Accessibility of the practice

- This practice is **accessible to everyone**
- No specific level of education is required
- There are no gender or age-related barriers

Advantages of the practice

- **Protects seedlings** during their vulnerable early stages
- **Shortens the crop season** by reducing germination and growth periods, allowing for an increased soil use index
- Promotes **stronger root development** within the substrate, enhancing adaptation to unfavorable weather conditions, particularly during the summer
- Ensures even growth of plants
- The method is applicable to **no-till soil**

Points of attention

Dried buffalo or cow manure is recommended as a substrate in trays to effectively retain moisture during hot summers. Additionally, farmers should use black shade cloth for coverage and sprinkle water two to three times daily (morning and afternoon) to maintain moisture levels and regulate temperature within the nursery.

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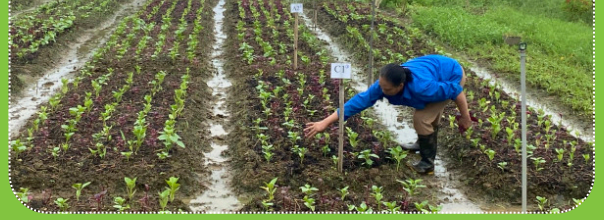

FARMERS TESTIMONIES

Mrs. Nguyen Thi Duong from Dong Suong organic agriculture cooperative - Hoa Binh province

"Raising seedlings in a nursery offers several advantages:

- Simplified seedling care and covering
- Reduced labor for tray movement during transplanting
- Lower plant death risk in hot, rainy summers

Previously, I sowed seeds directly into the soil, which necessitated digging them up for transplanting—a time-consuming process. When I started planting seedlings in the nursery, I noticed the plants were much healthier, with nearly 100% survival rate post-transplantation."

Mrs. Vu Thi Nhan from Thanh Thuy organic group – Hanam province

"Previously, I would till the soil and sow seeds directly into soil beds, which left seedlings vulnerable to unfavorable weather, insects... Rain or intense sunlight could easily damage the plants. However, after adopting the nursery-raising method, I observed that the plants were significantly stronger, particularly the green mustard."

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ALiSEA
AGROECOLOGY LEARNING ALLIANCE IN SOUTH EAST ASIA
CARES
FCRI

A TECHNICAL GUIDE
Growing Seedlings

Location

- **Vietnam -** Ha Nam Province - Duy tien District - Trac Van Commune - Le Thuy Village

Agroecological system

Zone	**Plain**
Activities	**Vegetables**
Climate:	**Humidd tropical monsoon rainy season: May to October**
Rainfalls	**1700 mm/year**
Temperature	**Avg max: 31.2°C - Avg min: 17.3°C**

How is this technical beneficial or effective?

Nursery practices for cultivating healthy seedlings constitute an agroecological practice that yields several advantages :

- **Reduced input costs:** Nursery practices produce seedlings at a lower cost than purchasing them from input suppliers.
- **Decreased labor for weed control:** Healthy seedlings with well-protected roots can be transplanted under unfavorable conditions, reducing weed competition for nutrients and light.
- **Utilization of locally available raw materials:** Decomposed cow manure and rice husks are used.

STEP 1: PREPARE THE SUBSTRATE

- Decomposed cow/buffalo dung is an effective nursery substrate.
- Additional rice husk can be added and mixed to cattle dung (1:2 ratio) if dung is insufficient.

STEP 2: MANAGE THE TRAYS

- Fill the trays with the substrate, ensuring the cells are evenly leveled
- Stack the trays firmly one on top of the other, press them firmly, and then place them on a rack

This process will (i) encourage seedling roots to bind tightly within the cells, preventing them from penetrating into the soil below and (ii) enhance seedling resistance and growth during transplanting, minimizing root breakage.

Position trays 10-20 cm above ground, or up to 80 cm, depending on plant type. For instance, spinach, tomatoes, and amaranth can be placed at 10-20 cm. However, leaf mustards should be positioned 80 cm above ground to protect against insect damage (e.g., beetles).

STEP 3 : WATERING

- Moisten the substrate thoroughly before sowing seeds
- Ensure the substrate is evenly moistened to the bottom of the tray

STEP 4: SOWING SEEDS

- Select the appropriate sowing depth based on seed size. For example 1 cm for Malabar spinach, gourds, and cucumbers ; 0.3-0.5 cm for amaranth, tomatoes, and species of the Solanaceae family.
- Cover the seeds with a mixture of substrate and rice husks.

STEP 5: POST SOWING CARE

- Water trays daily for seed germination and seedling growth
- Cover with bamboo arches to protect from rain
- Transplant seedlings when roots encircle the rootball