



AGRI MAGAZINE

(International E-Magazine for Agricultural Articles)

Volume: 03, Issue: 02 (February, 2026)

Available online at <http://www.agrimagazine.in>

© Agri Magazine, ISSN: 3048-8656

Protray Nursery Technology: Transforming Modern Horticulture

*Ms. R. Kaviya, Dr. B. Guna, Dr. R. Mahalakshmi and Ms. M. Banupriya
Nalanda College of Agriculture, M. R. Palayam, Trichy, Tamil Nadu, India

*Corresponding Author's email: baluguna8789@gmail.com

Protray nursery technology, also known as plug tray cultivation, is an innovative method of raising high-quality seedlings in cellular trays. This technique is an eco-friendly and efficient alternative to traditional soil-bed nurseries, making it a cornerstone for sustainable vegetable and flower production.



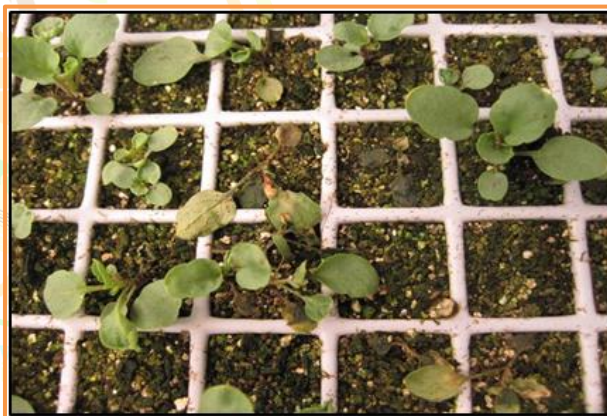
Problems Faced in Traditional Nurseries

Low Germination Rates: Seeds sown directly in soil often suffers from poor germination due to uneven moisture.

Soil-Borne Diseases: Traditional beds are prone to pathogens like damping-off, which destroy young plants.

Transplant Shock: Pulling seedlings from the ground damages the root system, leading to high mortality after planting.

Resource Waste: High seed rates are required, and water/fertilizer management is difficult to control.



Possible Solutions

Protrays provide a controlled environment for each individual seed, ensuring 90-100% survival rate. It uses a soilless medium (like Coco-peat), which is sterile and nutrient-rich.

PROCEDURE FOR PROTRAY NURSERY

Step 1: Medium Preparation

- Use sterilized Coco-peat as the primary growing medium.
- Mix with Neem cake or Trichoderma to prevent fungal infections.

Step 2: Filling and Sowing

- Fill the plastic protrays (usually 98 or 104 cells) with the moist medium.
- Sow one seed per cell at a depth of 0.5 cm to 1 cm.

Step 3: Stacking and Germination

- Stack the filled trays and cover them with a plastic sheet to maintain humidity (60-70%).
- Keep them in a dark, warm area until seeds sprout (usually 3-5 days).

Step 4: Nursery Management

- Move trays to a shade net house (ideal temp: 25-30°C).
- Water daily using a fine rose can or misting system.
- Apply water-soluble fertilizers after 15 days for better growth.

Step 5: Hardening and Transplanting

- Before planting in the main field, reduce water for 2-3 days to "harden" the seedlings.
- Seedlings are ready for transplanting in 25-30 days.



Benefits

- **Healthy Root System:** Develops a "root ball" that prevents transplant shock.
- **Uniformity:** All seedlings grow at the same rate, ensuring a uniform harvest.
- **Cost-Effective:** Saves expensive hybrid seeds and reduces labor costs.
- **Easy Transport:** Trays can be easily transported over long distances without damage.

Conclusion

Protray technology is a sustainable and profitable approach for farmers to ensure a strong start for their crops. By adopting this method, farmers can achieve higher yields, reduce waste, and contribute to a greener agricultural future.

References

1. ICAR-IIHR (2021). Production of Quality Seedlings Lead to Prestige and Prosperity. Indian Institute of Horticultural Research, Bengaluru, Karnataka.
2. ICAR-CIWA (2022). Pro tray seedling production technology for vegetable and flower crops. Central Institute for Women in Agriculture, Bhubaneswar, Odisha.
3. Pandiyaraj, P., et al. (2017). Modern nursery raising systems in vegetables. International Journal of Agriculture Sciences, Volume 9, Issue 52.
4. Bharathi, C.S., Mohan, B., and Alagudurai, S. (2014). Raising of hybrid vegetable seedlings under protrays. Journal of Krishi Vigyan, 2(2): 64-68.
5. Yadav, K.S. and Bajpay, A. (2019). Nursery pro-trays and its importance in horticulture. The Journal of the Greens and Gardens, Volume 01, No. 02.