Phomopsis Blight

This is a common disease in brinjal. The infection starts with foliage blight, but the most destructive phase of the disease is the fruit rot. Pale, sunken spots develop on the fruit and may progress to cover the entire fruit surface. The affected leaves turn yellow and dry. For disease management spray Mancozeb 75 % WP (3 g per litre of water) can be applied in the early vegetative stage.

Foot rot

Symptoms of this disease are similar to that of bacterial wilt. At the collar region of the affected plant lesions are visible. By improving drainage this can be prevented. Redomil as a soil application is very effective in controlling this disease.

Pest management

Major pests that affect brinjal are Shoot and Fruit borer (SFB) and Jassid.

Shoot and fruit borer (*Leucinodes orbonalis*)

Shoot and fruit borer cause a serious damage to the fruits leading to severe reduction in the yield. The damage to the fruits starts soon after transplanting and continues till harvest of the fruits. Small pinkish larva of the pest initially bore into the terminal shoots resulting in withering and drying of the shoot. In the later stage, it bores into the young fruits by making holes and feeds inside which makes the fruits unfit for consumption. Such fruits rot in severe case. The wilting symptoms first appear in immature shoots soon after observing wilted shoot remove and destroy them. The damage can be controlled by Spinosad 45 SC (0.01 %) (1ml/10 litre water) or Carbaryl (0.1%) or Rynaxypyr 20% SC @ 40 and 50g a.i. /ha, if sprayed at 11 days interval from fruit setting would give effective control of shoot and fruit borer of brinjal and with appreciably 'no harm to the beneficial natural insect fauna of brinjal.

Jassids (Amrasca biguttula biguttula)

Both nymphs and adults suck the sap from the lower surface of the leaves. The infested leaf curl upward along the margins, which may turn yellowish and show, burnt up patches. Fruit setting is adversely affected by the infestation.

Control: Jassids are controlled by spraying Malathion (0.1%) or Dichlorvos (0.05%) 20 days after transplanting.

Beside these the following cultural practices can be used to avoid the pest and diseases.

- Healthy seed should be selected for sowing.
- Destruction of infected plant material.
- Continuous raising of nursery in the same plot should be avoided.
- Application of bio-control agent Trichoderma in soil (1.5kg/ha).
- Removal and destruction of affected plant parts.
- Avoid crop rotation with bhindi, tomato.
- Seed treatment with Trichoderma viride (4-5g/kg) of seed
- Soil application with Neem cake @250 kg/ha
- Use of yellow sticky traps against White flies
- Clipping of shoot borer infested terminals
- Leucinodes adult monitoring with pheromone traps

Harvesting & Yield

CARI B-1 fruit are ready for harvest 60–70 days after transplanting or one month after fruit set. Pick fruit in the cool part of the day to avoid prolonged exposure to the sun. This variety can crop for up to five months. Maximum fruit yield of 30-35 t/ha can be harvested.

Address for correspondence:

Director, Central Agricultural Research Institute

Port Blair-744101, Andaman and Nicobar Islands

Phone- 03192 250341, 250436, Fax- 03192 251068

Email: directorcaripb@gmail.com

Agro techniques of CARI Brinjal 1: A bacterial wilt resistant variety

P. K. Singh, Krishna Kumar,
Ajanta Birah, R. K. Gautam, Israr Ahmad
Naresh Kumar, S. K. Zamir Ahmad,
K. Sakthivel and S. Dam Roy

Supported by

Directorate of Seed Research

Central Agricultural Research Institute

Port Blair-744 101, Andaman and Nicobar Islands

Brinjal (Solanum melongena L.) is the most important vegetable crop of Andaman and Nicobar Islands. Its fruits are mainly consumed as cooked vegetable in various ways. It is low in calories and fats, contains mostly water, some protein, fibre and carbohydrates but it is good source of minerals and vitamins and is rich in total water soluble sugars, free reducing sugars. Bacterial wilt of brinjal caused by Ralstonia solanacearum is a serious disease, which limits production from 20 to 50 per cent in Andaman and Nicobar Islands. This disease has risen to alarming proportion in Bay islands and rest of country. Many of the commercial varieties are growing but they are susceptible to this disease, at the same time resistance of wilt changes over the regions and the very little success has been attained using chemical control measures. The only effective approach of bacterial wilt control is to develop resistant cultivars. The Central Agricultural Research Institute, Port Blair has developed a

