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Quality seed production of brinjal (*Solanum melongena* L.)

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The selection of land is the first and foremost task for a seed producer. The seed production plot must be selected carefully. A fertile and healthy seed plot with certainly produce quality seed. The field selected for seed production must not have been sown with brinjal in the previous season. This is done to avoid volunteer plants that cause admixture.

Isolation distance : Brinjal is a cross-pollinated crop. The certified seed production field must be 100 metres away from other brinjal variety or vegetable field. It will enable us to maintain the genetic purity and also physical mixture at the time of harvest.

Seed selection: Selection of seeds is the first step in production of quality seed. This involves selection of seeds with the right genetic make-up of the variety to be produced. Seeds must be from an approved source. Further, the seeds must be free from pest and diseases.

Nursery preparation and sowing: The area to be used as nursery must be under partial shade, preferably near water source. The soil must be healthy and fertile. A nursery area of 3 cents is necessary to raise seedlings for transplanting in one acre. The selected area is tilled two-three times followed by addition of 1 cart load of well decomposed compost. Raised beds of 1 m width and 3 m length are made. Small depressions are created using a stick (known as rills) at 10 cm intervals. Into these rills, about 150g seeds that are treated with 300 g Carbendazim are placed and covered using sand or dry soil.

Adding fertilizer to nursery : Fertilizer application is essential to provide robust growth to the emerging seedlings. Application of 6 kg DAP to the 3 cent nursery as basal is done which leads to prevention of root damage during pulling and earlier establishment of seedling upon transplanting in the main field. If DAP is not available, 6 kg Urea and 12 kg Super phosphate can be applied.

Preparation of main field : Land selected for raising seed crop should be ploughed thoroughly for two (or) three times. At the last plough, 20 tonnes of FYM per acre has to be incorporated into the soil. The ridges are to be formed at distance of 75 cm. After forming the ridges and furrows, the recommended doses of 44 kg urea, 180 kg super phosphate and 48 kg potash per acre has to be applied on the 1/3rd height of ridges as a basal dose.

Transplanting : The right age of seedling is essential for better growth and development upon transplanting, if not planted in the right age then yield is reduced and seedlings are also susceptible for drought. Hence transplanting seedlings that are 30-35 days old is essential. The healthy seedlings pulled out from well maintained nursery have to be used for transplanting. After the irrigation *i.e.* complete soaking of ridges, single seedling should be transplanted at a distance of 60cm between plants.

Controlling of weed : Maintaining the main field free from weeds from the beginning is more important and essential. For that we have to apply pendimethalin(Stomp-30) herbicide @ 400 ml/acre using knapsack sprayer or applied after mixing in the pure sand. After 35-40 days of transplanting one manual weeding has to be taken for further maintenance of the main field.

Earthing up : During the time of second weeding (45 days), the plants have grown to a height of 1.5-2.0 feet and are heavy. This leads to lodging, fruits formed on plants lying on ground tend to get infected by soil borne pathogens. Hence, after second weeding the plants are given an earthing up.

Plant protection : Maintaining plant healthy is more important and hence prophylactic plant protection measure should be taken.

Fruit borer : To control fruit borer we have to follow any one of the following *viz.*, spraying Quinalphos 25EC 250 ml/ac or carboryl wettable powder @ 2ml / liter of water or based on the ETL, Trichogramma, egg parasite may be released @ 20,000 /ac. at flowering stage.

Root knot nematode: Application of carbofuran granules @ 10 g/m^2 at the time of planting.

Leaf curl virus: The virus is transmitted by white flies. To control the white flies spray methyl demeton or monocrotophos or dimethoate @ 200 ml/ac.

Roguing	
Stages of rouging	Characters to be observed
Pre-flowering stage (or) vegetative stage and pigmentation	Plant height, number of branches, leaf and stem colour
Fruiting stage	Fruit shape, colour and size
After harvest	Fruit shape, colour and size

Harvesting : In brinjal harvesting has to be done in 8 to 10 pickings. The first and last one or two harvests may be taken for vegetable purpose and the fruits from remaining pickings may be used for seed extraction. The seeds from the above pickings are normally posses high vigour and germination. Well ripened fruits alone are to be harvested and medium to large size fruits may be used for seed extraction.


Optimum stage of harvest

Seed extraction methods : The seed viability depends on the method by which the seeds are extracted and hence, it is more important to choose proper method of seed extraction. The selected fruits are to be cut into pieces and put in the cement tank with water for 10-12 hours for fermentation. The fruits can be allowed for over ripening for one or two days. This facilitates for easy pulping of fruits. Then fruits are to be made into pulp by manually. Add excess quantity of water and after ½ hour, remove the floating pulp fraction and collect the seeds settled at the bottom. For large scale seed extraction we can use the brinjal seed extractor released by Tamil Nadu Agricultural University. The seeds extracted by this machine may again be treated with concentrated HCl @ 2-3 ml/kg seed with equal volume of water for 3-5 minutes with constant stirring and then seed should be washed with water for three to four times. It is easy to dry the seeds extracted by acid method and also remove the fungus growth over the seed coat, thus seeds possess golden yellow colour and high vigour.

Drying seeds to reduce moisture: Immediately after seed extraction, it has to be properly dried, since seeds are extracted from 100% moist condition. The extracted seeds should be spread on gunny bags in a thin layer and dried under shade for 8 to 10 hours for one or two days. Seeds can be dried under direct sunlight between 8 to 12 noon and 3 to 5 pm. Avoid drying in between 12 to 3 pm, since the rays emits from sun and the heat may affect the seed viability. While drying care must be taken to avoid clogging. The extracted seed should not be dried directly under sun. Since seed posses high moisture it may affect the germination potential. Similar, while drying frequent stirring is more important otherwise it leads to clogging. This may results in improper drying, fungus growth and poor vigour.

Storage of unprocessed seeds results in poor viability. In processing, the sieves must be cleaned while changing to other variety otherwise it leads to physical admixture resulting in genetic contamination. For short term storage seed moisture content should be reduced to 7-8% and can be stored in cloth bag. For long term storage seed moisture content should be reduced to 6% and stored in moisture vapor proof containers.

Seedtreatment: Seeds must be treated with fungicides before storage. The seeds may be treated with Captan or Thiram @ 4g/kg of seeds. The seeds can also be treated with halogen mixture @ 5g/kg of seed and it is an ecofriendly seed treatment.

Field and seed standards	
Field standard	
Off types (maximum)	0.20%
Plants affected by seed borne diseases (maximum)	0.50%
Seed standards	
Pure seed (minimum)	98.0%
Inert matter (maximum)	2.0%
Other crop seeds (maximum)	None
Weed seeds (maximum)	None
Germination (minimum)	70%
Moisture previous container (maximum)	8.0%
For vapors proof containers (maximum)	6.0%

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