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FACT SHEET

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KEYS TO PROFITABLE SOUTHERN PEA PRODUCTION

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Southern peas are grown mostly in sandy, non-irrigated areas of Texas. Often called cowpeas, these vegetables vary in acreage from year to year as peas are planted on moisture following seasonal rainfall. Southern peas include purple hulls, black-eyes, crowders and creams. Plantings in 1968 totaled 160,000 acres with about 40,000 acres harvested as dry peas and 15,000 acres for green, fresh peas. The balance was turned under as a green manure crop. A total of 110,000 acres was planted in 1969 with 27,000 acres harvested as dry peas and 17,300 harvested for green peas. During 1968 and 1969, dry pea yields over Texas averaged 500 pounds per acre and green peas averaged about 800 pounds per acre.

The production of southern peas in Texas in 1969 was 270,000 bushels of dry peas and 15,225,000 pounds of green peas. No official value was placed on the crop, but the estimated value of the total crop harvested in 1969 was $2.2 million (not including the value derived from peas used as a cover-crop).

Production Areas

Southern pea acreage in Texas is concentrated in four general areas: South Texas, East Central Texas, East Texas and Southern High Plains. As a popular home garden and local market item, however, southern peas are grown throughout the state.

Seasonal Movement

Planting begins in the Rio Grande Valley in early March and continues through most of April. Late March through April is the primary planting period for the Winter Garden and Gulf Coast areas. Planting occurs during April and May in most areas of East and Central Texas. May through June is the primary planting season for West and North Texas.

For fall harvest, planting begins in East and Central Texas in August, followed by plantings through September in the Rio Grande Valley.

Climatic Requirements

Southern peas, a warm season crop, produce best on sandy loams and lighter clay soils in hot and dry climates. Although length of day may affect production, most Texas varieties are day neutral and can be grown in spring and fall. Supplemental irrigation is necessary for maximum yields in most Texas areas.

Soils

Southern peas grow on many soil types, but highest yields are obtained on sandy loams and light sandy clay soils. High yields can be obtained on lighter sandy soils if adequate moisture and fertility are maintained. The idea that southern peas are drought resistant has resulted in the planting of many unproductive Texas acres.

Land Preparation

Turn under all refuse in the fall or winter for decomposition of plant materials and reduction of carry-over curculio beetle population. Winter plowing allows southern peas with extensive root systems to benefit from the added moisture-holding capacity of deeply prepared land. To destroy weeds and germinating weed seeds, rework beds just before planting. Adequate moisture at planting time prevents reduced emergence caused by irrigation following planting. Wet, cool weather causes seed rot.

Fertilizers

Because southern peas fix some nitrogen from the air when the soil is supplied with nitrogen-fixing bacteria, they do not respond greatly to heavy nitrogen applications. Most Texas areas are adequately supplied with bacteria from the many native species of leguminous plants. Where legume crops have not been grown for several years, it may pay to inoculate the seed before planting. Avoid land with heavy applications of gin trash because excessive nitrogen may exist. Delayed maturity and pod shattering may result from pod enlargement caused by excessive nitrogen.

Southern peas respond to as much as 80 pounds of phosphate per acre on fine sandy loam soils. Apply 20 to 40 pounds of nitrogen on soils low in organic matter and up to 80 pounds of phosphorus on sandy land. Band fertilizer in the row 3 or 4 inches deep and 2 inches to the side of the seed.

Seeding Rate and Plant Spacing

Seeding rates may vary from 12 to 25 pounds per acre depending on size of seed, germination

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percentage and plant spacing desired. A spacing of 2 to 4 inches in the row for blackeyes, creams and purple hulls usually results in maximum yields.

Closer spacing aids in restricting vine growth and simplifying harvest where dry seed is to be combined. Closer spacing reduces runner formation and encourages higher pod growth on the plant. High pods are more easily harvested by hand and are necessary for mechanical harvesting.

Weed Control

Eliminating weeds and maintaining soil in good condition make possible maximum yields. The beds should be properly prepared and worked before planting. Careful cultivation usually controls weeds without hoe work. To reduce seed contamination, some hand-pulling of weeds may be necessary before combining.

Treflan or Planavin applied at the rate of 1 pint on sandy soils and 1½ pints on heavier soils incorporated 1 to 2 inches deep before planting results in good weed control in most Texas areas.

Irrigation

Although southern peas are irrigated in parts of Texas, they usually are grown as dryland crops. The benefits of supplemental irrigation, however, nearly always exceed the cost. Southern peas usually suffer from lack of water during short drought periods in May and June. Although the peas may produce a crop, the resulting loss in yield may exceed 50 percent.

Southern peas do not need great amounts of supplemental irrigation water. In fact, reduced yields may result from excessive moisture if vegetative growth is increased excessively. Timing is important and the critical irrigation period is during blooming. No amount of water before or after fruit set will compensate for a water shortage during blooming.