bacterial wilt resistant brinjal variety CARI Brinjal 1 (INGR 12015). Its plants are medium tall, semi spreading type with profuse branching and having light greenish broad leaves. Fruits of this variety are oblong, light green in colour and medium compact with low seediness. CARI Brinjal 1 also exhibited drought tolerant ability during water stress situations and thus suitable for growing in islands conditions during dry season (during October to May).

INGR 12015

Climate

It is a warm climate crop and requires a long growing season with the high average day & night temperatures. A daily mean temperature of 15-250C is most favourable for its production.

Soil and field preparation

CARI B-1 is moderately deep rooting and can be grown on a wide range of soils types. It is grown with considerable success in fine and rich loam soil that are deep and well-drained. The soil pH should not be ≥7.0 for its better growth and development. As the crop remains in the field for 6 months therefore, the soils should be well prepared by deep ploughed before transplanting the seedlings. When the field is well prepared and levelled, the raised beds of 1.25 m are made in the field before transplanting of seedlings.

Sowing Time and Seed Rate

CARI Brinjal 1 can be grown twice in a year. The crop sowing time is May-June and November- December. For one hectare area about 250 to 300 g of seed is required.

Planting and Spacing

For CARI Brinjal 1 optimum spacing is 90 x 90 cm with one plant/hill. Healthy seedlings aged 20 to 25 days with 3-4 fully expanded leaves are suitable for transplanting. After primary and secondary land preparation, level the land and make planting holes at a spacing of 90 x 90 cm. Addition of organic matter (200g/hill) to planting holes facilitate quick establishment of the transplant. Transplanting should be done in the evening to avoid mid day heat. Wilted seedling must be light irrigated after transplanting in the beds.

Manures & Fertilizers

Organic manure such as compost or FYM (13-16 t/ha) should be applied 4-5 weeks before transplanting. At the time of land preparation 60 kg urea 150 kg DAP and 80 kg MOP should be applied. After transplanting three doses of Urea @ 75kg/ha must be applied at one month interval as top dressing.

Irrigation

If available timely irrigation is important for getting high fruit yield. Brinjal fields should be regularly irrigated to keep the soil moist during dry days.

Seed treatment

The seed should be treated with Streptocycline (1g/ 40 litres of water) for 30 minutes or Thiram (2g/kg seed) or Trichoderma (4-5 g/kg seed) before seed sowing in nursery.

Nursery raising and management

For raising of one heater of brinjal crop 20-21 nursery beds of 3 x 1 m are required. Soil should be prepared well having fine tilth. Prepare raised beds to a height of 15-20cm. Incorporate well decomposed FYM at the rate of 4-5 kg/m2. Treated seeds should be sown in beds 10-15 cm apart at the depth of 0.5 to 1 cm and cover with a thin layer of FYM. Spread a layer of straw mulch over beds and water daily. Remove the mulch when the germination is complete. Avoid exposure of seedlings to heavy rains and to prolong sunlight. Seedlings are ready to transplant after 20-25 days.

Weed Management

Three to 4 hand weeding at 25-30 days interval are needed for good crop growth and yield. Dark coloured plastic mulches or thatch can also be used but light hand weeding is required to remove weeds that emerge through the planting hole. Chemicals such as Pendimethalin (1.0 kg a.i./ha) or Fluchloralin (1.0 kg a.i / ha) can be used as pre-emergence herbicide.

Disease management

Damping off, Phomopsis blight, Bacterial wilt and Foot rot are the major diseases that affect this crop. However, CARI Brinjal 1 is resistant to bacterial wilt.

Damping off

Symptoms of this disease are rotting the base of the nursery plants and then die off. The seedlings are attacked at the collar region and the attacked seedlings are toppled down. The disease spreads through fungi present in the soil. The disease can be controlled by seed treatment with Agrosan or Ceresin (2g/kg) of seed.