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KEYS TO PROFITABLE PRODUCTION

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KEYS TO PROFITABLE SOUTHERN PEA PRODUCTION

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Southern peas, often called cowpeas, are a warm season crop which fits well with normal cropping systems in Texas. This crop can be grown during the summer after the spring or early summer vegetables are harvested and before planting winter vegetables.

Southern peas are grown mostly in sandy, nonirrigated areas of Texas. They usually are planted following seasonal rainfall, which accounts for the variation in acreage from year to year.

In 1978, plantings totaled 35,000 acres with 22,000 harvested as dry peas and 5,900 as green, fresh peas; while in 1979, 40,000 acres were planted with 22,000 acres being harvested as dry peas and 4,000 acres as green peas.

Yields increased from 570 pounds per acre for dry peas and 625 pounds for green, fresh peas in 1978 to 1,000 pounds per acre for dry peas and 1,400 pounds per acre for green peas in 1979.

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 statewide.

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 grow best in hot, dry climates. Although length of day may affect production, most Texas varieties are day neutral and can be grown in spring and fall.

Soils

Southern peas grow on many soil types, but highest yields occur on sandy loams and light sandy clay soils. Neutral to slightly acid soils are preferred while soils with the pH above 7.5 and high in calcium should be avoided. High calcareous soils cause chlorosis (iron deficiency) which reduces plant growth and yield. High yields occur 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 areas.

Land Preparation

Turn under all refuse in the fall or winter for decomposition of plant materials and reduction of carry-over curculio (weevil) 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 ger-

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minating weed seeds and to create a clod-free seedbed (essential where mechanical harvesting is used), rework the seedbeds just before planting. Irrigate before planting to insure adequate soil moisture at planting time and prevent reductions in seed emergence. Wet, cool weather causes seed rot and damping off of seedlings.

Fertilization

Southern peas have the ability to fix nitrogen from the air when the soil is supplied with nitrogen-fixing bacteria. Peas do not respond to heavy nitrogen applications.

Considerable differences of opinion exist regarding the importance of inoculating pea seed with nitrogen-fixing bacteria. Experiments have not given conclusive results, although generally inoculate when peas are planted on new land. Most Texas areas, however, are supplied adequately with bacteria from the many native species of leguminous plants.

Carefully evaluate nitrogen fertilization of southern peas. Excessive nitrogen may cause excessive vine growth, delayed maturity or pod shattering. Apply 20 to 40 pounds of nitrogen on soils low in organic matter and up to 80 pounds of phosphorus and potassium on sandy soils. 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 vary from 12 to 25 pounds per acre depending on seed size, germination percentage and plant spacing. Usually maximum yields result when spacing blackeyed, cream and purple hull seeds 2 to 4 inches apart in the row.

Closer spacing restricts vine growth and simplifies harvest where dry seeds are combined. It also reduces runner formation and encourages high pod growth on the plant. High pods are easier to hand harvest and are necessary for mechanical harvesting.

Weed Control

Elimination of weeds and good soil preparation aid in maximizing yields. A preplant application of Treflan (1 pint per acre on sandy soil or 1½ pints per acre on heavier soils), incorporated to a depth of 2 to 3 inches normally controls annual grasses and some broad-leaved weeds. Little or no cultivation is needed if the herbicide is working properly. If cultivation is needed, do not plow deeper than the herbicide layer as loss of effectiveness will result.

If periodic cultivation is used to control weeds, never deep plow; a depth of 3 to 4 inches is sufficient. Deep plowing results in root pruning which causes plants to wilt and possibly reduces yields. Careful cultivation usually controls most weeds without hoe work. To reduce seed contamination, some hand-

Table 1. Descriptive list of southern pea varieties popular in Texas.

