



Commercial Fresh Market Southern Pea Production

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Southern peas are grown for both fresh market and processing in Arkansas. Approximately 1,900 acres of Southern peas are grown for processing and 2,000 acres of Southern peas are harvested and sold on the fresh market. Southern peas are known as cowpeas, field peas, crowder peas, purple hull peas and black-eyed peas. While many types are available, the basic cultural practices are the same for all types.

Southern peas are identified by color of hull, seed and eye or hilum

(embryo area) or by spacing (crowding) of seeds within pods. For example, there are purple hulls, cream peas, pink or black-eyed peas and crowder peas. Classification often overlaps (e.g., pinkeye purple hull).

Varieties

There are many varieties of Southern peas. Choose a variety based on the market demand. Some popular varieties are listed in Table 1.

Popular Varieties of Southern Peas

Variety	Pod Color	Plant Habit	Seed Type	Maturity	Disease Tolerance	Dry Yields
Pink Eye Purple Hull	Purple	SV	Pink eye	Late	—	—
Pinkeye Purplehull BVR	Purple	V	Pink eye	Mid	V	—
Coronet	Purple	SV	Pink eye	Mid	—	1133
Texas Pinkeye	Purple	B	Pink eye	Mid	—	1216
Mississippi Pinkeye	Purple	V	Pink eye	Mid	FNV	—
Quickpick	Purple	B	Pink eye	Mid	—	1019
California Pinkeye	Purple	SV	Pink eye	Mid	—	1023
Whippoorwill	Brown	V	Brown speck	Late	—	1009
Zipper Cream	Green to white	V	Cream	Mid	—	1323
Ark Blackeye	Cream	V	Black eye	Early	—	1209

Plant Habits: SV = Semi-Vining, V = Vining, B = Bushy

Disease Tolerance: V = Mosaic Virus, F = Fusarium wilt, N = Nematodes

Dry Yields: Yields are for pounds/acre of non-irrigated peas harvested dry over a three or four year period (1996-1997) at the UAPB Lonoke Farm. However, yields for Quickpick are for one year (1999) at the UAPB Experiment Station.

Soils

Southern peas grow on a variety of soils but sandy loams to silty clay loams are preferred. In addition, soils with a medium fertility plus a pH between 5.5 and 6.5 are also preferred. Avoid soils with excessively high fertility because this produces excessive vine growth and poor yields. Plant on soils that have good drainage because peas do not tolerate wet soils. Wet soils cause stunting and make peas more susceptible to root and foliar diseases.

Fertilizers

Fertilize according to soil test recommendation. Peas require plenty of potash and phosphorus. Band fertilizer 3/4 inches deep and 2 to 3 inches away from seed or broadcast and disc in all fertilizer (including nitrogen) before planting. Most peas have nitrogen-fixing bacteria (some varieties are non-nitrogen fixing). However, peas usually respond to a small initial application of nitrogen fertilizer. Inoculations of seeds with nitrogen-fixing bacteria may increase yields, especially in soils where Southern peas have not been grown in the past three years.

Planting Date

Surface soil should be 60 to 65 degrees F before planting; however, optimum soil temperature for germination ranges from 70 to 95 degrees F. Seeding too early causes poor stands due to cool, wet soils; and cool temperatures in early spring cause slow growth and make the peas more susceptible to attack by thrips.

A seed treatment (fungicide) may be used when planting in less than optimum conditions. Optimum planting dates range from mid-May to mid-July. Planting after mid-July usually leads to reduced yields and greater potential for cow pea aphid infestations. To have a continuous supply of fresh market peas, plant on a two to three week schedule.

Spacing and Seeding Rate

Seeding rates depend on seed size, germination percentage and row spacing. A general seeding rate between 20 to 25 pounds per acre is recommended. In research plots at the University of Arkansas at

Pine Bluff (UAPB), approximately 8 to 10 seeds per foot of row (30-inch rows) are planted. Plant seeds from 0.5 to 1.0 inches deep in rows spaced 30 to 42 inches apart depending on cultivation requirements.

Irrigation Studies

Studies conducted at Lonoke, Arkansas, in 1998 showed that flood and furrow irrigation had similar yields. Both had higher yields than the non-irrigated plots. However, the furrow irrigated plots used considerably less water and required less time to irrigate than the flooded plots. The critical irrigation period is during blooming. Maintain uniform moisture throughout fruit set and pod development. For highest yield, peas should receive 1 inch of water each week from prebloom to pod fill either by rainfall or by irrigation.

Insect Control

The cow pea aphid is an insect that may appear in spots on early planted peas. Generally no treatment is required for control due to the parasitic fungi that attacks the aphids. If an insecticide is needed, it may only be needed in spots. To control the cow pea aphid, apply Malathion or other recommended chemicals.

In late planted crops, the cow pea aphid population should be monitored closely and treated if needed. Other insects that appear in late crops are stink bug and corn earworms. These insects, however, generally require no control.

