



commercial nursery raising of vegetable crop

ASHISH MANDLOI

SANJAY JANGID

Lovely Professional University, Jalandhar

ABSTRACT:- The research is focused on the management of vegetable crops in nurseries. A significant part of effective vegetable development is stable seedlings under good nursery management practises. The consistency of the growing media used in the seedling tray is primarily affected by the growing media's physical, chemical and biological properties. For the efficient development of high-quality seedlings for transplanting, safe seedling tray technology has been developed. The key aim of growing seedlings in a protected structure is to grow off-season quality and disease-free seedlings to collect early crops in a protected condition or to achieve greater benefit in open field conditions. Good nursery management strives to make planting materials of the best possible quality available for new growth and replanting areas. Weak planting materials add to poor yield and overall cost increases. All key aspects of nursery management are discussed in this report, including the value of nursery, forms of nursery, nursery management, including various activities such as seedling, manuring, irrigation, plant conservation steps, weed control, nursery plant packaging.

keywords:- vegetable, nursery, development, seedling, growing media

transplanting, replanting, irrigation, manuring, packaging.

INTRODUCTION:- The nursery is the location where seedlings are grown in the main parcels before they are transplanted. Seeds are typically used to cultivate vegetables and collect seedlings. Therefore, depending on the vegetable seed is sown, the consistency of the seed is very critical. There are certain crops that can not grow by sowing the seed into the plot directly. Seedling, for example, must first be grown and then transplanted into the plot for vegetables such as tomato, egg plant, rayo, cabbage and cauliflower. Generally, after sowing, the seeds are coated with a coat of dirt. Although there are other vegetables whose seeds in the main plot need to be specifically sown, such as okra, mustard, legumes, etc. In certain cases, if the seed is sown too close to the soil, the risk of being sun-dried or consumed by birds or rodents is greater. Based on their size, there are many different varieties of vegetable seeds and it is important to keep the distances between plant to plant and row to row distances right. The seed is sown once in the nursery in off-season vegetable growing and transplanted into ty in the main plot to raise seedling. During that time, temperature, light, water, insects, pests and diseases

are very vulnerable. Immediately after transplantation from the nursery bed, the seedlings are very small. Therefore, instead of raising them in the main parcels, seedling needs to be grown in the nursery.

TYPES OF NURSERIES:-

Based on time duration:-

- Temporary nursery:- In or near the planting field, this sort of nursery is established. When the seedlings are grown for planting, the nursery becomes part of the site being cultivated. Moving nurseries are often referred to as "flying nurseries" This form of nursery is only established to satisfy the season or a targeted project necessity. The nurseries for the development of transplanted vegetable crop seedlings are transient in nature.
- Permanent nursery:- This sort of nursery is permanently set up so that plants are continually produced. This nurseries have all the functionality that are permanent. The permanent nursery has permanent plants for mothers. In this nursery, the work continues continuously throughout the year. Depending on the purpose and the number of seedlings produced annually, these may be high or limited. There are fewer than 100,000 seedlings in small nurseries at a time, whereas larger nurseries have more than that number. In all cases permanent nurseries need to be well-designed, appropriately situated and sufficiently supplied with water.

SELECTION OF LOCATION:- The essential prerequisite of a nursery is the site. The site is a location where seedlings of plants can be created.

The attributes of a good location are

- The proximity of a lane
- Located near a habitat
- Adequate atmosphere
- Neither shady area nor uncovered territory
- Enough light in the sun
- Good infrastructure for irrigation
- Strong state of the soil
- Good facility for transportation
- The region should be free from logging for water.
- Pets and wild animals should be fenced in the field.

PREPARATION OF LAND AND SOIL :-

Soil should be loam to sandy loam, loose and friable, rich in organic material and well drained soil pH should be 7.0.0. pH for growing vegetables seedling Soil preparation includes deep nursery land cultivation either by soil turning, ploughing by spade and subsequent 2-3 cultivator hoeing. Remove from the field all the clods, blocks, and weeds and level the soil . Mix 100 kg of well-rotten and fine FYM with 500 gm of vermi-compost mixed in the soil per square meter.

TREATMENT OF SOIL:-

Soil solarization on the ploughed soil covered by the plastic tunnel for around 4-5 weeks is easier. Soil drainage 15-20 days prior to sowing @4-5 litres of water with a concentration of 1.5-2% per square metre of formalin solution and coated with a plastic membrane. Application of fungicides such as Captan and Thiram, which would also destroy 5-6 gm of every square metre nursery area of pathogens. Such insecticides that are mixed in the dry soil @ 5 gm/m² are Furadon, Heptachlor and should be mixed for nursery preparation up to a depth of 15-20 cm. Supply the hot steam under the covered polythene sheet continuously for at least 4 hours and encourage the soil to be prepared for seed bed preparation.

