EGGPLANTS

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- Belongs to the solanaceous family
- Scientific name Solanum melongena.
- It is an herbaceous plant although the stems, with their lignified woody tissue tend to make it resemble a small tree or bush.
- It is cultivated as an annual.
- Very strong deep root system.
- The stems are strong, hairy and thorny , erect stems.
- The leaves are positioned alternately along the stem. They have a long stalk and are large, complete and oval in shape with thorny nerves.
- The flowers tend to droop and can appear either by themselves or in clusters of 3 to 5 flowers.
- which makes direct fertilization difficult.

- this will vary between 50% and 65%. A very high relative humidity will encourage the development of air born diseases, and this in turn, will make fertilization difficult.
- that needs a lot of sunlight and it will require between 10 and 12 hours daily.

Seedling

- Eggplant seeds take one to two weeks to germinate after they're planted,
- Seedlings grown under cover will be ready for transplanting 8–10 weeks after sowing.
- Transplant seedlings need to have 6–7 leaves and be 10–12 cm high.
- Young plants are vulnerable to damage from frost and cold temperatures, so seedlings shouldn't be transplanted until the soil is warm, nighttime temperatures are consistently above 65 degrees Fahrenheit, and all danger of frost has passed.

❖ **the following measures will ensure healthy plants.**

- Sterilise the growing medium beforehand with steam or registered fumigant.
- Sow seeds in seedbeds with a temperature above 24 °C.
- Place growing trays under glass or plastic covers during winter. Eggplants can be raised in seedbeds in the open only when the mean daily temperature is over 21 °C.
- To produce 3000 seedlings, sow seeds in rows 10 cm apart with 1.8–2.0 cm between plants in a 10 m^2 seedbed. A better method is to use cell trays with peatmoss and vermiculite as the growing medium. Between 100 and 150 seedlings are produced from 1 g of seed.
- Maintain care of seedlings to avoid stunting. Insects such as aphids and leafhoppers must be controlled to avoid introducing plant virus diseases

Mature Plants

- Mature plants are relatively large with branching stems, and their large leaves are oval-shaped or lobed, with a hairy, sometimes spiny, texture.
- Most eggplant varieties grow to a height of between 2 and 4 feet and may need support from a stake or cage when they're laden with heavy fruit. Some varieties, however, are compact and remain less than 2 feet tall.
- In mid-summer, plants bloom with star-shaped purple flowers which occur either singly or in clusters of two blossoms.
- The optimal daytime temperature for the plant's growth is between 70 and 85 degrees F, and if temperatures are above 95 degrees F, flowers and fruit may not develop properly.

Fruit Development

- The flowers develop into fruit that, depending on the cultivar, vary in size, color and shape.
- Eggplant fruit is ready for harvest when its skin is smooth and shiny and its flesh is firm. Fruit with dull or wrinkled skin or soft flesh is over-ripe;
- at this stage, the fruit's skin will be tough and its flavor likely bitter.
- Mature fruit is typically ready to harvest about 70 days after the plants have been set in the garden.

CLIMATE

- Eggplant is a summer-growing vegetable that requires warm to hot conditions over a 5–6 month growing period to produce high yields and quality fruit.
- Periods of cool weather during the growing period will retard plant growth and reduce yields.
- Affected plants seldom recover, even if favourable growing conditions return.
- Young seedlings are sensitive to frost.
- The optimum growing temperature range is 21°–30°C, with a maximum of 35°C and a minimum of 18°C.
- The optimum soil temperature for seed germination is 24°–32°C.

SOIL

- Eggplants are moderately deep rooting and can be grown on a wide range of soils.
- They do best on light-textured soils such as sandy loams or alluvial soils that are deep and free draining.
- These soils warm up quickly in spring and are suitable for early plantings.
- Avoid soils with high clay content.
- A soil pH in the range 6.0–7.0 is desirable.

VARIETIES

- The plant can be a perennial but in commercial production it is treated as an annual bush.
- The fruit is an egg-shaped or bulbous berry which is black, purple, white or white-tinged purple or green with small yellow seeds.

