

Guide to Commercial Eggplant Production

Historical Perspective

Eggplant (*Solanum melongena* L.), although not a major vegetable crop in Alabama, is becoming an important part of increasingly diverse commercial vegetable operations. Many niche markets exist in Alabama for eggplant, and an increasing number of markets are available for the more unusual specialty eggplant varieties. Worldwide, China is the leading producer and consumer of eggplants. In North America, most commercial production is in Florida, California, New Jersey, and Mexico.

Eggplant is a semitropical/tropical plant originating in Asia and India. Eggplant is a member of the Solanaceae (tomato) family and is related to tomato, pepper, and Irish potato. Traders from the East brought seed westward about 1,500 years ago. The name eggplant likely originated from an early form of eggplant that produced white, egg-shaped fruits. Before it gained in culinary popularity, eggplant was also termed "mala insana," which translates to "mad apple," owing to the belief that eating eggplant would lead to madness. By the 1860s, seed catalogues in the United States listed several varieties of eggplants.

Nutritionally, eggplant is not a significant source of vitamins or minerals; however, there are only 25 calories per 100 grams of raw eggplant and 19 calories per 100 grams of cooked eggplant.

Planting Recommendations

Planting Dates

Eggplant is a warm-season crop that requires 65 to 85 days to reach market maturity from transplanting. Following pollination, 25 to 40 days are required for fruit to reach maturity for harvesting. This limits the use of direct seeding as a means of production because spring harvest dates will be 3 to 4 weeks later than with transplanted eggplants. Transplanting is the preferred method of production. Eggplants are very sensitive to cool weather and do not perform well when exposed to low temperatures. Do not transplant until all danger of frost is passed. Transplant eggplants no earlier than March 10 in south Alabama, April 1 in central Alabama, and April 15 in north Alabama.

Soil and Fertility

Eggplant can be successfully grown in most soils in Alabama (Figure 1). Avoid low, poorly drained soils. Well-drained sandy loam, loam, or clay loam soils with a pH of 6.0 to 6.5 are best for growing eggplants. A good supply of organic matter is desirable. Cover crops should be plowed under at least 1 month before planting to allow time for the cover crop to decompose. To avoid potential soilborne disease and nematode problems, plant eggplant in soils that have not grown a crop of tomatoes, peppers, Irish potatoes, or eggplants in the past 2 to 3 years.



Figure 1. Bare ground production of eggplants. Note: field is weed-free with healthy, green eggplants.

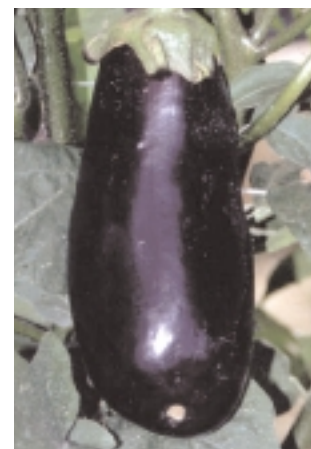


Figure 2. Close-up of traditional, black, teardrop-shaped fruit



Figure 3. Close-up of specialty eggplant

Timely and appropriate applications of fertilizer can make a significant difference in the quality and quantity of fruit and can promote earlier harvests. In the winter or early spring, collect soil samples from each area that you intend to crop, and have a soil analysis performed on each sample. Soil-testing eliminates the guesswork in a fertilizer program. Apply recommended lime 2 to 3 months before planting. Contact your county Extension agent for information about how to collect, submit, and interpret the results of your soil test.

If a soil test is not done, a general recommendation for eggplants is to use enough fertilizer to supply 100 to 120 pounds per acre of nitrogen (N) and 120 to 180 pounds per acre of phosphorus (P₂O₅) and potassium (K₂O). One approach would be to apply 1,000 pounds per acre of a complete fertilizer such as 6-12-12 or 5-10-15. Broadcast and incorporate one-half of the fertilizer before transplanting. Next, apply the second half of the fertilizer directly to the plant rows. Be sure the fertilizer placed within the rows is banded or mixed well before transplanting. After the first fruit set, sidedress with 20 to 30 pounds of nitrogen per acre and then twice more at 2- to 3-week intervals. These sidedress applications of fertilizer do not have to be incorporated.

