

# FACT SHEET

L-966

## KEYS TO PROFITABLE PEPPER PRODUCTION

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The value of the Texas green pepper crop is approximately \$5.5 million yearly, on an average of 6,000 acres. During 1968, the pepper crop in Texas accounted for 2.2 percent of the acreage and 4.8 percent of the value of the Texas vegetable industry.

### Areas of Production

The principal area of pepper production in Texas is in the Lower Rio Grande Valley, with scattered production in the San Antonio-Winter Garden and High Plains areas.

Green peppers for the spring market are seeded in late December with most active planting in January. In the Lower Rio Grande Valley, harvest begins during the latter part of May and peak movement and harvest is during June.

Planting for the fall crop begins in May in the High Plains area and continues into August in the Rio Grande Valley. Harvest begins in early August in the High Plains and continues until frost. Production usually is available from South Texas until December or until a killing frost occurs.

### Seasonal Movements

Figure 1 shows that peak movement of Texas green peppers to market occurs during May and June for the spring-planted crop and during October and November for the fall-planted crop. About 70 percent of the Texas pepper production occurs during fall and early winter.

### Climatic Requirements

Peppers require about the same growing conditions as tomatoes and eggplant. Peppers succumb to a light frost and do poorly when temperatures are in the 40 to 60-degree range. The extreme summer heat in most areas of Texas is too high

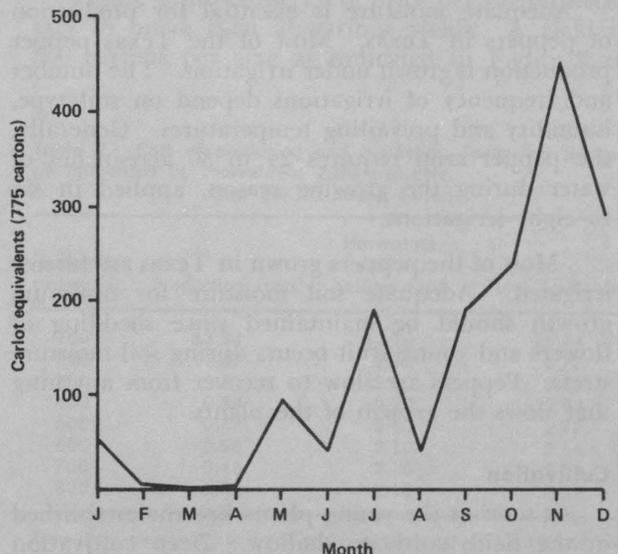
for fruit set to occur. Fruit that set at temperatures above 80 degrees usually are small or poorly shaped. Very little fruit set occurs at temperatures above 90 degrees. Best yields occur when temperatures range between 65 and 80 degrees during fruit setting.

### Soil Type

Peppers grow well on most Texas soils. A loam or sandy loam soil which holds moisture fairly well and has a liberal supply of organic matter is ideal. Light-textured soils which are conducive to earliness are especially desirable where the growing season is limited by frosts. Peppers are not overly sensitive to soil pH, but highly acid soils should be limed to bring them into the 5.5 to 7.0 range.

### Fertilizers

Fertilize peppers as for tomatoes, but add more nitrogen. Ample nitrogen promotes rapid growth and prevents premature fruit set. Fruit set on small plants will stunt growth and results in small



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peppers and low yields. Properly fertilized pepper plants normally drop many of their blossoms to prevent fruit set when the plants are too small. Apply about 80 pounds of phosphorus per acre before planting, in bands 2 to 4 inches below the seed. Side-dress with 25 to 30 pounds of nitrogen per acre as soon as a good stand has been established. Continued nitrogen side-dressing at 30 to 40 pounds per acre is recommended during early growth and fruit setting. This will insure continued growth, development of fruit and fruit set. To prevent root damage and plant injury, apply later applications of nitrogen through irrigation water.

### Varieties

Several varieties of peppers are grown in Texas. The principal varieties are Jade, Keystone, Keystone Giant, Yolo Wonder, Rio Wonder and numerous hybrids. Hot pepper varieties include Jalapeno, Floral Gem and Hungarian Yellow Wax.

### Seeding Rates

The Texas acreage of green peppers includes both direct seeded and transplanted fields. Peppers are direct seeded in the fields at a seeding rate of about 2 pounds per acre. The plants are thinned to a final in-the-row spacing of about 12 to 18 inches. Approximately  $\frac{1}{2}$  pound of seed is necessary to produce enough plants to transplant 1 acre. Transplants are set in the field with an in-the-row spacing of 18 to 24 inches. Between row spacing varies from 36 to 40 inches. Most peppers are planted in single rows, with an occasional field planted to double rows on single beds.

### Irrigation

Adequate moisture is essential for production of peppers in Texas. Most of the Texas pepper production is grown under irrigation. The number and frequency of irrigations depend on soil type, humidity and prevailing temperatures. Generally, the pepper crop requires 24 to 30 acre-inches of water during the growing season, applied in six to eight irrigations.

Most of the peppers grown in Texas are furrow irrigated. Adequate soil moisture for optimum growth should be maintained since shedding of flowers and young fruit occurs during soil moisture stress. Peppers are slow to recover from anything that slows the growth of the plants.

### Cultivation

As soon as the young plants become established in the field, cultivate shallow. Deep cultivation results in root pruning as well as loss of soil mois-

ture. Avoid damaging the plants during cultivation. Peppers are extremely brittle and subject to damage.