Insects

Apply Guthion at the rate of 1 pound per acre for good control of the cowpea curculio, aphids and spider mites. Apply at first bloom stage and follow with two to three applications at 5- to 7-day intervals. Control corn earworms and stink bugs by applying sevin at the rate of 1½ pounds per acre. Apply parathion at the rate of ½ pound per acre to control leafminers and thrips.

Diseases

Southern peas grow in many parts of Texas with no disease control measures. Even though they do not completely destroy the crop, some diseases cause serious yield reductions.

Carefully observe crops for disease occurrence. If disease symptoms appear, apply preventive fungicides.

To control powdery mildew, apply wettable sulfur at the rate of 6 pounds per acre. Zineb applied at the rate of 2 pounds per acre at 7-day intervals controls most fungal leaf spots and pea rust. Always plant western-grown, disease-free, certified seed to avoid halo blight. For additional information, consult your local county Extension agent or Extension publication MP-902, *Texas Guide for Reducing Vegetable Disease Losses.*

Table 1. Estimated cost and return per acre of irrigated southern peas

Item of expense	No. of units and unit price	Costs	Sub-totals	Totals
Production receipts	2 ton @ $120.00			$240.00
Cash expense				
Tractor equipment	8 hr. @ 0.80	$ 6.40		
Tractor labor	10 hr. @ 1.50	15.00		
Other labor	3 hr. @ 1.50	4.50		
Seed	25 lb. @ 0.16	4.00		
Fertilizer (40-0-0)	40 lb. @ 0.11	4.40		
Insecticides	4 app. @ 2.50	10.00		
Herbicide (Treflan)	1½ pt. @ 2.75	3.62		
Irrigation water	2 app. @ 6.00	12.00		
Total cash expense			$ 59.92	
Interest on operating capital, 8% for 6 months			2.39	
Land expense				
Taxes	0.5 yr. @ 10.00	$ 5.00		
Interest on land, $400 @ 6%	0.5 yr. @ 24.00	12.00		
			$ 17.00	
Overhead expense (equipment depreciation, buildings, vehicles)			25.00	
Total production cost			$104.31	
Harvesting and marketing expense				
Harvesting and hauling	2 ton @ 50.00	$100.00		
Selling	2 ton @ 10.00	20.00		
Total harvesting and marketing cost			$120.00	
Total expenses				224.31
Return to management				$ 15.69

Table 2. Estimated cost and return per acre of dryland southern peas

Item of expense	No. of units and unit price	Costs	Sub-total	Total
Production receipts	3/5 ton @ $120.00			$ 72.00
Cash expense				
Tractor equipment	5 hr. @ 0.80	4.00		
Tractor labor	6 hr. @ 1.50	9.00		
Seed	15 lb. @ 0.16	2.40		
Fertilizer (40-0-0)	40 lb. @ 0.11	4.40		
Insecticides	2 app. @ 2.50	5.00		
Total cash expense			$24.80	
Interest on operating capital, 8% for 3 months			0.50	
Land expense				
Interest on land @ 6% on $250.00		15.00		
Taxes	1 yr. @ 2.00	2.00		
			17.00	
Overhead			10.00	
Total production cost			$52.30	
Harvesting and marketing expense				
Harvesting, hauling and selling	1,200 lb. @ 60.00/ton		36.00	
Total expenses				88.30
Return to management				$−16.30

Harvesting

Peas are harvested in three stages of maturity: green snaps, green mature and dry. Most harvesting in Texas is done by machines. The Chisolm-Rider green bean harvester often is used at the green mature stage. During this operation, a percentage of green snaps are harvested. For dry pea harvest, small grain combines modified for pea harvest are used. Because delayed harvest often results in seed discoloration and lower grade, harvest when pods are dry and before they shatter easily. Harvested peas are bulk loaded and hauled to processing stations.

Marketing

Most southern peas are produced in Texas at a contracted price for canning and freezing. Some fresh-market peas are hand-picked and packed in crates for shipment to local markets. Fresh peas are shipped under refrigeration to distant markets. Dry peas are cleaned, graded, stored and fumigated for future packaging in consumer-size plastic bags.

Cost and Returns

Tables 1 and 2 show the estimated costs and returns of irrigated and dryland southern peas on a per-acre basis. Table 3 shows costs and returns of dry pea production in the High Plains.

