



Current Report

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SOUTHERN PEA PRODUCTION

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PRODUCTION REQUIREMENTS

Southern peas are also known as "cowpeas", "field peas", "blackeyes", "crowders" and by other names. They are well adapted to Oklahoma and the southeastern United States. Southern peas are an attractive crop due to their ability to produce on soil of low fertility and to fit into crop rotations. They can be planted after spring vegetables are harvested. Southern peas are legumes and can fix nitrogen from the atmosphere. Inoculants of bacteria are available commercially, and may be used to coat the seed before planting to insure that the bacteria are present in the soil. They are a warm season crop and produce satisfactorily under hot summer conditions in Oklahoma. Yield will vary depending upon soil fertility and soil moisture supply. From a single harvest the green shell pod yield will range from 2,500 to 4,500 pounds per acre while green shelled and dry pea yield will range from 1,200 to 2,000 pounds per acre. Multiple hand harvests can increase pod and green pea yields of vining types by about 25 percent above the indicated single harvest yields.

VARIETIES

The preference of potential buyers must be considered in determining the varieties to grow. If the crop is to be grown for processing, the processor will designate the variety to be grown. Varieties differ in the following characteristics: (1) growth habit-vining, semi-vining and bunch; (2) pod color at green shell stage-the color may vary from green to silvery to purple; (3) seed color-cream, buff, brown, red, black, spotted and speckled; (4) eye color-varies from no color to pinkish, maroon eye to black eye; (5) seed type-crowder, semi-crowder and non-crowder. A crowder pea is one in which the seeds are crowded in the pod, causing seed to be blunt on the end.

Most of the varieties listed on the following page have a plant type and pod set location which permits machine harvest or easier hand harvest when compared to vining type varieties. Days from planting to harvest ranges from 65 to 80 days depending upon season and variety.

SITES AND SOILS

Southern peas will grow on many soil types, but highest yields occur on well drained sandy loams and light sandy clay soils. High yields are possible on sandy soils if adequate moisture and fertility are provided. Soils known to be droughty will likely produce poor yields. It is erroneous to consider southern pea to be a highly drought resistant crop.

SOIL pH AND FERTILIZER

Neutral to slightly acid soils (pH 5.5 to 6.5) are preferred by southern peas. Soils with the pH above 7.5 and high in calcium should be avoided or chlorosis (iron deficiency) could occur which stunts plant growth and reduces yield. Apply lime if soil pH is below 5.5. Based on OSU soil test results the following amounts of P₂O₅ and K₂O are recommended.

Phosphorus per acre

When test shows	0-19	20-39	40-69	70+
Add lbs. P ₂ O ₅ /A	60	40	20	none

Potassium per acre

When test shows	0-99	100-149	150-199	200+
Add lbs. K ₂ O/A	100	60	25	none

Nitrogen - On soils of moderate to low fertility apply 15 to 25 lbs./A N preplant incorporated along with recommended P₂O₅ and K₂O prior to planting or band all fertilizer with the planter 3 to 4 inches below and 2 to 3 inches beside the seed row. Excessive N may cause excessive vine growth, delayed maturity, pod shattering and low yield. Southern peas show very little response to N fertilizer, so side dressing with N fertilizer is not advised and peas should not follow crops that add large amounts of N to the soil. The nitrate-N value provided by the OSU soil test report should be used to determine N fertilizer needs on a particular soil.

SOIL PREPARATION AND PLANTING

Rework the soil just before planting to destroy any weeds and to develop a clod-free seed bed needed for mechanical harvesting. Make the earliest plantings in late April in central Oklahoma but make sure the soil temperature has been 70°F or above for several days prior to planting. Do not plant later than July 15. Plant in rows 18 to 42 inches apart depending upon variety and equipment to be used in planting, cultivation and harvest. Bunch varieties can be planted in closer rows while vining varieties require wider spacing. Three to four seeds should be planted per foot of row. Size of seed determines the amount of seed to plant per acre. Seeding rates vary from 15 pounds per acre for small seeded varieties to 30 pounds per acre for larger seeded types when planted in 36 inch

rows. At a 20 inch row spacing, 30 and 55 pounds are required for small and large seeded varieties, respectively. Plant seed one inch deep in heavy soils and 1½ to 2 inches in light soils.

CULTIVATION AND CHEMICAL WEED CONTROL

The use of herbicides is becoming more important with mechanical harvesting and as plant populations rise. Herbicide effectiveness varies with soil types and climatic conditions. If cultivation is necessary, cultivate just deep enough to control weeds. Consult the most recent revision of OSU Extension Facts No. 6008 or the latest edition of the Extension Agents' Handbook for chemical weed control information.