Thrips often attack peas that are planted close to mature wheat fields. However, no insecticides are generally required. Consult the Cooperative Extension publication, MP 144, for insecticides that may be used on peas.

Weed Control

Weeds should be controlled early with either shallow cultivation and/or herbicides. The herbicides Treflan, Dual and Poast may be used for grass control while Basagran and Pursuit may be used to control broadleaves. It is essential to spray broadleaf weeds early for effective control. Consult the Cooperative Extension publication, MP 44, for herbicides that may be used on peas.

Disease Control

Southern peas planted under unfavorable conditions (cool and wet) are often infected with root rots or seedling diseases. To control, plant when soil temperatures and weather conditions are ideal for plant growth or use the appropriate seed treatments. Also, avoid seeds that may carry fungi by using high-quality treated seeds.

Fusarium wilt infects Southern peas. Symptoms of Fusarium wilt include stunted and wilted plants and brick red tissue in stems that are split lengthwise. The best control of Fusarium wilt is the use of resistant varieties.

Root-knot nematodes infect roots which become knotted and galled. Do not confuse galled roots with nodulating bacteria. Galls are within the roots; nodules are attached to sides of the roots. Symptoms of nematode infected plants appear as nutrient deficiencies, stunting and wilting. Injuries to the roots also make the plant susceptible to attack by Fusarium wilt. The best control methods are resistant varieties and crop rotation.

Several viruses also attack Southern peas. Leaf symptoms include an intermixing of light and dark green areas. Infected plants are usually dwarfed and bunched and yields are reduced. Plants infected during seedling stages may be barren and fail to produce. The best method of control is to grow resistant varieties. Consult the Cooperative Extension publication, MP 154, for fungicides that may be used on peas.

Harvest

Harvest peas for the local fresh market by hand. All fresh market peas are harvested at the green mature stage. Purple hull peas are harvested when pods are 50 percent purple with well-formed peas.

One person can harvest 12 to 20 bushels of Southern peas per day if yields are average; and it requires one half to one hour to pick a bushel of peas. Approximately 100 man hours are required to harvest an acre of peas with a yield of 100 bushels per acre.

Peas can also be machine harvested at the green mature stage. However, due to the often low pod quality of machine harvested fresh peas, these peas are generally shelled with a mechanical pea sheller prior to marketing. If a crop is to be machine harvested, it is necessary to select a bushy, non-vining variety which has a concentrated set of peas above the foliage, e.g., Louisiana Quick pick variety.

Post Harvest Handling

Peas easily "heat" and spoil after harvest, so keep cool or shaded and well-ventilated. Field heat should be removed from peas soon after harvest with forced air cooling. Peas can be stored for three to four days at 50 to 45 degrees F and 80 and 90 percent relative humidity. Peas cooled below 45 degrees F may show chilling injury.

Shelled peas should also be cooled rapidly. Fresh shelled peas can be stored in plastic cello bags for five to seven days at 32 degrees F and 90 to 95 percent relative humidity.

Grades

Unshelled peas are graded as U.S. No. 1 and Commercial. In the U.S., to grade No. 1, 95 percent of pods must be at least 5 inches long. For the U.S. Commercial, no minimum length is required. Both categories consist of pods of similar varietal characteristics which are fairly well-formed, fairly well-filled, not over mature or excessively young. Pods must also be free from decay, worm holes and free from damage caused by stems, leaves, trash, stings or other insect injuries and scars, discoloration, wilting, dirt or adhering foreign material, disease, mechanical injuries or other means.

Packing

Peas are packed in bushel hampers or mesh bags weighing 25 pounds net. Shelled peas are also packed in cardboard cartons containing twelve 11-ounce cello bags.

Yield

Good yields range from 60 to 100 bushels per acre. Irrigated crops have the higher (100 bushels) yields.

Marketing

Fresh market peas are generally a locally marketed crop. Different areas of the state prefer different types of peas. The pinkeye purple hull is the most popular type in southern Arkansas.

Costs

The production cost will vary with yield and cost associated with harvesting. However, a preharvest cost between \$150 to \$300 is expected and a harvest cost between \$430 and \$680 is expected.

Prices

Prices for fresh market unshelled peas vary between \$10 and \$20 per bushel. Prices for fresh market shelled peas vary between \$2 and \$3 per pound.

Reference

Commercial Production of Southern Peas by **Dr. David Nagel**, Extension Horticulturist, Vegetables; **Dr. John D. Byrd, Jr.**, Extension Weed Specialist; **Dr. W.L. Bateman**, professor of Agricultural Economics, Mississippi State University; **Dr. Frank Killebrew**, Extension Plant Pathologist; **Dr. J. H. Jarratt**, Extension Entomologist; **Boyett Graves**, Associate Horticulturist, Mississippi Agricultural and Forestry Experiment Station; and **Dr. Tom Jones**, Extension Economist.

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