Seeding Rate and Spacing

Prepare the land early by turning the soil in the winter or early spring so that crop residue

Table 1. Numbers of Plants Per Acre Required at Various Spacings

Between-row spacing	Number of plants required per acre at two spacings	
	42 in.	48 in.
24 in.	7,920	5,445
30 in.	4,978	4,356

is fully decomposed before transplanting eggplant. Producing transplants requires about 8 weeks. Four ounces of seed will produce about 10,000 transplants. Soil temperatures need to be between 75 and 90 degrees F, with 85 degrees F being optimal for germination. For optimal growth and performance in the field, transplants should be between 6 and 10 inches tall without any flower buds, flowers, or fruits.

Space transplants 24 to 30 inches apart within a row and 42 to 48 inches apart between rows. Use Table 1 to determine the number of plants per acre required at various spacings. To determine the number of plants required per acre for any spacing, divide 43,560 (number of square feet in 1 acre) by the product of the desired spacing between plants and the spacing between the rows. For example, an 18-inch between-plant spacing on 48-inch centers would require 7,260 plants per acre: (18 in. x 48 in. or 1.5 ft. x 4 ft. = 6 ft.²; then divide 43,560 by 6 = 7,260 plants per acre).

Eggplant Varieties/Types

Eggplants are a botanically diverse group that can be divided into two groups based on fruit shape and color. The first group and more traditional type are the teardrop-shaped, large-fruited eggplant (Figure 2). Fruit of these eggplants are typically oval or long and tapered in shape with a black, purplish-black, or purple skin color, often with a green calyx (cap end).

Cultivars that have performed well in Alabama include 'Classic,' 'Black Belle,' 'Vernal,' and 'Santana.' The second group is collectively referred to as the "specialty" eggplants (Figure 3), some of which are referred to as "oriental" eggplants. Oriental eggplants generally have a purple calyx. Fruit shapes of specialty eggplants

vary but are often long and smooth, ball- or bell-shaped. Fruit colors range from white, to green, to purplish black, to purple. In Alabama, the cultivars 'Bambino' (miniature; small, round, purple fruit), 'Little Fingers' (straight, cigar-shaped, pink fruit), 'Short Tom' (hornlike, curving, purple fruit), 'Long Tom' (oriental type; long, smooth, purple fruit), 'Bride' (hornlike, white fruit), 'Rosita' (teardrop-shaped, pink fruit) and 'Ghostbuster' (teardrop-shaped, white fruit) have performed well. In the United States, oriental eggplants constitute a niche market. They are not any more difficult to grow, but they require specialized marketing as compared to the more traditional type.

Within these two groups, cultivars also differ in earliness. Remember that the primary consideration in cultivar selection is market preference. Individual markets prefer or require specific types of eggplants. A grower must identify the needs of the prospective market or niche. After this, you must determine the perceived demand for the product, the volume required by the market, the specific characteristics (types) of eggplant needed, and the market window. Based on this information, you can determine which varieties are needed, their optimal planting dates, and the acreage required to supply your market.

Contact your county Extension agent for a copy of the latest edition of the report titled "Spring Vegetable Variety Trials" from the Alabama Agricultural Experiment Station at Auburn University. In the report, you will find information about the performance of selected eggplant varieties trialed in several locations throughout Alabama. Although there are a large number of commercial varieties available, grow only those adapted to Alabama. It is advisable to grow a small trial

plot of several varieties each year to determine which varieties are best suited to your growing conditions and marketing outlets.

Irrigation

Irrigation is an essential element of a successful vegetable production operation. Keep in mind that irrigation is critical to the production of quality produce. Most vegetables are 80 to 95 percent water, so any loss in water weight is equal to a loss in saleable weight. Whether you are using overhead or drip irrigation, provide enough water to the crop to ensure the production of high yields of quality fruit. In eggplant, the most critical period for irrigation is during flower and fruit formation. Any stress related to lack of water during this period can lead to the development of blossom-end rot and malformed fruit. Fruit size and yield are reduced by moisture stress.