Variety	Characteristic description
Purple Hulls	
Knuckle Purple Hull	A high yielding purple hull, medium thick, reddish to purple pods with large seed turning brown when dry. A crowder type.
Burgandy	An upright blackeyed purple hull with uniform maturity, good sheller and excellent processor. Red pod makes maturity easy to judge.
Texas Purple Hull No. 49	A blackeyed purple hull, upright, pods held high and disease resistant.
Pinkeye Purple Hull	Semi-vining, vigorous bush type. Pods turn purple at shell stage, are 6 to 8 inches long and are slightly above foliage. Pea is light green with red eye at green stage, turns white with maroon eye when dry. Pea is medium sized with rounded ends.
Crimson	Small bush, upright, pods above foliage. Purple hull, pea has pink eye. Used principally as dry pea. Seed are small when dry. When cooked or canned they increase two-fold in size.
Blackeye	
California Blackeye No. 5	Upright to semi-spreading, medium coarse stem and branches, medium foliage, fair drought resistance. Pods 6 to 8 inches long, early maturing. Seed medium to large.
Cream	
Cream 8	Upright, high pods, kidney shaped, concentrated set, good shelling, high yield, excellent freezing or marketing.
Cream 12	Upright, more bush type than Cream 40. Almost round type pea, heavy yielder, medium pod with smooth skin.
Cream 40	Upright, pods well above foliage, early prolific. Disease resistant.
Elite	Upright, pods above the foliage, no running, pods are bunched, 7 to 9 inches long and fairly straight. High yielding.
Crowder	
Mississippi Silver	Vine, bunched yield, easy to shell. Very good resistance to fusarium wilt and root knot nematodes, tolerant to viruses.

pulling of weeds may be necessary before combining. However, with proper use of herbicides, hand pulling or hoeing should not be necessary.

Irrigation

Although southern peas are irrigated in parts of Texas, they usually are grown as a dryland crop. The benefits of supplemental irrigation, however, may 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 much supplemental irrigation water. In fact, reduced yields may result from too much moisture if vegetative growth is excessive. Timing is important, and the critical irrigation period is during blooming. No amount of water before or after fruit set compensates for a water shortage during blooming.

Insects

A dozen different insects feed on southern peas at some time during the growing season. Quality pea production depends largely upon the producer's ability to identify and control these insect or mite pests.

Before planting, check for cutworms, wireworms and white grubs. These insects may prevent a desirable stand. Various insects attack the foliage. Although these are damaging and should be controlled, the most damaging pests are the cowpea curculio (a weevil), corn earworms and stink bugs that attack blooms, pods and seeds. Closely monitor these key pests and control if necessary.

For additional information on insect control and identification, consult your county Extension agent or Extension publications B-1305, *Texas Guide for Controlling Insects on Commercial Vegetable Crops* and B-1273, *Insects in Vegetables*.

Diseases

Several diseases may attack southern peas including powdery mildew, root rots caused by several organisms, rust, fusarium wilt and several leaf spot diseases.

To control powdery mildew, apply wettable sulfur at a rate of 5 to 25 pounds per acre (see label recommendations). Spray at first appearance and follow at 7- to 10-day intervals as needed.

Carefully observe crops as the season progresses and apply preventive fungicides as soon as symptoms appear. For additional information, consult your county Extension agent or Extension publication MP-902, *Texas Guide to Reducing Vegetable Disease Losses*.

Harvesting

Most commercial southern pea production is harvested mechanically. Southern peas can be harvested in three stages of maturity — green snaps, green mature and dry. Each stage requires a different type of harvester.

In the green snap or green mature stage, use Chisholm-Ryder or Pixal snap bean harvesters. The beans and foliage are stripped from the plant, then a cleaning fan blows trash and the foliage out. Some of the bean pods may be bruised, scratched or broken during the operation. Mechanical harvesters generally are used for processing beans; however, the beans can be cleaned, graded and sold for fresh market. It is important to choose varieties without long vines to prevent tangling and clogging.

In the green mature stage, beans also are harvested by mobile viners such as the Porter-Way harvester or FMC combine. The Porter-Way harvester lifts and loads bean windrows into trucks for processing. The FMC combine lifts bean windrows, then shells and cleans the peas for processing.

For dry pea harvest, use small grain combines to cut and thresh the dry peas. Sometimes the peas are windrowed before harvest to facilitate drying. Harvested peas are bulk loaded and hauled to processing stations.

Snap bean and pea harvesters and related equipment currently available are:

Chisholm-Ryder Co., Inc., Niagara Falls, NY 14305

FMC Corp., Box 1120, San Jose, CA 95108

Pixal Corp., Box 17, Clear Lake, WI 54005

Porter-Way Harvester Mfg. Co., Inc., R.D. 2, Waterloo, NY 13165

United Farm Tools, Inc., P.O. Box 9175, South Charleston, WV 25309

Before selecting any harvester, carefully consider row spacing, varieties and processing methods.

Marketing

Most southern peas are produced in Texas at a contracted price for canning and freezing. Usually these crops are harvested mechanically. Although mechanical harvesting is very effective, some fresh market peas are hand-harvested 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-sized plastic bags.

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