ESTABLISHMENT

- eggplant seedlings are transplanted from early October to late December.
- Between 10,000 and 18,000 plants are needed per hectare
- Land preparation should start several months before transplanting.
- Eggplants are best transplanted into raised beds for better drainage and only when soil temperature is above 20°C.
- Black plastic mulch is widely used in early crops to help to raise soil temperatures and control weeds.

Plant spacing

- plant spacing can be set at 50–60 cm apart within rows and 60–80 cm between rows.
- Larger growing varieties do best when planted 60–80 cm apart with 100–120 cm between rows in an alternate planting pattern. Spacings for smaller growing varieties and the alternate positioning of the plants in the two rows are shown in the diagram

WEED CONTROL

- Several knockdown herbicides are registered for use on eggplants but weed control is mainly by shallow inter-row cultivation until the plants are well enough established to smother the weeds.
- Black plastic mulch is now widely used to assist in managing weeds within rows.

IRRIGATION

- Irrigation is essential during the long growing period.
- Excessive dry periods can cause shedding of flowers and developing fruit.
- The amount of irrigation water needed depends on soil type, growing conditions and crop growing methods such as the use of plastic mulch.
- As a guide, crops planted in late October using trickle irrigation may require up to 2–3 ML of water per hectare.
- Irrigation water should be of good quality with an electrical conductivity (EC) of less than 2.0 mS/cm.
- Soil moisture sensors, such as tensiometers, can be used to measure root zone moisture level and assist in developing an irrigation program.
- Irrigation should be applied when tensiometers show readings of 30–35 centibars

FERTILISER

- If the nutrient status of the soil is not known, a soil analysis 3–4 months before planting is advised.
- Organic manure, such as poultry manure, applied at 12–15 t/ha 4–6 weeks before transplanting,
- Combined with 200–300 kg/ha superphosphate, this is sufficient as a pre-plant fertiliser program.
- If using only artificial fertilisers, apply a low-analysis N:P:K mixture, such as 5:7:4 at 1200–1500 kg/ha, before transplanting.
- Regular applications of nitrogen at 25–30 kg/ha (60–70 kg urea) are needed during the growing season. Apply the first when plants are 30 cm high and the second after the first set of fruit then at 1–2 week intervals, depending on the growing conditions.
- On lighter soils, which are readily leached, extra nitrogen and potassium should be applied. Several applications of potassium nitrate at up to 200 kg/ha can be used.

- Eggplants grown around Sydney benefit from foliar sprays of the nutrients molybdenum and calcium. Apply a 0.1% solution of ammonium molybdate at 1 g/L at the five-leaf stage and again 15 days after transplanting. Alternatively, sodium molybdate can be used at 1.5 g/L. Calcium nitrate or commercial products containing calcium can be applied after the main fruit set period.
- The trend in recent years is to apply soluble fertilisers via an irrigation system (fertigation).

DISEASES AND PESTS

The main pests that affect eggplants are:

- fruit and flowers – tomato caterpillars, eggplant caterpillars, fruit flies, aphids, looper caterpillars
- leaves – leaf-eating ladybirds, spider mites, tomato russet mites
- roots – cutworms, root knot nematodes.
  - Diseases cause fewer losses in eggplants than do insect pests.
  - Verticillium wilt is the most serious disease.
  - The main leaf diseases is leaf blight.

HARVESTING AND MARKETING

- Fruit size is determined by variety and market requirements.
- Traditional teardrop shape fruit varieties are ready for harvest 50–70 days after transplanting or one month after fruit set.
- These varieties can crop for up to five months. Market trends have been towards smaller size fruit of 7–10 cm diameter and 12–15 cm long

- Fruit is harvested when it reaches a glossy deep purple colour but before seeds begin to harden and turn brown.
- Over-mature fruit have a dull colour, crinkled skin, spongy feel and wrinkled stem.
- Cut the stem with a sharp knife or secateurs, leaving a short piece of stem attached to the fruit.
- Handle fruit carefully, avoiding damage to other fruits, particularly from the spiny stems.
- Pick fruit in the cool part of the day and avoid prolonged exposure to the sun. Place in a coolroom, if not packed immediately, at 7°–10°C and 90–95% relative humidity. Eggplants do not store well. The maximum life in a coolroom is 5–7 days.
- Eggplants will crop over a long period of time and yield (6–8 kg) containing 12–20 fruit per carton.