Mulching and Drip Irrigation

Using polyethylene (plastic) mulch offers several advantages (see Figure 4). Plastic mulch increases the soil temperature, which accelerates plant growth and development. It also conserves soil moisture and reduces several common problems including soil compaction and crusting, ground rot of fruit, fertilizer leaching, drowning of crops, evaporation, and competition from weeds.

Although using mulch increases production costs, those costs are offset by increased profits from earlier and larger yields of high-quality produce. Drip irrigation systems must be used with plastic mulch. In addition, growers can plant multiple crops (double-cropping) into the plastic mulch; however, you must be careful to not damage the mulch with large tears, holes, etc. Double-cropping will spread your

production costs over two crops, decreasing the risk associated with the higher initial setup costs. Eggplant can be planted on mulch that was used to produce a spring crop such as cabbage, collards, broccoli, or strawberries. Be sure that drip tape is offset 3 to 4 inches from the center of the bed and buried 2 to 3 inches deep. Contact your county Extension agent for more information about using plastic mulch and drip irrigation.

Two Crops from One Planting

In Alabama, eggplants can be cut back after the first crop is complete to allow a second crop to develop. Depending on the location, the first crop could be done by June (south Alabama) or July (central/north Alabama). Plants at this point will appear “topped out,” not producing any more flowers and subsequent fruits. Mow plants 6 to 8 inches above the soil line, being sure to leave two to three leaf axils. Next, fertilize with 50 to 60 pounds of nitrogen per acre and 80 to 100 pounds of potash per acre (P_2O_5). This combination will produce vigorous regrowth and stimulate flowering. Plants will begin producing fruit 4 to 6 weeks after cutting and will produce until frost.

Controlling Weeds, Insects, Diseases, and Other Pests

Contact your county Extension agent or consult Extension Circular *ANR-500A, Alabama Pest Management Handbook, Volume 1*, for current information on strategies to control pests (fungi, bacteria, insects, weeds) and for materials used in controlling pests in eggplant. Always confirm that what you are applying will control the target pest. If you are unsure, contact your county Extension agent.

Since eggplant is related to Irish potato, pepper, and tomato, it is a host for many of the same pests that attack these related crops. Planting these related crops year after year in the same area will increase pest pressure in that area. To avoid this, rotate to crops in other plant families (such as the Curcubit family—cucumbers, watermelons). Crop rotation is one of the most effective pest-management strategies that growers can use. Locate fields for eggplant production away from fields where any related crops were grown the previous season.

Controlling Weeds

Chemical weed-control options for eggplants are limited. Most herbicides registered for use on eggplant control annual grasses, small-seeded broadleaf weeds (pigweed, FL pursley, carpetweed, common purslane), and some perennial weeds, but they do not control large-seeded broadleaf weeds such as sicklepod, annual morning glory, or common cocklebur. Always confirm that the material you intend to apply will control the target pest. Consult your county Extension agent to develop an effective weed-control program or to identify target pests. Refer to Extension Circular *ANR-500A, Alabama Pest Management Handbook, Volume 1*, for a list of herbicides currently registered for eggplant.

For better weed control, select locations with low weed populations and no perennial weed problems such as nutsedge. Use mechanical cultivation between rows, and use production practices that encourage rapid development of eggplant. If nutsedge is a problem, consult Extension Circular *ANR-1073, “Nutsedge Control In Commercial Vegetables,”* for information. Use shallow cultivation to control weeds.



Figure 4. Commercial planting of eggplants on white polyethylene mulch. Large, vigorous plants sometimes require staking to support them as they develop a heavy fruit load. To avoid this problem, perform a soil test, and do not overfertilize.

Controlling Insects

Depending on the environmental conditions, the potential for insect pest damage on eggplant varies greatly from year to year. Regular pest-scouting of eggplant will help growers determine when pests are present and whether insecticide applications are needed. A good rule of thumb is to examine 50 randomly chosen plants per field on each sample date. This can be done by walking a “V” or “W” pattern in the field, choosing ten random sites for sampling along the pattern, and examining five plants per site for insect pests and damage. While many insects may feed on eggplant, few species are considered to be yield-limiting pests. Insect pests that periodically infest eggplant and may cause damage are aphids, the Colorado potato beetle, the flea beetle, caterpillars, and mites.

