2.00	1.0	6.00	2.00

Table 10. Corn production and production requirements, per acre

	<u>Dryland</u>
Normal yield, bushels	18
Seed per acre, pounds	7
Average value of seed, cents per pound Bought, 100 percent	16
Fertilizer	None
Usual planting period	March - May
Usual harvesting period	August - October

Operation	<u>Labor and power inputs</u>					
	<u>Two-row tractor</u>			<u>Four-row tractor</u>		
	<u>Times</u> over	<u>Hours</u>		<u>Times</u> over	<u>Hours</u>	
		Man	Tractor		Man	Tractor
Cut stalks or disk	1.0	.20	.20	1.0	.20	.20
List or bed	1.0	.50	.50	1.0	.30	.30
Knife or cultivate beds	1.0	.50	.50	1.0	.25	.25
Plant	1.0	.50	.50	1.0	.30	.30
Cultivate or rotary hoe	1.0	.45	.45	1.0	.25	.25
Cultivate	2.0	<u>.90</u>	<u>.90</u>	2.0	<u>.50</u>	<u>.50</u>
Total preharvest		3.05	3.05		1.80	1.80
Harvest						
Snap and haul	1.0	6.00	2.00	1.0	6.00	2.00

Total preharvesting				3.85	3.85	
Harvest						
Flow and rake			1.0	.85	.85	
Turn windrows			.5	.15	.15	
Combine and bale			1.0	1.30	1.30	
Haul nuts from field			1.0	.40	.40	
Haul hay			1.0	.70	.35	
Haul nuts to market			1.0	.80	.40	
Total				4.75	3.25	

Common contract operations	
Combine	1.0 at \$3.50 per acre
Bale hay	1.0 at 25 cents per bale

1/ Data obtained in West Cross Timbers area.
2/ Truck.

Table 11. Peanut production and production requirements, per acre^{1/}

		<u>Dryland</u>		
Normal yield				
Nuts, pounds			450	
Hay, pounds			600	
Seed per acre (shelled), pounds			25	
Average value of seed, cents per pound			25	
Sacks for nuts, number			8	
Fertilizer, pounds		<u>N</u>	<u>P₂O₅</u>	<u>K₂O</u>
		10	20	10
Usual planting period		May - June		
Usual harvesting period		August - October		
		<u>Labor and power inputs</u>		
		<u>Two-row tractor equipment</u>		
Operation		<u>Times</u>	<u>Hours</u>	
		<u>over</u>	<u>Man</u>	<u>Tractor</u>
Preharvest				
Cut stalks or disk		.5	.30	.30
Layoff rows		1.0	.35	.35
Bed		1.0	.50	.50
Cultivate beds		1.0	.50	.50
Plant		1.1	.65	.65
Cultivate (rotary hoe)		2.0	.80	.80
Cultivate (sweeps)		1.5	.75	.75
Hoe		1.0	<u>2.00</u>	<u> </u>
Total preharvesting			5.85	3.85
Harvest				
Plow and rake		1.0	.85	.85
Turn windrows		.5	.15	.15
Combine and bale		1.0	1.95	1.30
Haul nuts from field		1.0	.40	.20
Haul hay		1.0	.70	.35
Haul nuts to market		1.0	<u>.80</u>	<u>.40^{2/}</u>
Total			4.75	3.25
Common contract operations				
Combine		1.0 at \$3.50 per acre		
Bale hay		1.0 at 25 cents per bale		

^{1/} Data obtained in West Cross Timbers area.

^{2/} Truck.