UK COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY — COLLEGE OF AGRICULTURE

Southernpea (Cowpea)

Introduction

Southernpea (*Vigna unguiculata*) is a warm season annual that produces a highly nutritious seed for fresh, processed, and dried uses. Southernpeas are also commonly referred to as common cowpeas, crowder peas (seeds are crowded into the pod), black-eyed peas, and field peas. Related subspecies include the yardlong bean and marble pea. Interestingly, southernpeas are not a pea at all, but a type of bean.

Commercial cultivars are generally identified according to such characteristics as pod (hull) color, pod length, "eye" color, seed color, and seed spacing within the pod, as well as by the plant's growth habit. While southernpea can also serve as a cover crop and livestock feed, this profile will only discuss its production as a vegetable crop.

Marketing

Southernpeas are sold fresh, dried, or processed. Fresh immature seeds and pods are generally eaten cooked. Dried products can be sold already shelled or in the pod for consumers to shell. Fresh market options include farmers markets, consumer supported agriculture (CSA) subscriptions, produce auctions, and roadside stands. Sales to locally owned retail grocery markets may be an additional option. Value-added products include soup and bean mixes.

Market Outlook

Southernpea is a popular vegetable crop in the south, including sections of Kentucky.

The most common market classes include black-eye/pink-eye (which includes purple hull peas), crowder, cream, and field types. Each has its own unique appearance and flavor that appeals to specific localities. It is important to be aware of these regional tastes when producing and marketing southernpea.

Production Considerations

Site selection and planting

Southernpeas can be successfully grown within a pH range of 5.5 to 6.5 and on a wide variety of soil types; however, the soil needs to be well-drained. This crop requires a rather low to medium level of soil fertility; high fertility results in excessive vine growth and unproductive plants. Seeds should be planted in the spring after all danger of frost has passed and soils have warmed to 65º F. Cold soils can result in delayed germination and seed decay. Southernpeas are also frost-sensitive.

Southernpeas can develop long taproots with many lateral roots. Due to their rather well-developed root system, this crop is relatively drought-tolerant. Nevertheless,

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irrigation can significantly increase yields during periods of drought. Rainfall or supplemental watering is most critical just prior to and during bloom. This nitrogen-fixing legume generally requires little additional nitrogen.

Pest management
Root rot and damping-off diseases tend to occur in cold, wet soils. Other diseases such as southern blight, viruses, Fusarium wilt, and root knot nematode may also affect southernpea. Common insect pests include wireworms, cutworms, aphids, plant bugs, and stinkbugs. Scouting to monitor populations will help the grower determine when and how often insecticides should be applied. Early weed control is essential to good plant establishment.

Harvest and storage
Southernpeas can either be hand-harvested or machine-harvested. Producers seeking to capture the local fresh market will need to employ a hand harvest system which will yield multiple harvests. Large acreages for processing can be once-over machine-harvested with a conventional combine.

Seed for processing is harvested at the stage specified by the buyer. Southernpeas destined for fresh market sales should be harvested either at an immature green stage or, more commonly, at the green mature stage—when pods are well filled, but before they dry. Beans at this stage are also suitable for drying. However, if seed is to be sold as a dry product, the pods can be allowed to thoroughly dry in the field prior to harvesting.

Remove field heat from fresh-picked beans soon after harvest; keeping southernpeas cool and well-ventilated will help prevent color changes and spoilage. Southernpeas will experience chilling injury if exposed to temperatures below 50° F for extended periods of time (1 to 2 days). Southernpeas are sold either unshelled or shelled depending on consumer or buyer demand. Harvested seed can be stored for 4 to 5 days under the proper temperature and relative humidity. Long term storage is possible for beans at or below 9 percent moisture.

Labor requirements
Pre-harvest labor requirements for southernpeas are similar to those for oilseed crops. Approximately 10 to 12 hours per acre will be needed for production. Harvest and post-harvest labor times will vary between hand and mechanical harvest systems.