Table 3. Estimated cost and return for irrigated southern peas (dry)

Item of expense	No. of units and unit price	Costs	Sub-total	Total
Production receipts	1,700 lb. @ $ 0.06			$102.00
Cash expense				
Tractor equipment	3 hr. @ 0.80	$ 2.40		
Tractor labor	5 hr. @ 1.50	7.50		
Other labor	3 hr. @ 1.50	4.50		
Seed	20 lb. @ 0.16	3.20		
Fertilizer (40-80-0)	80 lb. @ 0.11	8.80		
Herbicide	1 pt. @ 2.50	2.50		
Irrigation water	10 app. @ 1.25	12.50		
Total cash expense			$41.40	
Interest on operating capital, 8% for 6 months			1.65	
Land expense				
Taxes	0.5 yr. @ 10.00	5.00		
Interest on land	0.5 yr. @ 24.00	12.00		
			17.00	
Overhead expense				
(equipment depreciation, buildings, vehicles)			25.00	
Total production cost			$85.05	
Harvesting and marketing expense				
Combine	1 acre @ 6.00	6.00		
Hauling	17 cwt. @ 0.10	1.70		
Total harvesting and hauling expense			7.70	
Total expense				92.75
Return to management				$ 9.25

Table 4. Per acre cost of producing and marketing irrigated southern peas as influenced by marketable yield.

Yield/lb.	Production cost/ton	Harvest and haul	Total cost
1,500	139.08	60	199.08
2,000	104.31	60	164.31
2,500	83.46	60	143.46
3,000	69.54	60	129.54
3,500	59.60	60	119.60
4,000	52.16	60	112.16
4,500	46.36	60	106.36

Production costs of irrigated southern peas are higher than dryland peas because of additional land preparation, fertilizers, seed and irrigation water. Although the average estimated return on dryland southern peas shows a loss, timely rainfalls may result in increased yields.

Table 5. Per acre costs of producing and marketing dryland southern peas as influenced by marketable yield.

Yield/lb.	Production cost/ton	Harvest and haul	Total cost
600	174.33	60	234.33
800	130.75	60	190.75
1,000	104.60	60	164.60
1,200	87.17	60	147.17
1,400	74.71	60	134.71
1,600	65.37	60	125.37
1,800	58.11	60	118.11
2,000	52.30	60	112.30

Tables 4, 5 and 6 indicate the costs of producing and marketing southern peas as influenced by the marketable yield per acre. Although harvesting and marketing costs per ton for green peas remain constant, production costs vary. Dry pea harvesting and hauling costs vary with yields because hauling costs are based on a per hundredweight basis. As indicated in Table 4, a yield of 3,000 pounds of peas per acre requires a return of $129.54 per ton to break even while a 4,000-pound yield per acre requires a return of only $112.16 per ton.

Table 6. Per acre costs of producing and marketing southern peas (dry) as influenced by marketable yield, High Plains.

Yield/lb.	Production cost/ton	Harvest and haul	Total cost
1,500	113.11	7.50	120.61
1,700	99.51	7.70	107.21
1,900	89.20	7.90	97.10
2,100	80.80	8.10	88.90
2,300	73.99	8.30	82.29
2,500	68.04	8.50	76.54

Figures 1, 2 and 3 indicate the relationship of delivered price per ton to yield. These curves can be used to estimate potential returns at various yields.

Fig. 1. Price per ton of irrigated southern peas required to break even at given yields.

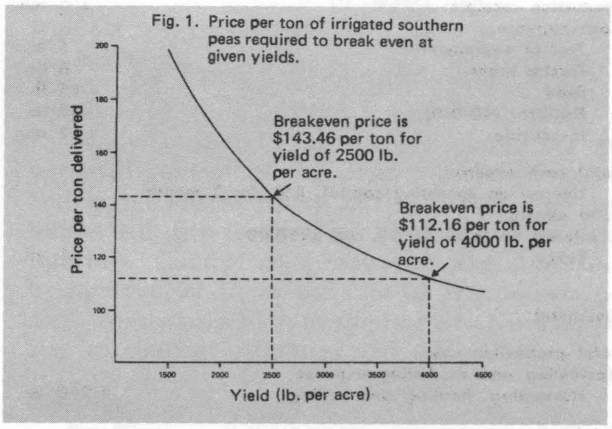


Fig. 2. Price per ton of dryland southern peas required to break even at given yields.

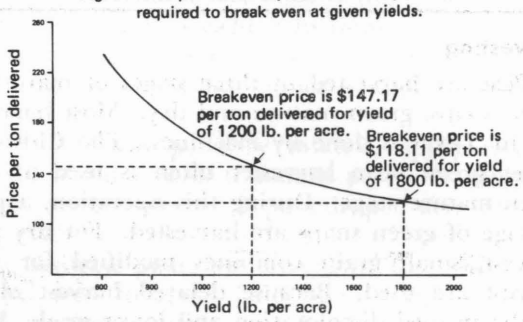
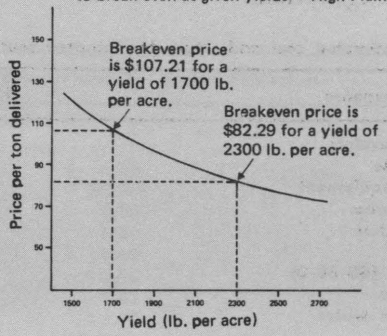


Fig. 3. Price per ton southern peas (dry) required to break even at given yields – High Plains



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