IRRIGATION

Peas have some drought tolerance but irrigation can double or triple yields in periods of severe drought. This is especially true when water is applied during bloom and early pod development. In Oklahoma, without irrigation, peas usually suffer during short drought periods and although they may produce a crop the yield can be greatly reduced. Excessive rainfall or overhead irrigation at or a few days before bloom stage may delay fruit set and encourage excessive vine growth by interfering with pollination.

INSECTS

If southern peas are planted early (late April) seed-corn maggots may be a problem. Since this insect is usually only a pest in cool, damp springs, peas planted at the normal time should not be troubled. Aphids and spider mites can become a problem and hot, dry weather seems to enhance spider mites. Peas planted on lighter soils and under dryland conditions can be attacked by lesser cornstalk borers. This insect bores into the stalk just above the soil line and hollows out the stem. Infested plants will lodge and easily break off in the wind. Late planted peas are more likely to have problems with lesser cornstalk borers. As the pods form a number of insects can become pests. Green stink bug feeding will cause discoloration of the developing seeds. The fall, beet and yellow-striped armyworms along with the corn earworm will feed on the pods during the summer. Cowpea curculio attacks southern peas throughout the state. This small weevil feeds on the pods and lays eggs in the seeds; larvae then feed on the developing seeds in the pods.

DISEASES

Several disease problems hinder the production of southern peas. Rhizoctonia, Pythium and Fusarium species are soil-borne fungi causing root and seed rots as well as

death of developing plants. Virus disease can be found in most planting and common symptoms are puckering of leaves, stunting of the plant and mosaic color patterns in the leaves. Obtaining high quality seed and controlling aphids reduces virus problems. Seed treatment and crop rotation reduces the losses caused by root rots. Cercospora leaf spots and bacterial blights are diseases found on leaves. Nematodes and particularly the root-knot nematode can damage southern peas. Fields that are known to be infested should be avoided. Nematode, Fusarium wilt and bacterial blight resistance is found in several varieties as shown in the variety table below. Descriptions of the above diseases and recommended control measures for diseases and insects can be found in the most recent edition of the Extension Agents' Handbook.

HARVESTING

Most commercial pea production is harvested once-over mechanically. Peas are harvested in three different stages of maturity - green snaps, green shell and dry. Each stage requires a different harvester. The commercial snap bean harvesting machines can be used to harvest in the green snap or green shell stage. Bunch or semi-bunch varieties harvest best with the snap bean harvesters. For processing, in the green shell stage, peas are harvested by mobile viners (supplied by the processor) which shell and clean the peas for processing. When to harvest for the green shell stage is specified by the processor and is usually when 35 to 40% of the pods are dry. For dry pea harvest small grain combines are usually used to cut and thresh the peas. Peas are sometimes windrowed to speed drying prior to threshing. Before selecting any harvester, consider row spacing, varieties and markets available for the peas. Multiple hand harvesting is still in use. Harvest the crop every five to seven days for three to four weeks. Yields of 150 bushels/A are possible (22 to 25 lbs./bu).

HANDLING AND MARKETING

Most southern peas in Oklahoma are produced under contract with a processor for canning, freezing or as dry peas. Some fresh market peas are produced and these are hand harvested or harvested by machine and packed in baskets or crates for shipment to local markets. Shipment to distant markets must be under refrigeration to maintain quality. Dry peas are handled similarly to dry beans. They are mechanically harvested and hauled bulk to processing stations where they are cleaned, graded, stored and fumigated prior to packaging and marketing. Southern peas are well adapted to U-pick marketing. The purple hull varieties are best suited to U-pick since pods begin to turn purple when they are ready to harvest. A commercial pea sheller in conjunction with a U-pick operation may be a profitable investment.

SOUTHERN PEAS

Variety	Plant habit	Dry pod color	Seed type	Suitable for mechanical harvest	Disease resistance
Mississippi Silver	semi-vining	light straw	brown crowder	yes	Fusarium wilt, nematodes
Crimson	semi-vining	purple	browneye	yes	Fusarium wilt
Elite	semi-bunch	light straw	cream	yes	Fusarium wilt
Erect Set	bunch	light straw	cream	yes	Fusarium wilt, nematodes, bacterial blight
Magnolia Blackeye	semi-vining	dark straw	blackeye	yes	Fusarium wilt, nematodes
California Blackeye	vining	dark straw	blackeye	no	Fusarium wilt, nematodes
Pinkeye Purple Hull	vining	purple	pinkeye	no	None

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