Eggplant Production

IDEA-NEW
Eggplant Introduction

- Eggplant belongs to the same family (solanaceae) as potatoes, tomatoes, and pepper.
- It has been under cultivation in the Indo-Pakistani subcontinent since ancient times and is available in the market year round.
Climate

- Eggplant is a warm season crop that requires a long growing season for successful production.

- Eggplant grows best at temperatures 21-29 °C but does not grow well when the temperature is greater than 30°C.

- High temperatures and high humidity also reduce yields.
Soils

- Eggplant requires fertile, well drained soil
- Best pH for Egg plant from 5.5 to 6.8
- A sandy loam soil is ideal for early production,
- Clay-loam and silt-loam are well suited for high yields.
Cultivars

- Eggplants fruits come in different shape and color
  - Fruits can be round, long, oval, or pear shaped
  - The preferred color for fresh consumption are pinkish-purple, violet and black
  - Other desirable characteristics are:
    - high productivity; pest resistance; early maturity; vigorous plant habit; and heat tolerance
Cultivars

- Some common varieties cultivated in the ER are:
  - Summer crop:
    - Black Beauty, Long Purple, Round Black, and Pusa Purple;
  - Fall crop:
  - Calliope F1, new hybrid tested for the summer and fall planting
Calliope F1
Seedling Production

- Eggplant seedlings can be produced on the Field or on trays
- Field nursery
  - 60 – 100 g/Jerib
  - Make a raise bed
    - Incorporate DAP and Animal manure into the bed
  - Plant the seed in rows – distance is not important
  - Cover the bed
    - to protect the seed from heat and keep moisture on the ground
    - to protect the seed from low temperatures (cool days)
- Apply fungicide
Eggplant Field Nursery
Seedling Production

- On trays
- Plug-seedlings
  - Establish an uniform stand in the field
  - Eggplants seedlings are ready for transplanting in 5 – 7 weeks, with 3 – 4 leaves, stocky, and healthy
Eggplant Planting

- **The Spring-Summer crop**
  - Sowing in early January – *Check soil temperature for planting, seed needs 16 ºC min for germination*
  - Transplanting on February

- **Summer crop**
  - Sowing in March and April
  - Transplant seedlings during May and June.

- **Fall/winter crop**
  - Seed sowing in June
  - Transplant in July.
Planting Techniques

- Raised beds are recommended for Eggplant production
  - 1.1 m bed-center to bed-center
  - two rows per bed, separated 40 cm
  - Plants are alternate planted with 60 cm in between
  - Population density, 6,000 plants/Jerib
Fertilization

- The current recommendation for eggplant production in Eastern Region is to apply and incorporate 4-5 T/jerib farm yard manure during land preparation.

- A total of 20 Kg/jerib N and 10 Kg/jerib each of P2O5 and K2O should be applied during the season.

- Half the N and all of the P2O5 and K2O should be applied just before transplanting.
  - The rest of the N should be top-dressed in two splits 40 and 80 days after transplanting.
Irrigation

- Although eggplants are *fairly drought resistant*, they require regular irrigation to obtain maximum yield.
- 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 blossom end rot and malformed fruit.
  - During the early stages of plant growth, irrigation should be done once a week.
  - At flowering, the irrigation frequency should be increased to twice a week. Irrigation may need to be more frequent during fruit set and filling.
  - Wilting during the late morning is a good indication that the crop needs additional water.
Weed Control

- Eggplant is slow to become established and cannot compete with aggressive weeds.
- Weeds also harbor for insects and diseases.
- Weeding can control weeds if done immediately when they are observed
  - Frequent shallow cultivation
**Fruit and Shoot Borer, *Leucinodes orbonalis* and *Euzophera perticella***

- Fruit and shoot borer can be very destructive and they are widely spread in S & SE Asia.
- Larva bore in terminal shoots and young fruits (feeds inside)
- Larva also bore plant stem, killing the plant
- Control
  - Remove affected fruits and shoots from field
  - Destroy plant residues after harvest
  - Plough the field deeply
  - Appropriate crop rotation
Mites, *Tetranychus urticae*

- They are very tiny, red in color, and barely seen by the naked eye.
- Red spider mites are found mainly on lower surface of leaves.
  - They lay their eggs on the lower leaf surface.
  - Tiny orange nymphs hatching from the eggs **feed on the leaves**.
  - Within a week, nymphs turn into dark orange to red color adults
- Horticultural oils, horticultural soaps and Kelthane
Thrips, *Thrips palmi*

- The symptoms of a Thrips attack are
  - browning of the undersides of the lower leaves. In severe cases, the entire leaf dries.
  - Similar damage is seen along the mid-vein on the upper leaf surface.
  - Thrips also scar the fruits.
- Resistant varieties, pesticide applications
Damping Off, Pythium, Phytophtora sp and Rhizotocnia sp

- Several born fungi
- The fungi attack germinating seeds, creating lesions on the stems which later cause the seedlings to collapse.

Control:
- Seed treatment fungicide
- Planting depth, shallow
- Control Soil moisture
Verticillium Wilt, *Verticillium albo-astrum*

- This disease causes stunting and wilting of plants.
- Leaves turn yellow along the margins, later turning brown and wilting.
- A lengthwise cut of the infected stem shows dark-brown discoloration in the vascular tissue.
- Crop rotation with non-solanaceous crops, using resistant varieties, and soil sterilization are the recommended practices for controlling verticillium wilt.
Harvesting and Handling

Harvesting

- Fruits are harvested immature before seeds begin to enlarge and harden.
- Fruits should be picked when the fruits are firm and the color is bright and shiny.
- Eggplant fruit become pithy and bitter as they reach an over-mature condition.
Harvesting and Handling

- **Harvesting**
  - A knife or pruning shears should be used instead of breaking or twisting the stems. The large (usually green) calyx and a piece of stem should be left attached to the fruit.

- **Grading**
  - Eggplant fruits are sorted by size (small, medium, and large) and culls are removed.
Harvesting and Handling

- Marketing
  - Eggplant is often packed in the field for marketing
Eggplant Harvesting