Beans picked using a mechanical bean/pea picker must be hand-graded. Data from Alabama estimates an additional labor time of 20 hours for mechanical picking, hand grading, and packing 1,000 pounds of southernpeas, or one hour of post-harvest labor for every 50 pounds of beans.

Hand-harvested southernpeas will also require 10 to 12 hours per acre for production. Harvest times can vary by variety and harvest system. Data from Arkansas indicates that one person can harvest and pack 12 to 20 bushels per day (1½ to 2½ bushels per hour) of purplehull peas under average yield conditions (100 bushels per acre or 2,500 pounds).

For other types of southernpeas, University of Alabama production budgets indicate hand harvest times of 75 hours, including packing and post-harvest handling. Using these standards, hand-harvested southernpeas for fresh local marketing will require 40 to 75 hours for harvest and packing, depending greatly on the variety, yield, and the production system.

Labor needs per acre, then, are approximately 10 to 12 hours for production, 35 to 60 hours for harvest, and 10 to 20 hours for packing/grading.

Economic Considerations
Initial investments include land preparation, purchase of seed, and installation of an irrigation system. Producers must also be prepared to cool southernpeas harvested for fresh, local consumption. This expense can vary greatly

depending on the producer's access to cooling and/or processing facilities.

Production costs (2008) for hand-harvested fresh market southernpeas are estimated at $330 per acre, with harvest and marketing costs at $870 per acre. This assumes a 15 percent charge of gross returns to the producer for cooling and marketing the beans. Total expenses per acre, including both variable and fixed, would come to approximately $1,300. Presuming yields of 1,000 pounds and gross returns of $1,000 to $2,000 per acre, returns to land, capital and management would be approximately $(450)* to $392 per acre.

Production costs (2008) for machine-harvested southernpeas are estimated at $330 per acre, with harvest and marketing costs at $870 per acre. This assumes a 15 percent charge of gross returns to the producer for transporting and marketing the beans. Total expenses per acre, including both variable and fixed, would come to approximately $1,300. Presuming yields of 1,000 pounds and gross returns of $1,000 to $2,000 per acre, returns to land, capital and management would be approximately $(80)* to $762 per acre.

Selected Resources

- Southernpeas (Cowpeas) in *Vegetable Production Guide for Commercial Growers*, ID-36 (University of Kentucky) http://www.ca.uky.edu/agc/pubs/id/id36/id36.htm
- Alternative Field Crops Manual: Cowpea (University of Minnesota and University of Wisconsin, 1991) http://www.hort.purdue.edu/newcrop/afcm/cowpea.html
- Commercial Fresh Market Southern Pea Production, FSA-6057 (University of Arkansas Cooperative Extension, 2000) http://www.purplehull.com/pdf_files/FSA-6057.pdf
- Commercial Production of Southernpeas, P-1535 (Mississippi State University Extension Service, 2000) http://msucares.com/pubs/publications/p1535.htm
- Cowpea (Thomas Jefferson Agricultural Institute, 2000) http://www.jeffersoninstitute.org/pubs/cowpea.shtml
- Enterprise Budget for Southern Peas, Fresh Market, Machine Harvest (Alabama Cooperative Extension, 2007) http://www.ag.auburn.edu/agec//pubs/budgets/2007/Vegetable/southernpeas-mechanicalharvest.pdf
- Enterprise Budget for Southern Peas, Fresh Market, Hand Harvest (Alabama Cooperative Extension, 2007) http://www.ag.auburn.edu/agec//pubs/budgets/2007/Vegetable/southernpeas-handharvest.pdf
- Fresh Market Southern Pea Production in South Arkansas, FSA-6102 (University of Arkansas, 2002) http://www.uaex.edu/Other_Areas/publications/PDF/UAPB/FSA-6102.pdf
- Southernpeas (University of Georgia, 1999) http://pubs.caes.uga.edu/caespubs/pubcd/C485.htm

**Parentheses indicate a negative number, i.e., a net loss.*

Photo by C.R. Roberts, University of Kentucky *Issued March 2009*