PREPARATION OF NURSERY BED:-

Based on the seasons and crop, the nursery bed should be prepared where raised beds are prepared in the rainy seasons and flat beds are prepared for the winter and summer seasons. Prepare the soil mixture with a ratio of 1:1:1 of soil, sand and well-rotten FYM or leaf mould and fill the mixture with the raising structure of these seedlings so that it is easy to remove the excess water on the structure.

BEDS In ELEVATED NURSERY:-

A width of 1 m with a height of 15-20 cm is prepared from the ground level of the raised bed. Between two beds, an area of 30-40 cm is left and gradually it transforms to furrows. For fast drainage of the room, the nursery bed should be flat and slightly elevated in the middle relative to the margin. The bed should be prepared in the direction of east and west and the line on the beds should be made north to south.

CROP AND SEEDLING FIELD REQUIREMENT:-

The seeds and seedling raising areas can differ depending on the soil, crop, seasons and nursery raising techniques. The specifics are given below.

VEGETABLE	Seed rate (gm)	Area required (cm ²)
Tomato(hybrid)	200-250	75-100
Tomato (OP)	400-500	100-125
Brinjal	400-500	75-100
Chillies	500-600	75-100
Capsicum	400-600	100-150
Early flower	700-750	100-150
Mid late flower	400-500	100-150
Cabbage	450-500	75-100
Kohlrabi	700-750	100-150
Onion	8000-10000	500

SOWING OF SEED IN THE NURSERY:-

After the seed bed is set, the seed is sown in various forms in the nursery bed. Those techniques are as follows.

METHODS OF BROADCAST:-

In the prepared nursery bed, seeds are transmitted and later coated with well rotten fine sieved and handled FYM or compost on the seeds. The major disadvantage of this method is there is uneven distribution of seeds in the nursery becomes dense but this methods is the commonly used and practiced.

LINE SOWING:-

Line sowing is the best nursery sowing form. Lines are rendered at a distance of 5 cm from the line 1 cm wide, parallel to the width. Seeds are planted or placed separately at a distance of approximately 1 cm apart. Cover the seeds with the fine mixture of soil, sand and FYM in the ratio of 1:1:1 .After covering a light irrigation must be given with the fine rose can.

MANURING AND IRRIGATION:-MANURING AND IRRIGATION

In the soil used for seedbeds, an adequate amount of nutrients is usually not available. Well-rotten F.Y.M / manure and leaf mould are then applied to the soil. Fertilizers are needed before they are moved to the permanent place by rooted cuttings, layers or grafted plants. The use of fertilisers would provide a strong root and shoot system for stable and robust plants.

STEPS OF PLANT PROTECTION:-

For the efficient raising of nursery plants, the implementation of plant conservation measures is important well in advance and in a scheduled manner. Regular observation is important for better protection from pests and diseases.

REGULATION OF DISEASES IN SEEDBED:-

Damping off is the major disease of nursery stage plants." Strong sanitation conditions are important for its control. Preventive steps such as treatment are conducted with 50 percent ethyl alcohol, 0.2 percent hypochloride with calcium and 0.01 percent mercury chloride. These therapies are performed for 5 to 30 minutes. The following are some of the seed treatments:

- Disinfection: disinfection:

By using formaldehyde, hot water or mercuric chloride, the bacteria within the seed is removed.

- Hot water treatment: Dry seeds are placed in hot water for 10-30 minutes at a temperature of 480C-550C.
- Protection: Organo mercuric and non-mercuric compounds such as agallal, aretan-6, and tafasan-6 in dry seed treatment. The seeds inside the seed jar are shook for this reason. In the wet process, the seeds are soaked in liquid suspension for a certain time.
- Soil treatment: soil includes toxic fungi, bacteria, nematodes and even seeds of weeds that have an effect on plant growth and development. These may be extracted by heat and by chemical therapy. It disinfects the soil by heating it to a temperature of around 600C for 30 minutes.
- Chemical treatment: The products like formaldehyde, methyl bromide, chloropicrin, vapam are used. Also found are other diseases such as rust, powdery mildew, leaf blot, bacterial blight, yellow vein mosaic. Carbendazime, Redomil, can be used to manage these Bordeaux combination diseases. Tricoderma viride can also be tested out as a bio-fungicide.
- Weed management: Weeds compete for food, space and other essentials with plants, so timely weed control is important. The use of covercrops, mulching and use of pesticides (weedicides) is practised for pot control weeding. It is helpful to use pre-emergence weedicides such as baseline or post-emergence weedicides such as 2,4-D and roundup.
- Steps against cold and heat:
- The younger seedlings are vulnerable to intense sunshine and low temperatures. Shading with the help of a 1 metre high timber frame can be used to shield from heavy sunshine. The systems of the Nethouse and Green House can also be used.

