

## EGGPLANT

### *Solanum melongena* L.

Plant Symbol = SOME

Contributed by: USDA NRCS National Plant Data Center



East Stroudsburg University of Pennsylvania

**Caution:** Eggplant leaves are toxic and should only be used externally.

#### Alternate Names

Aubergine, birengenas (Chamorro), brinjal, paegani (Tuvalu), gaigani, jiloeiro, melongene, melanzana, baigan, gilo', berenjena, badinjan, Italian eggplant, pea apple, sasumber, terong, garden egg, mad apple

#### Uses

**Human Food:** Eggplant fruit is usually baked, sautéed, stuffed, cut into strips or cubes and fried. It can be baked, stewed, fried, or added to soups, curries etc. It is a good source of vitamin C and potassium. Expansive information is available through the links for this species on its PLANTS Plant Profile.

**Ethnobotanic:** It has been used as an antidote to poisonous mushrooms (Duke & Ayensu 1985). It is bruised with vinegar and has been used as a poultice for cracked nipples, abscesses and hemorrhoids.

The leaves are narcotic and toxic. A decoction is applied to discharging sores and internal hemorrhages. A soothing and emollient poultice for the treatment of burns, abscesses, cold sores and similar conditions can be made from the leaves.

The ashes of the peduncle are used in the treatment of

intestinal hemorrhages, piles and toothache. A decoction of the root is an astringent.

The fruit helps to lower blood cholesterol levels and is suitable as part of a diet to help regulate high blood pressure (Chiej 1984).

#### Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

#### Description

**General:** Eggplant is an annual in temperate zones and perennial in the tropics. This plant is a warm-season frost-tender perennial that can be grown as an annual. Eggplants usually grow from 2-4 feet tall with many branches and large, rangy leaves. Eggplant leaves are, alternate and lobed, with the underside of most cultivars covered with dense wool-like hairs. The flowers are violet-colored, star-shaped, and bloom either as a solitary or in clusters of two or more. These characteristics give the plant an ornamental look.



Peggy Greb, Courtesy of USDA ARS

The fruit can vary in shape from oval to round and long to oblong. Most growers and consumer are accustomed to seeing the mature fruit that is shiny

Plant Materials <<http://plant-materials.nrcs.usda.gov/>>

Plant Fact Sheet/Guide Coordination Page <<http://plant-materials.nrcs.usda.gov/intranet/pfs.html>>

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purplish black, oval or pear shape. However, the mature fruit can be red, yellowish-white, or green. The purplish black eggplants can be bitter with thick tough skins and fibrous flesh or mild-sweet with thin tender skin and non-fibrous flesh. The white skin eggplant is firmer, drier and milder tasting but has a very thick skin that must be peeled prior to eating.

*Distribution:* For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

### **Establishment**

Normally, transplants are used to establish eggplants in the field. Seeds germinate in 5 days at 86 degrees F, but may require up to 13 days at 68 degrees F. Transplants require 6 to 8 weeks growth at daytime temperatures of 70 to 80 degrees F and night time temperatures of 65 to 70 degrees F to be ready for field planting after all danger of frost is past.

Careful watering is necessary at the time of transplanting because transplants are very sensitive to water stress. Plants are typically established in 30-to-36-inch rows with 18 to 24 inches between plants. Eggplant transplants are very responsive to the use of black plastic mulch and drip irrigation. This process provides warmer soil temperatures in the spring, protection from weeds, and consistent water availability. This plastic mulch along with irrigation will allow growers to grow double rows of eggplant within the same row.

Eggplant grown from seed in small farms should be seeded 4 to 6 weeks before the plants are to be set out. Commercial mixtures for starting seeds are available. Seeds are planted by placing 2 seeds per inch in rows 4-6 inches apart a depth of 1/2 inch in a medium that is kept moist and at a temperature of 75° to 85 °F. Be sure the soil does not dry out during the germination period. Once the seeds germinate keep the soil moist to the touch. Over watering will cause damping-off.

### **Management**

Small producer and gardeners find it more convenient to buy their eggplants as transplants rather than to grow their own from seed due to insufficient space, inadequate growing conditions, lack of time, or because they only need a few plants. On the other hand, some varieties are not locally available as transplants so one has no choice but to grow their own from seed.

*Transplanting:* When purchasing transplants, select those that are sturdy, dark green in color and not yet

in bloom. Leaves should be fully expanded and free of diseases and insects. Transplants grown in individual containers may cost more, but are usually worth the added expense, because their roots are disturbed less when they are transplanted in the field.

Transplant young seedlings into growing containers when the stems have straightened and the first true leaves have opened. This is usually 15 to 20 days after the seed was sown, but may be longer at lower temperatures. The young plants should be exposed to full sunlight if possible. The best temperatures for growing transplants are from 65° to 75°F during the day and 60° to 70°F at night. Growing the young transplants in a hot bed or cold frame works well.

Hardening off the plants enables them to withstand the planting shock. Start the hardening off process 10 days to 2 weeks before planting them in the garden. Begin by moving the plants in their containers outdoors to a shady spot (a cold frame works well for this purpose). Move the plants into sunlight for short periods each day, increasing the length of exposure gradually. Reduce the watering frequency to slow growth, but don't allow the plants to wilt. Don't put tender seedlings outdoors on windy days. Once the plants are hardened off and the danger of a frost is passed, they can be planted in the field.