Aphids

Aphids are small, soft-bodied insects that suck plant fluids with their piercing-sucking mouthparts (Figure 5). They may be either winged or wingless, and their color may be green, yellow, brown, red, or black, depending

on the species. Most species have a pair of “exhaust pipe” structures called cornicles projecting out of the hind end of their body. The presence of cornicles distinguishes aphids from all other insects.

Aphid colonies are often located on the undersides of leaves. Curled, distorted leaves and sticky honeydew (aphid excrement) on leaves indicates the presence of aphids. Black, sooty mold may grow where honeydew has been deposited. Aphids transmit viruses that can cause plant diseases, but eggplant is not as susceptible to these as are some other vegetable crops. Fortunately, eggplants can generally tolerate moderate feeding without significant damage. Young plants are more susceptible to aphid damage than older plants. Aphid-infested seedlings can be killed or severely distorted.

When plants are growing rapidly, check them twice a week for aphids. Once aphid numbers are high, they are difficult to manage because curled leaves shelter aphids from insecticides and natural enemies. Natural enemies can be important in controlling aphids, especially where broad-spectrum insecticides are not frequently used. The most effective aphid natural enemies are parasitic wasps, predators such as lady beetles, and fungal diseases.

One way to control aphids is to control weeds in and around fields because numbers of aphids can build up on weeds and move onto young plants. Also, avoid overfertilizing with nitrogen because high levels of nitrogen favor aphid reproduction. Aluminum foil or reflective mulches have been successfully used to repel invading aphid populations. In a small area, aphids can be dislodged from plants with a strong water spray, which can be made more effective by adding 2 to 3 tablespoons of liquid dishwasher detergent per gallon of water. Commercial formulations



Figure 5. Aphids (nonwinged forms) on underside of eggplant leaf

of insecticidal soap are also available.

There are several synthetic insecticides registered for control of aphids on eggplant. Refer to Extension Circular ANR-500A, *Alabama Pest Management Handbook, Volume 1*, for a listing. Imidacloprid, a newer class of systemic insecticide, can be applied as a pre-planting or at-planting treatment (Admire) or as a postplant foliar spray (Provado).

Colorado Potato Beetle

The Colorado potato beetle (CPB) adult is about 1/4 to 1/3 inch in length. Body color ranges from yellow to orange, with ten black lines running the length of the upper body (wing covers). The adults overwinter in the soil and emerge in the spring. Eggs are bright orange and cylindrical, about 1/16 inch long, and are laid in groups of 10 to 40, usually on the undersides of leaves. Hatching larvae are slightly larger than eggs and are reddish brown in color. Larvae feed on the eggshells before moving off onto the leaves. Larvae go through four stages before dropping to the ground to burrow into the soil and pupate. The fourth-stage larvae are almost as large as the adults are. Second-generation adults can repeat the development process if host plants are



Figure 6. Colorado potato beetle adults feeding on eggplant

available. Both adults and larvae are foliage feeders, feeding only on fruit when foliage is not available. Severe defoliation can result in loss of yield, with the degree of yield loss depending on the general health and growth stage of the plants (Figure 6).

The most effective way to manage Colorado potato beetle is crop rotation away from plants in the tomato family. Locate fields for eggplant production away from fields where eggplant or related crops were planted the previous season. Monitor young plants at least weekly for signs of adult beetles and orange egg masses. Adults causing moderate to heavy damage of prebloom plants should be controlled with a recommended insecticide. Do not use the same material twice because of the potential for insecticide resistance. Refer to Extension Circular ANR-500A, *Alabama Pest Management Handbook, Volume 1*, for a list of recommended materials. Do not spray for adults unless feeding damage is significant (15 to 20 percent of foliage is lost to feeding). Continue to monitor plants for hatching egg masses.

Young larvae are much easier to control with insecticides than are older larvae. If more than 10 percent of plants have egg masses, apply an insecticide when at least 30 percent of the eggs have hatched and small larvae are present. *Bacillus thuringiensis* (Bt)

insecticides (Foil, Novodor, Trident, etc.) are highly effective against small CPB larvae. Check the label to make sure the product contains the tenebrionis or san diego strain because these strains of Bt are effective against CPB, whereas other Bt strains are not. Good spray coverage of the foliage is important because larvae may be on lower foliage and on the undersides of leaves. Once larvae grow to third or fourth stages ($\frac{1}{3}$ to $\frac{1}{4}$ inch long), use synthetic insecticides if feeding damage is significant. Plants past the bloom stage can tolerate greater than 30 percent defoliation without loss of yield, particularly if growing conditions are favorable. Imidacloprid (Admire and Provado formulations), mentioned above for aphid control, are also effective against CPB. Never use foliar applications of Provado if Admire was soil-applied at planting.