### Weed Control

Applications of Enide, Dymid or Prefar at the rate of 6 pounds per acre incorporated 2 inches deep result in satisfactory control of most weeds. Prefar, Dacthal or Treflan applications after transplanting, but before the weeds emerge, also are recommended. Dacthal can be applied to the crop at the rate of 6 to 12 pounds per acre. It also can be applied as a postemerge treatment directly over the top of the peppers. Apply Treflan only as a post-transplanting or post-thinning operation at the rate of  $\frac{1}{2}$  to  $\frac{3}{4}$  pounds per acre and incorporate in the soil.

### Pests and Diseases

The major insect pests of peppers in Texas are budworms, leaf miners, aphids, pepper weevils and cutworms. These insects can be controlled by timely applications of recommended insecticides. Cygon controls leaf miners and aphids. Sevin or Parathion provides good control of pepper weevils, budworms and cutworms. *Read and follow label directions before applying any pesticide.* See MP-675, *Texas Guide for Controlling Insects of Commercial Vegetable Crops* for information and recommendations concerning specific insect pests.

Damping-off can be a serious problem of pepper seedlings, especially during cool, wet conditions. Seed treatment, soil applications of fungicides or soil fumigation help reduce losses from this problem. Bacterial spot often occurs during warm, wet weather. Rotation and the application of a fixed copper fungicide before the disease appears and at regular intervals usually give adequate control. Applications of maneb or zineb at recommended rate ( $1\frac{1}{2}$  to 2 pounds per acre) result in satisfactory control of Cercospora leaf spot, anthracnose and Phytophthora blight. See MP-902, *Texas Guide for Reducing Vegetable Disease Losses* available from your local county Extension office.

### Harvesting and Packing

Peppers normally are harvested when they are about full size and before they turn red or yellow. The peppers are picked in field baskets and hauled to the shed for grading and packing. Peppers are graded into classes such as U.S. Fancy, U.S. No. 1, and U.S. No. 2, according to characteristics, such as firmness, shape, size, color, insect injury, sunburn, diseases and mechanical injury.

Table 1. Estimated cost and returns per acre for Texas fall peppers in the Rio Grande Valley, 1970.

	No. of units and value per unit	Value or cost
1. Production receipts:	350 cartons @ \$ 3.47*	\$1,214.50
2. Cash expense:		
Tractor and equipment	15 hr. @ \$ .80	\$ 12.00
Tractor labor	17 hr. @ 1.50	25.50
Other labor (thinning, irrigation, hoeing)	70 hr. @ 1.40	98.00
Seed	2 lb. @ 9.00	18.00
Fertilizer 200-80-0	280 lb. @ .11	30.80
Insecticide	10 app. @ 2.25	22.50
Fungicide	4 app. @ 4.00	16.00
Herbicide	1 gal. @ 16.00	16.00
Irrigation water	8 app. @ 3.00	24.00
		\$ 262.80
3. Interest on operating capital 8% for 6 months		\$ 10.51
4. Land expense:		
Taxes	1 yr. @ 11.00	\$ 11.00
Interest on land investments, 6% \$400 per acre	1 yr. @ 24.00	24.00
		\$ 35.00
5. Overhead expense: (equipment, buildings, vehicles depreciation)		\$ 25.00
6. Harvest and marketing expense:		
Harvesting (32 lb. carton)	350 @ .40	\$140.00
Packing (includes container)	350 @ 1.35	472.50
Selling	350 @ .35	122.50
		\$ 735.00
7. Total expense		\$1,068.31
8. Return to management		\$ 146.19

\*Average price for Texas fall peppers for 1965-69 from Vg 2-2 (69), USDA Crop Reporting Service, 1969.

During the packing and grading process, take extreme care to avoid skin breaks and bruising the fruit. Injuries may result in the development of rots during transit or storage. A water bath with 500 ppm of chlorine at 128 degrees F after grading, and before waxing helps to control intransit fruit rots. Most peppers are sprayed with a wax emulsion before packing.

Various kinds of containers ranging from wooden crates to paper cartons are used for packing purposes. The shipping container should be rigid enough to protect the fruit during the transit period.

### Marketing

Texas grown peppers are sold mainly f.o.b. the shipping point at the prevailing market prices. A small portion of the production is sold directly to chain stores or through local outlets.

### Cost and Return

The estimated cost and return of Texas fall peppers is given in Table 1. Bell peppers have one of the highest production costs of Texas grown vegetables. The total cost of producing, harvesting,

packing and selling peppers per 32-pound carton as influenced by yield per acre is given in Table 2. The cash expense, land and overhead cost remain relatively stable. Harvesting and marketing costs per acre vary directly with yield. However, production cost per carton decreases with increasing yields, while harvesting and marketing costs remain the same.

Figure 2 shows the f.o.b. price per carton necessary to break even at various yields. A yield of 350 cartons per acre as indicated in Figure 2 re-

Table 2. Cost of producing and marketing Texas fall peppers as influenced by marketable yield per acre. Cost per 32-pound carton

Marketable cartons/A.	Production costs <sup>1</sup>	Harvesting, packing, selling costs	Total f.o.b. cost
100	\$3.34	\$2.10	\$5.44
200	1.67	2.10	3.77
300	1.11	2.10	3.21
400	0.84	2.10	2.94
500	0.67	2.10	2.77
600	0.56	2.10	2.66
700	0.48	2.10	2.58
800	0.42	2.10	2.52

Three-year average f.o.b. price of Texas fall peppers for 1965-69 was \$3.47 (Vg 2-2 (69), USDA Crop Reporting Service, 1969)

<sup>1</sup>Based on figures in Table 1.

quires a price of \$3.05 per carton to break even. A yield of 200 cartons per acre requires a higher price of \$3.77 per carton to break even.

The curve in Figure 2 can be used by individuals to estimate potential return based on expected yield or price.