*Planting:* The eggplant is a warm season crop and is very tender to frost. It can even be injured by periods of cold temperature above freezing, and is more sensitive to low temperatures than either tomatoes or peppers. The plants are usually set 2 to 3 feet apart in rows 3 to 4 feet apart and in full sun.

*Site preparation:* Till soil to a depth of 6-10 inches to allow for root development. In areas that have compacted soil till or subsoil to a depth of 18 to 24 inches to destroy the hard pan. Growers with small plot can prepare the soil with the use of a tiller or by spading. Soil preparation should be preformed in the fall after the harvest season or in the spring before planting. Soil should not be worked while it is wet.

Plant eggplant in the full sun. Those growing in partial shade will produce less than optimum yields and will take longer for the fruit to ripen. These young seedlings will perform better with protection from the wind. The site should have fertile, well drained soil. If possible, avoid planting where eggplant, tomatoes, potatoes, or peppers were planted the previous year. All of these can be susceptible to and harbor similar disease problems.

Eggplant is a heavy feeder and therefore may need extra fertilizer for a good crop. A soil test may be necessary to determine the fertility of your soil. If no soil test, apply 2 to 3 lbs of a complete fertilizer (i.e. 10-10-10, 6-12-12, or 9-16-16) per 100 feet of row. This application should be completed in two separate operations by incorporating one half of the fertilizer at the time of planting and the remaining fertilizer after the first fruit appears. Some soils may require a ¼ cup of starter fertilizer (high in phosphorus) solution be poured around each newly transplanted seedling to help stimulate growth. A side dressing of ¼ cup of fertilizer incorporated in a 2-foot circle around the base of the plant immediately after flowering will be beneficial on soils low in nitrogen. Do not over-fertilize.

*Watering:* Eggplant need generous moisture at all times. One inch of water each week is a minimum. This may vary, however, due to air temperature, wind, soil type, rainfall, and whether or not a mulch is used.

Sandy soils require more frequent watering. Heavy soakings at weekly intervals are better than many light soakings as light, frequent watering promote shallow root systems. Mulching will reduce water loss from the soil.

Mulches help keep weeds down, reduce water loss and stabilize soil temperatures. Inorganic mulches, such as polyethylene and aluminum, are available in many farm and garden stores. Organic mulches, such as straw, leaves or grass clippings, can also be used. Organic mulches should be at least 2 inches, and preferably 3 to 4 inches, deep. Mulching too early in the season with organic mulches will keep the soil cool, resulting in slow growth, poor fruit set, and shallow rooting. When mulches are used all fertilizer and drip irrigation must be applied before applying the mulch unless fertigation is practiced.

*Weed Control:* Weeds compete with eggplant for sunlight, nutrients and water. In small plantings, weeds are best controlled with cultivation or mulches; however in large plantings, herbicides can be used.

*Harvesting:* Eggplant fruits are harvested from the time they are one-third grown to full size. However, removing the fruit before the flesh becomes soft and the seeds begin to harden. Over-mature fruits that have passed the prime stage for eating become spongy, the seeds harden and darken, and the fruit surface becomes dull. Fruits can be snapped from the plant, but less damage usually occurs if they are

clipped with a sharp knife or scissors. The short stem that attaches the fruit to the stalk is often covered with sharp spines so gloves may be necessary when harvesting. The harvested fruits are delicate; be careful when handling them.

Staking may be necessary later in the season as the number and size of the fruit increase. Rain, wind and irrigation can cause the branches to break or droop. Fruit touching the ground may spoil.

### **Pests and Potential Problems**

Eggplant are subject to a number of problems, including diseases, insects and those brought on by weather and other environmental factors. Diseases of eggplant include seed rot, damping-off, anthracnose, late blight, alternaria leaf spot and verticillium wilt. Seed treatment and proper growing conditions can reduce seed rot and damping-off. Verticillium wilt is best controlled by long term rotations with non-related crops that are not susceptible to wilt, and by planting in well-drained soil.

Insects can also cause damage to eggplant. Cutworms may feed on new leaves or cut stems on small plants. Spider mites can be a problem during hot weather. Flea beetles, which chew small holes in the leaves of eggplant, can be severe in some years. The Colorado potato beetle can also cause severe damage if left uncontrolled.

### **Cultivars, Improved, and Selected Materials (and area of origin)**

‘Nitta/Molokai’ hybrid is a popular eggplant (*Solanum melongena*) that is grown on Guam. The Department of Horticulture of University of Hawaii released the cultivar in 1995. The hybrid produces high quality fruits with long fruit length, deep maroon color, and longer shelf life.

Please contact your local agricultural extension specialist for advice on cultivars for your area. Also, check the links at the bottom of the PLANTS Plant Profile for this species.

Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under “United States Government.” The Natural Resources Conservation Service will be listed under the subheading “Department of Agriculture.”

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For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the PLANTS Web site <<http://plants.usda.gov>> or the Plant Materials Program Web site <<http://Plant-Materials.nrcs.usda.gov>>

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