Flea Beetles

Flea beetles are small, shiny, dark beetles about $\frac{1}{10}$ inch long with enlarged back legs that give them great jumping ability. Larvae usually feed on plant roots and normally do not injure eggplants. Adult beetles feed only on foliage, leaving tiny pits or small holes, sometimes called "shot-hole" injury (Figure 7). Eggplant is particularly attractive to flea beetles and can be totally defoliated by them. Flea beetles move into crops from adjacent weedy areas or from senescing weeds within the crop.

Flea beetle adults overwinter in crop and weed debris, so plowing crop debris under in the fall reduces the potential for infestation in the spring. Kill weeds bordering and within the field to remove alternate host plants for flea beetles. In areas where flea beetles are a consistent problem, consider protecting plants with row-cover material.



Figure 7. In the background, characteristic "shotgun" feeding damage by flea beetle adults. On right, close-up of adult flea beetle.



Figure 8. Beet armyworm and characteristic feeding damage



Figure 9. Large, circular lesions on fruit. Note concentric pattern.

Since flea beetles are highly mobile, foliar insecticides will only decrease flea beetle numbers, not completely control them. Admire, the formulation of imidacloprid registered as an at-planting application, will provide approximately 5 to 6 weeks of protection after planting.

Caterpillars

Several caterpillar species are occasional pests of eggplant in Alabama. These include armyworms, loopers, fruitworms, and cutworms (see Figure 8). Depending on the species, they may feed on foliage and/or fruit, or they may feed on young stems near the soil line (cutworms). Foliar-feeding caterpillars cause the most damage to young plants. Older plants can tolerate greater levels of defoliation (Figure 8). Fruit-feeding caterpillars like fruitworms are the greatest threat during the fruiting period.

The best management approach for armyworms, loopers, and fruitworms is to monitor plant foliage for young larvae or signs of feeding damage on foliage, flower buds, and fruit. The biological insecticide *Bacillus thuringiensis* (Dipel, Javelin, Mattech, Agree, and Xentari) is effective if targeted against small worms just after they hatch. Pyrethrin, a mixture of natural pyrethrins and rotenone, is another material that is effective against young larvae. Synthetic insecticides such as Asana XL may be used to control large larvae. If cutworm feeding has severed stems of young plants, a synthetic insecticide such as Asana XL applied as a directed spray to the base of the plants might help prevent further damage.

Mites

Mites are not insects but are more closely related to spiders. They are tiny, about 1/20 inch or less in length, and can be light cream (some with dark spots on the sides) or red in color. They feed on the leaf undersides with needle-like mouthparts that remove sap from the leaf. Affected leaves first appear "stippled" with white spots on the upper surface, then leaves take on a bronze appearance, finally turning brown and dying. Mite infestations are usually found near field edges and are most commonly found during hot, dry weather. With regular monitoring of fields, mite infestations can be detected on field borders or in hot spots, and controlling sprays can be directed onto these areas to keep the infestations from spreading. Soap sprays as discussed above for aphids are also moderately effective for controlling mites. The miticide dicofol is registered for mite control on eggplant and several other vegetable crops.

Controlling Eggplant Diseases

There are a number of plant diseases that can limit eggplant production in the Southeast, including Phomopsis blight, Phytophthora blight, southern blight, and early blight.

Phomopsis Blight

Phomopsis blight is caused by the fungus *Phomopsis vexans* and can infect aboveground plant parts at all stages of development. Generally, spots first appear on seedlings shortly after they emerge. Dark, sunken lesions (cankers) form on the stem slightly above the soil line. Eventually, these cankers encircle the stem, resulting in the collapse and death of the plant.