NURSERY MANAGEMENT:—

Nursery plants need proper care and attention after either arising from the seeds or having been raised from other origins such as likeroostock or by technique of tissue culture. They are generally grown under the protection of Mother Nature in the open field where they should be able to face the local climate. It is the responsibility and primary goal of a commercial nursery grower to provide the nursery plants with sufficient conditions required for their growth and production. This is the main nursery management job that involves all such operations right from the emergence of young plants until they are fully grown up or are ready for the

main fields to be uprooted and transplanted.

PACKING OF NURSERY PLANTS:

Packing is the process or manner in which young plants are attached or held together before they are transplanted. They must also be packaged in such a way that they do not lose their turgidity and are able to build themselves on the new site. Around the same time, successful packaging guarantees their transplant effectiveness. Wooden boxes and plastic bags are used for carrying baskets. Banana leaves are also used in certain parts of the world to bundle the plants with their earth ball. For urban buses, this is helpful.

Control OF SALE:—

The biggest market for nursery plants in general is during the rainy season. A good policy for the selling of nursery plants can be followed. Flyers, hand bills, catalogue and recruitment of commission agents should be sought for this advertising in local daily newspapers.

RESTRICTION:-

- Lack of skilled workers and skilled jobs to perform nursery tasks
- Original nursery establishment and upkeep costs must be borne by persons who are deemed to be a risk-bearing operation.
- Chance of occurrence of damage to seedlings, pests and diseases
- Transplant shock that postpones growth but is not as severe on raised cells
- Compared to bare-rooted seedlings.

CONCLUSION:-

The production of vegetable nurseries has become a highly commercialised industry, in which most farmers purchase their plugs from experienced growers. Several variables help to grow better seedlings. These involve the use of high quality seeds, growing media with good drainage, water holding capacity, and providing optimum rates of fertility. In addition, seedlings are germinated under more or less optimum conditions to achieve uniform stands and are cultivated under greenhouse conditions in a safe culture. Under these conditions, the rate of plant growth, root structure, plant height and vegetative matter can be closely regulated. In order to help produce plant sizes that conform to strict specifications, container cell sizes should be changed to help produce plant sizes that conform to strict consumer requirements. The use of tray filling robotics in the production greenhouse and the mechanisation of both the planting and growing process, as well as the fertilisation of the tray and harvesting process, will further minimise the plug production system's labour requirements. With the advent of plug transplants, growers of several advanced crops have been able to dramatically reduce seed costs, improve standing uniformity and in many cases increase the yields and quality of the goods grown. In the future, several more crops, especially those of high economic value and potentially high seed cost, may be grown as seedling transplants.

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Bharathi C Sharmila, Mohan B, Alagudurai S

Krishi Vigyan Kendra, Veterinary College and Research Institute Campus, Namakkal-637 002 (Tamil Nadu)

Corresponding Author's Email: namakkalkvk@gmail.com

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(3.)

MODERN NURSERY RAISING SYSTEMS IN VEGETABLES

PANDIYARAJ P.1, YADAV RAJEEV KUMAR1, VIJAYAKUMAR S. 2 AND DAS ARINDAM1

1Division of Vegetable Crops, ICAR- Indian Institute of Horticultural Research, Bangalore, 560 089

2Division of Ornamental Crops, ICAR- Indian Institute of Horticultural Research, Bangalore, 560 089

*Corresponding Author: Email-pandiyaraj.p7@yahoo.com

(4.) VEGETABLE NURSERY RAISING TECHNIQUES

Dr. Narendra pratap singh

Director

ICAR Research complex for Goa

Ela, Old Goa -403 402,Goa(India)

Email : director@icargoa.res.in

(5.) Protected cultivation of vegetables in global arena:

NAVED SABIR¹ and BALRAJ SINGH²

Centre for Protected Cultivation Technology, IARI, New Delhi 110 012

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A Way for Enhancing Income

R.R. Singh , L.K. M and Paramveer Singh³

¹Department of Pomology, ²Department of Horticulture (Vegetable and Floriculture),

³Department of Horticulture (Vegetable and Floriculture), BAU, Sabour-813210,

Bhagalpur, India

