

Project Coordinator

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EGGPLANT CULTIVATION GUIDE



Eggplant Cultivation: Useful Facts

Climatic Conditions

A long growing season of about 120 days is required for successful production. Eggplant is a warm weather plant that grows best under temperatures of 21-29°C. The growth of young plants will be retarded when night temperatures are below 16°C. Cool temperature and cloudiness can reduce fruit set. Eggplant can tolerate drought and excessive rainfall, but struggles to grow when temperatures exceed 30°C. When temperature and humidity are high, eggplant becomes more vegetative.

Soil Characteristics

Eggplant prefers a soil that is deep, fertile, well drained, high in organic matter, and has a pH of 5.5 to 6.8. A sandy loam soil is ideal when an early yield is desired. Heavy clay and saturated soils should be avoided due to the build-up of root-rotting diseases. Eggplant should not follow other Solanaceous crops (tomato, pepper, potato) since these crops share many of the same diseases and insect pests. The incidence of bacterial wilt and nematodes can be reduced if proper crop rotation is followed.

Field Preparation

It is ideal to prepare field at least two weeks before planting. The field should be cleared of trees, shrubs and grasses. It should be then dug 15-20 cm deep with a roto-tiller. Since the Micronesian islands have only 10-15 cm topsoil, it is highly recommended to prepare raised beds for eggplant cultivation. 20-25 cm high beds are made spaced 150 cm. For making a 90 cm wider bed, 30 cm soil from each side should be lifted and placed on the bed to achieve required height. The beds should be allowed to settle for 7 days.

Preparation of the Seedlings

No treatment is needed if you are sowing fresh, vigorous seed in sterilized soil. Otherwise, soak seeds in warm water (50°C) for 30 minutes, rinse them in cold water, and dry them before sowing. The optimum temperature for germination is at 24-29°C. At this temperature, seedlings should emerge in six to eight days. Transplants are usually used to establish a uniform and complete stand of plants. Transplants grown in cells or containers are ideal because they allow field planting without disturbing the root system.

Planting

Planting should be done in the late afternoon or on a cloudy day in order to minimize transplanting shock. Plants should be set 50 cm apart in the row. Transplant seedlings by digging a hole deep enough to bury a plant so that its first true leaf is just above the soil surface. Press the soil firmly around the root. The plants should be watered immediately to establish good soil-to-root contact. A starter solution (1-2 tablespoons of low-analysis fertilizer such as 12-12-12 nitrogen, phosphorus, and potassium per 4 liter of water) could be used to water the plants.

Irrigation

Irrigation is essential for eggplant cultivation wherever little or no rain is available during the growing season. Irrigation is most critical during the time of flowering and fruit set. A lack of water during this period could lead to the development of blossomend rot and malformed fruit. Reduction of fruit size and yield are also caused by moisture stress. Wilting during the late morning is a good indication that the crop needs irrigation. Eggplant is a medium-rooted crop with a root zone depth of 90 cm in well-drained soil. Irrigate soil to at least 45 cm deep. The method of irrigation depends on soil texture, topography, and water supply. Generally, surface irrigation and drip irrigation systems are used.

Fertilizer Application

Adequate application of manures and fertilizers is very important for successful crop production. Being a long duration crop, eggplant requires a large quantity of fertilizers. Fertilizer rates depend on the soil's fertility, organic matter content, and texture. A soil test is strongly recommended.

Weed Control

Eggplant is slow to become established and cannot compete with aggressive weeds. Weeds also harbor damaging insects and diseases. Weeds are controlled either by physical methods or chemical control. Physical methods, such as hand weeding, cultivation, and mulching are quite common in small vegetable farms. Only shallow cultivation is necessary. Mulching with black plastic mulch effectively controls weeds and reduces labor needs. Natural organic mulches will conserve moisture and add organic matter to the soil. Chemical weed control is especially popular in places where labor is expensive.

Plant Maintenance

One month after transplanting, a bamboo stake (100-120 cm) is placed nearby each plant to support the plant from fruit load. Pruning is recommended to produce bright-colored, high quality fruit. Maintain three branches per plant: two branches from the primary division of the main stalk and one branch below this division. All the other lateral branches are removed periodically. Remove older leaves from the lower portions of plants to allow for more air circulation and lighting within the canopy.

Insect-Pests and Diseases

Several insects attack on eggplant in Micronesia. The most common insect pests observed are aphids (*Aphis gossypii*) and mealybug (*Pseudococcus* spp.). The main diseases reported are phomopsis blight (*Phomopsis vexans*) and root-knot nematodes (*Meloidogyne* spp.).

Harvesting

Eggplant fruit are harvested once they have reached sufficient size for marketing (usually three to four weeks after flowering). Harvesting is done by hand using a sharp knife or clippers, leaving the calyx attached to the fruit. Harvest once or twice in a week. High quality eggplant is firm, heavy (in relation to size), glossy with a desirable color, and free of cuts and scars. Once the color of the skin begins to dull, the seeds darken and the flesh becomes spongy and bitter. The elongated varieties may produce twice as many fruit, with individual fruit weighing 100-150 gm each.

Storage

Eggplant does not have a long storage life and should be marketed immediately after harvest. Fruits are generally sorted by size and color, and packed into either baskets or cartons. They are handled and packed carefully to avoid damaging the skin. Eggplant can be stored safely for 7-10 days at 7-10°C and 90-95% relative humidity. It is subject to chilling injury when stored at temperatures below 7°C. Symptoms of chilling injury are pitting, surface bronzing, and browning of seeds and pulp.

(Reference: Asian Vegetable Research and Development Center, Taiwan)