Leaf spots can occur at any time during the season, though older leaves are most susceptible. Spots are circular with a distinct narrow brown margin about 1 inch in diameter. Lesions are typically gray to brown, developing a light-colored center as they age. Black, pimplelike structures develop in the center of old lesions; these are pycnidia, which are the fungal reproductive structures where spores are produced. These can easily be seen with a hand lens or magnifying glass. Diseased leaves may turn yellow and drop prematurely. Lesions can also form on stems and branches.

Fruit spots are similar to those on leaves but are much larger, leaving diseased fruit unmarketable. Symptoms first appear as pale, sunken, circular to oval areas on the fruit surface (see Figure 9). These later turn brown and enlarge up to 2 to 3 inches in diameter; often, two or more lesions merge to cover much of the fruit surface. Affected fruit become soft and watery at first; decay may penetrate rapidly throughout the fruit, causing a light-brown discoloration of the flesh. Under dry conditions, fruit shrivel and become mummified. Black pycnidia arranged in a concentric, targetlike pattern can usually be seen in the center of fruit lesions (Figure 9).

The fungus can survive from season to season in plant debris in the soil as well as in or on seed. The fungus can survive for more than a year in fields where a diseased crop was grown. The disease is favored by warm, wet weather and is spread by splashing water.

Controlling Phomopsis blight starts by destroying the crop immediately after the final harvest to reduce fungal inoculum that could carry over to the next season. Carefully inspect transplants for symptoms of Phomopsis

blight before plants are set in the field. A protective fungicide spray program will substantially reduce damage from this disease. Consult Extension Circular ANR-500A, *Alabama Pest Management Handbook, Volume 1*, for a list of materials labeled for controlling Phomopsis blight.

Phytophthora Blight

The same fungus, *Phytophthora parasitica*, that is responsible for buckeye rot of tomato and a fruit rot of pepper, causes Phytophthora blight on eggplant. Other species of *Phytophthora* can also cause blight of eggplant. Symptoms of *Phytophthora* blight include damping-off of seedlings in seedbeds, spotting of leaves, and a collar rot of the main stem that often results in death of infected plants. The most important damage, however, occurs on fruit. Fruit rot can affect fruit at any stage of maturity. Spots from *Phytophthora* are dark brown, water-soaked with a light-colored border. These spots expand rapidly and can cover mature fruit in 3 to 4 days. There is often a whitish mold on the fruit surface. The fungus penetrates deeply within the fruit, resulting in a brown discoloration of the flesh. Diseased fruit drop prematurely. Spores of the fungus are splashed from the soil to fruit. The disease is usually spread from field to field on contaminated tools or farm machinery and thrives in hot (86- to 90-degree F), wet weather.

Controlling *Phytophthora* blight consists of hand-removing diseased plants when practical, deep-plowing to bury crop debris after harvest, and providing a 3-year rotation between Solanaceous crops (crops within the tomato family). Growing plants on raised beds and wide plant spacings will also help reduce spread

of the disease. Growing eggplant on plastic mulch greatly reduces the chance of spores splashing from the soil to the fruit.

Southern Blight

The soilborne fungus *Sclerotium rolfsii* causes southern blight, which is a common problem on eggplant as well as most other broadleaf crops. Southern blight develops where it is moist and hot (85 degrees F or more). Generally, the first symptoms are leaf yellowing and wilting of infected plants. Stems at the soil line often appear soft and sunken, developing a brown to black internal and external discoloration. Under moist conditions, a white, fanlike fungal growth can be seen on the lower stem near the soil surface (see Figure 10), on fruit in contact with the soil, and on crop debris on the soil around the base of the plant. Spherical, light-brown, mustard-seed-sized (1 to 2 mm) sclerotia often form in the mycelium (Figure 10). Under dry conditions, fungal mycelium and sclerotia may not be visible.

The fungus is spread as mycelium in infested organic matter or as sclerotia in infested soil. Infection usually takes place at the soil surface but can occur below the soil line. The fungus can spread through the soil more than 3 feet and from plant to plant within a row. It is common to see several infected plants within a row killed. Sclerotia produced by the fungus on plant debris and dying plants serve as inoculum and spread the disease to the next crop.

Controlling southern blight consists of following long rotations (3 to 4 years) with grass crops such as corn, small grains, or grass forages; deep-plowing the soil to bury crop debris; using wider plant spacings to improve air movement; and removing and destroying infected plants.

