

# Eggplant

## Open Field Production

Crop group: Solanaceae (sweet pepper, tomato, eggplant)

### Crop Rotation

Follow this crop with cucurbits, leafy vegetables, brassicas or sweet corn. Avoid following with sweet pepper, tomato, eggplant.

### Climate & Soil

The optimum growing temperature range is 21°– 30°C, with a maximum of 35°C and a minimum of 18°C. Eggplant is a moderately deep rooting crop. They do best on light-textured soils such as sandy loams or alluvial soils that are deep and free draining. Avoid soils with high clay content. A soil pH in the range 6.0–7.0 is desirable.

### Land Preparation

Clear the area and remove weeds. Measure the desired planting area and planting distance.

Plow and harrow twice at a one week interval. Plow at a depth of 15-20cm. Harrow twice to break the clods and level the field. A well-pulverized soil promotes good soil aeration and enhances root formation.

Layout 1m-wide beds with 0.5m-wide canals in between. Raise the beds 20-30 cm high.

#### Plastic mulching:

Level the bed with a rake, ready for plastic mulching. For dry soil, water the soil before installing the plastic. Unroll the plastic mulch over the plot (make sure that silver color is on top while black is underneath). Clip the plastic mulch on both sides and ends with a bamboo staple every 15–20cm. Alternatively, clip the plastic mulch on both sides and ends using bamboo sticks (1.5cm between for 5–10m lengths) and clip with small twigs from hardy shrubs or tree branches every 50cm apart per twig.

To stop hot air accumulating inside the plastic mulch cover, stretch and fit the plastic over the bed. Make a series of openings in the plastic every 50cm in a triangular pattern using a hot puncher. (A can containing a few hot charcoal beads makes a handy hot puncher).



Plastic mulch ready to cut planting holes.

**Organic mulching (optional):** Instead of plastic mulch, you can apply organic mulch about 2.5cm thick on the surface of the soil to minimize evaporation of moisture in the soil and suppress the growth of weeds. Hagonoy weed (*Chromolaena odorata*) was found in trials to be the best mulching material, and may have some disease suppressive effect. Rice straw, rice hull, and kakawate leaves can also be used.

### Seedling Management

Ensure seedlings are healthy, disease- and insect-free before transplanting, and always handle seedlings carefully to minimize injury to the roots. Under good conditions, seedlings will be ready to transplant after 4 weeks, and should have 4–5 true leaves.

A drinking straw wrapped around the stem a day before transplanting, when the seedlings are still on the trays, can help reduce damage caused by crickets or other chewing insects.



## Transplanting

Transplant late in the afternoon, or morning – if it's cloudy. Gently press the soil around the plant base to avoid injury of the seedlings, seal the hole with soil.

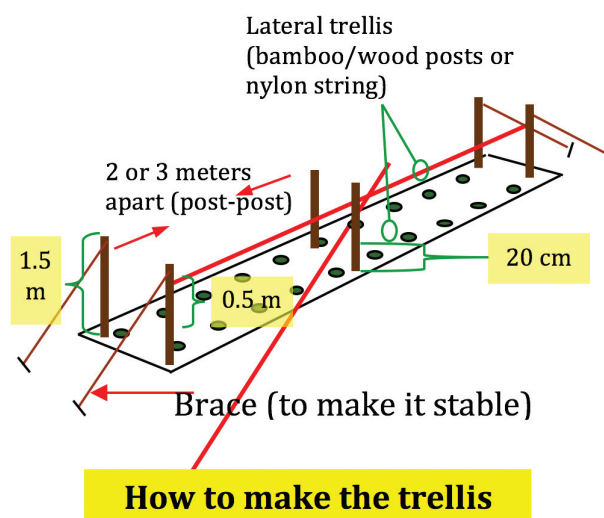
**Water immediately to establish good root-soil contact.** Drench around the plants with fungicide as needed.

## Trellising

1. Trellis the plants two weeks after transplanting.
2. Construct the trellis using bamboo ipil-ipil poles or stakes on each side of the bed, 2–3m apart and 1.5m high.
3. Attach wires to the bamboo post horizontally at a height of 0.5m and tie stems to the wire using twine or blue string.
4. When the plants are fruiting, maintain all branches in upright position to avoid overlapping that causes insect pests to hide. Tie all droopy branches especially those with many fruits to avoid breaking.

## Weed Control

- Cultivate the soil before planting to reduce weeds or stale seedbed.
- Practice mulching to control or minimise the growth of weeds.
- During the growth of the crop use a bolo to manually remove weeds
- Spray canals and between beds with contact/systemic herbicide as needed.







## Harvesting

Fruit are usually ready to harvest 55–65 days after transplanting (DAT) when the fruit reach a marketable size and are deep purple & glossy or depending on the variety, or depending on buyers' preference. Harvest fruits intended for market preferences at 3–4 day intervals. Immature or over-mature fruit deteriorate fast therefore it is important to pick at **optimum harvest maturity**.

