

Nursery Disease

Damping-off is a term long used to describe the death of small seedlings resulting from attacks by certain fungi, primarily *Pythium ultimum* and *Rhizoctonia solani*, although other fungi for example, *Botrytis cinerea* and *Phytophthora* spp. may also be involved. *Mycelia* from these organisms occur in soil, infected plant tissues, or on seeds from which they contaminate clean soil and infect clean plants. Seedlings become blighted, then collapse and die, forming circular or irregular patches.



Management:

For summer seedlings, prepare a good seed bed, select a seeding rate sufficiently low so that the stand is not too dense, do not apply excessive amounts of fertilizer, and prevent free water from standing on the soil surface. Avoid using excessive quantities of mulch following seeding. Seed treatment with fungicide should be done.



Economic of low cost nursery and quality seedlings production (120 m²)

Particulars	Area/Size/No.	Rate (Rs.)	Amount (Rs.)
Polythene sheet			
150 GSM	(10×2) m ² ×6	750.00	4500.00
Bamboo	20 nos	100.00	2000.00
Labour	10 nos	200.00	2000.00
Misc (Seeds, nails, binding wire & bio-chemicals)			2000.00
Total cost			10500.00

About 20,000-25,000 nos. of healthy vegetable seedlings can be produced from an area of 120 m² within 30 days. Therefore, the benefit cost ratio of quality vegetable seedlings production will be around 1:2.4.

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NURSERY MANAGEMENT: FOUNDATION OF SUCCESSFUL VEGETABLE PRODUCTION



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"A vegetable nursery is a place or an establishment for raising or handling of young vegetable seedlings until they are ready for more permanent planting." As we say "Success of any production system depends on the kind of seed we are sowing", so is true with seedlings. Healthy seedlings grown in a well managed nursery will decide the yield and consequently the profit.

Why do we need nursery?

Some vegetables require special care during their early growth period. There are some vegetables with very small sized seeds. These are first sown in the nursery for better care and to combat with the time for field preparation and after about one month of seed sowing, transplanted in the main field.



These vegetables are

- A. Tomato-*Megha Tomato 3, Romeo, All Rounder, Jester, Avinash-2.*
- B. Brinjal-*Pusa Purple Round, Pusa Kranli, Vaishali and Arka Navneet (Round type) and Pusa Purple Long, Pusa Purple Cluster, Arka Sheel, Pusa Anmol (Long type)*
- C. Red cherry pepper (*Dalley Chilli*)
Capsicum-*Indra, California Wonder and Orebelle*
- D. Cauliflower - *Kunwari, Pusa Deepali, Pusa Katki, Barkha, Pant Gobi-1,2 (Early varieties), Poosi, Pusa Early, Suwashini, Girija (Mid varieties) and Snowball-16, Pusa Snowball and Dania Kalimpong (Late varieties)*
- E. Cabbage - *Pusa Mukta, Early Drumhead, Golden Acre, Bahar, Tekia, Green Express, Krishna, Rare Ball, Pragati, Quisto,*
- F. Knol-khol (kohl rabi) - *Large Green, Purple Viena, White Viena, Indam Early White and Winner*
- G. Broccoli - *Palam Samridhi, Pusa KTS 1, Aishwarya and Everest*
- H. Onion -*N53.*

Importance of nursery management

- It is convenient to look after the tender seedlings.
- Shorter cropping cycle, therefore, can get earlier planting and harvest.
- More uniform crop possible and it is possible to provide favourable growth conditions *i.e.*, germination as well as growth.
- Better care of younger plants as it is easy to look after nursery in small area against pathogenic infection, pests and weeds.
- Crops cultivated through nursery grow quite early and fetch higher price in the market, therefore are more profitable.

Site selection

- There should be proper sunlight as shady sites are not ideal for nursery raising;
- Area selected should be well-drained and free from water logging;
- The nursery should be nearby water source so that irrigation can be easy.

Soil and soil preparation

Soil is the major medium for germinating seeds and growing seedlings, although it is not the best. There are artificial media made from perlite, vermiculite and peat moss, which are used as soil substitutes. Favourable soil conditions (good drainage and fertility, absence of toxicity, *etc.*) are indispensable for the success of a nursery. When nursery plants are raised in pots, polybags, seedboxes or trays, it may not be necessary for soils on the nursery site to be fertile. Soil solarization is used in the heat treatment to kill all pathogens in the nursery beds.

Raised nursery beds

- Length of the bed may be kept 3 to 5 m; however, width is restricted to 1 m only which facilitates intercultural operations.
- The beds are raised 15 to 20 cm high from the ground level. A space of 30 - 40 cm is left in between two beds.
- The number of beds depends on the particular crop, season and growing area of crop.
- The beds should be prepared in the east and west direction and line should be made from north to south direction on the beds.



Sowing of seeds

- Line sowing is the best method of seed sowing in nursery.
- Lines should be 0.5 to 1.0 cm deep parallel to the width at a distance of 5.0 cm from the line and seeds are sown or placed singly at a distance of about 1.0 cm apart.
- Cover the seeds with fine mixture of sand, soil and well-rotten and sieved FYM or leaf compost *etc.* (1:1:1). After the seed is covered a light irrigation must be given.



Crops (g)	No of seeds/g	Seed rate/ acre (g)	Seed rate/ha	Plant/acre	Plant/ha
Cabbage	265	125-150	300-350	16000	40000
Cauliflower	220	125-150	300-350	16000	40000
Broccoli	265	125-150	300-350	20000	50000
Knolkhol	262	125-150	300-350	20000	50000
Tomato	350	100-125	250-300	12000	30000
Chilli	325	100-125	250-300	12000	30000
Capsicum	325	100-125	250-300	12000	30000
Brinjal	330	100-125	250-300	12000	30000