Early Blight

Early blight, also known as *Alternaria* leaf spot, is most often caused by the fungus *Alternaria solani*. This disease is more common on tomato and Irish potato, in which it can severely reduce yields. On eggplant, it is responsible for damaging the leaves and fruit.

Leaf spots, which typically form on older leaves first, begin as small, dark, irregular spots that enlarge to form zonate spots up to 1/2 inch in diameter. On eggplant, these lesions are lighter in color, and the concentric ring pattern may not be as noticeable as that seen on tomato or Irish potato. When spots are numerous, leaves die prematurely and drop, which exposes the fruit and makes it more likely to be damaged by sun scald.

Lesions may also develop on the fruit. These spots are dark, leathery, and sunken and usually have distinct concentric rings. Spots on the fruit slowly expand until they decay much of the surface area and the internal flesh of the fruit. The fungus survives from season to season on crop debris in the soil and grows well in warm, wet conditions. Spores are spread by wind and splashing water.

Control early blight by following a crop-rotation program that allows for a 3-year break between Solanaceous crops. Destroy a diseased crop immediately after harvest to reduce the chance of the fungus overwintering. To reduce spread of the disease, maintain plant vigor, limit leaf-wetness periods, and follow a protective fungicide spray program. Consult Extension Circular ANR-500A, *Alabama Pest Management Handbook, Volume 1*, for a list of materials labeled for controlling early blight.



Figure 10. White fanlike fungal growth (mycelium) on lower stem and surrounding soil. On right, close-up of mycelium and sclerotia.

Harvesting Eggplant

With proper cultural practices, eggplant can produce about 500 to 700 bushels per acre, with bushels weighing 28 to 32 pounds. The fruits of the eggplant can be harvested any time after they have reached sufficient size for your intended market. In any case, be sure to harvest fruit before their flesh becomes tough and their seeds begin to harden. Plan on harvesting at least once per week, although two harvests per week would ensure harvesting most fruit at the optimal stage of maturity.

Fruit can be harvested by breaking them from the plants. However, to avoid damaging the plants and to produce a cleaner product, it is best to cut fruit off with a knife or pruning shears, being sure to leave the calyx (cap end) attached to the fruit. Because the fruit bruises easily, eggplant is not run across a grading line. Fruit are generally sorted by size and color and field-packed into bushel baskets or cartons, depending on the market.

Cooling and Storing Eggplant

The following recommendations are adapted from *The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stock*, 1986, USDA, Agricultural Handbook No. 66.

Remove eggplants from the field immediately after harvest since eggplants lose water (which can cause shriveling) and their quality suffers when they are not cooled promptly. Forced-air and/or room cooling are suitable for eggplant. Never use ice or chilled water to cool fruit.

Eggplants are not suited for long-term storage. Fruit are chilling-sensitive, meaning that low temperatures will cause pitting, surface bronzing, and browning of seeds and pulp. Sensitivity to chilling differs with the eggplant cultivar, maturity, fruit size, and season of harvest. Fruit harvested at optimum maturity or in mid-summer are more sensitive to chilling than those harvested at an overmature stage or in the fall when growing conditions are cooler. As a result, eggplants harvested in midsummer can be stored at 54 degrees F with 90 to 95 percent relative humidity for up to 1 week. Fruit harvested in the fall can be stored for up to 10 days at 46 degrees F with 90 to 95 percent relative humidity. If eggplants are stored too long, diseases can develop during storage and retailing. Never store eggplants with tomatoes, bananas, watermelons, or other ethylene-producing fruit.

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Use pesticides **only** according to the directions on the label. Follow all directions, precautions, and restrictions that are listed. Do not use pesticides on plants that are not listed on the label.

The pesticide rates in this publication are recommended **only** if they are registered with the Environmental Protection Agency and the Alabama Department of Agriculture and Industries. If a registration is changed or cancelled, the rate listed here is no longer recommended. Before you apply any pesticide, check with your county Extension agent for the latest information.

Trade names are used **only** to give specific information. The Alabama Cooperative Extension System does not endorse or guarantee any product and does not recommend one product instead of another that might be similar.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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