Harvest early in the morning while the temperature is low to minimize field heat load. Place the harvested fruit immediately under shade to avoid sun exposure. **Use sharp, clean tools for harvesting.**

## Fertilizer, irrigation, pest and disease management

| Eggplant growth stages |  |   |  |  |   |
|------------------------|--|---|--|--|---|
|                        | Pre plant  | Transplant / Establishment  | Vegetative   | Flowering/ fruit development   | Maturity  |
|                        |  |                              |                   |   |                |
| <b>Fertilizer</b>      | Before planting apply fertilizer into each planting hole and mix in with soil. During plant growth, apply fertilizer to each plant an inch away from the base of the plant. Ensure no fertilizer touches the leaf of the plant to avoid leaf burning. Additional application can be applied 2 weeks apart during fruit development and harvest. Use the following rates per plant. |   |  |  |   |
| <b>Timing</b>          | At planting  | 1 week after planting   | 2-4 weeks after planting   | 3 weeks after planting   | Additional applications   |
| <b>Rate</b>            | 10g complete fertilizer (14-14-14)<br>500g organic fertilizer.   | 150g calcium nitrate (CaNO <sub>3</sub> ) dissolved in 8L water - 3, 6 and 9 days after transplant.           | 10g Ammonium phosphate (16-20-0) per whole (week 2 and 4) complete fertiliser (16-16-16) (week 3). | 1 tablespoon (10g) of muriate potash (0-0-60) weeks 5,6,8 and 9.<br>At weeks 7 and 10 add 1 tablespoon (10g) complete (16-16-16) | Repeat application further if needed.   |
| <b>Irrigation</b>      | Lay out trickle irrigation drip tube along the beds. Use one tube along each planting row. The spacing of drippers in the tube should be about 25cm or closer. The best strategy is to fully wet the soil profile and encourage roots to grow out into the moist soil.   |   |  |  |   |
|                        |  | Water newly transplanted seedlings daily, directly at the base of the stem until fully recovered (1-2 weeks). | Water eggplant sufficiently to moisten the soil to a depth of at least 6 inches                    | Water every 3-4 days for 4-6 hours or until soil is fully wet. Do not under or over water plants.                                | Water every 3-4 days for 4-6 hours or until soil is fully wet. Do not under or over water plants. |
| <b>Pests</b>           | Monitor the crop regularly for pest and disease infestations. Approved fungicide and insecticide should be used as indicated on product labels.  |   |  |  |   |
|                        |  | Eggplant Shoot and Fruit Borer (EFSB), Mealybug, Mirid bug, aphids, thrips, mites                             | Eggplant Shoot and Fruit Borer (EFSB), Mealybug, Mirid bug, aphids, thrips, mites                  | Eggplant Shoot and Fruit Borer (EFSB), Mealybug, Mirid bug, aphids, thrips, mites  | Eggplant Shoot and Fruit Borer (EFSB), Mealybug, Mirid bug, aphids, thrips, mites                 |
| <b>Diseases</b>        | To reduce incidences of disease, use disease free and clean planting material. At transplanting, ensure seedlings are healthy and disease and pest free.   |   |  |  |   |
|                        |  | Bacterial wilt, fusarium wilt, blight, stem rot, bacterial spot   | Bacterial wilt, fusarium wilt, blight, stem rot, bacterial spot                                    | Bacterial wilt, fusarium wilt, blight, stem rot, bacterial spot  | Anthrachnose, bacterial wilt, fusarium wilt, blight, stem rot, bacterial spot                     |

## Postharvest Handling

Once harvested, the fruits are much more susceptible to deterioration than while they are attached to the plant

1. **Harvest** in the cooler part of the day – early morning or late afternoon.
2. **Place** the harvested fruit out of the sun and in as cool a place as possible.
3. **Remove** and discard any fruit which is deformed or insect damaged.
4. **Grade** the fruit into color and size grades. Keep a premium grade fruit which is the correct size for your market. Grade into green, breaker and colored fruit, and pack separately. Show grade and colour standards. Put the remaining fruit into a second grade category and send that separately from the first grade. This will maximize the price you get for the first grade fruit.
5. **Pack** the fruit carefully in cartons if possible, in a way that will minimize damage to the fruit in transit to the market. Do not sit or stand on top of vegetables.
6. **Deliver** the fruit to market as soon as possible after harvesting. Transport at night or in early morning, if possible. Storage reduces shelf life and quality.
7. Monitor and know the condition of the fruit as it arrived at the market and aim to continuously improve its quality

## Follow up in the field

The finished crop should immediately be removed and destroyed, and the ground plowed to prevent pest and disease populations spreading to other crops. This is extremely important!



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