Figure 4: Filling of seedling trays with coco-peat

Figure 5: Farmers planting seeds into the plastic tray

Figure 6 : Seedlings with a healthy root

METHODOLOGY

A. FILLING AND SOWING

- After procuring materials, hydrate the coco-peat by submerging it in water for 25-30 minutes
- Mix 5-10 grams of Trichoderma per kilogram of coco-peat to create a growing medium, and use it to fill the trays
- Plant one seed per cell at a depth of 1.5 cm
- Cover the trays with plastic sheet to conserve moisture until germination until germination, which should occur within three to six-days
- Spray water soluble fertilizer and micro-nutrients twice:
  – 12 days after sowing,
  – 20 das after sowing.
- The growing medium should be kept moist throughout the growing period. Be careful not to over-irrigate, which could lead to leaching and fungal attack.

B. HARDENING OF SEEDLINGS

- When seedlings are large enough to be transplanted (usually 21-42 days), they are "hardened", which is accomplished by withholding water and increasing their exposure to sunlight to prepare them for a less nurturing environment.
- During this phase, keep the seedlings under the net house to protect seedlings from insect pests

ADVANTAGES

- Higher seedling germination (90-95%) and a 16-21 percent yield increase
- The drainage provided by coco-peat means fewer diseases and less frequent watering than most traditional potting mixes
- The pH of coco-peat is 5.0-6.8; which means neutral to slightly acidic; this makes it great for alkaline garden soils.
- Coco Peat has the ability to store and release nutrients to plants for extended period, and the superior oxygenation properties encourage healthy root development
- Calcium and magnesium, and especially potassium, are part of coco's make up(all essential nutrients for tomato seedling growth)
- Plastic trays are very handy for moving the seedling plants during trasportation

PRECAUTIONS

- Before uprooting, the seedlings should be irrigated to facilitate easy removal and minimum root damage.
- Never over-irrigate, it may results in leaching and fungal attack.

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Factsheet

Growing Nursery Using Plastic Trays and Coco-peat

Figure 1 : Tomato seedlings under plastic trays

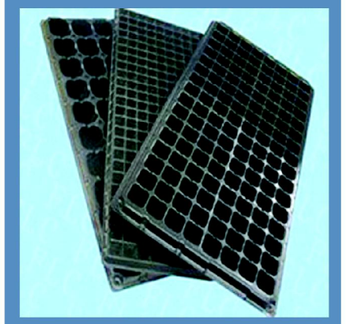

Figure 2 : Plastic Trays

Figure 3 : Coco-peat: In Nepal are usually found in the form of bricks

SEED HEALTH IS A TREMENDOUS CHALLENGE IN DEVELOPING COUNTRIES LIKE NEPAL. Farmers are often unaware that unless they sow clean seeds or seedlings from accredited nurseries, they may be planting a virus or disease along with the seed itself. Many of the most pernicious bacterial and fungal diseases live in soil, and almost fifty percent of soil-grown seedlings are lost to diseases. Additionally, a diseased plant passes its infection onto its seeds.

BUT, FARMERS CAN SALVAGE THEIR CROPS.
Growing seedlings in plastic trays and using coconut dust (coco-peat) as potting mixture can bypass infection and result in disease-free seedlings, which mean healthier plants in the field. Vegetable nurseries are gradually switching from open-field nurseries to protected raised bed or plastic tray productions, targeted specially for the nursery growers and commercial farmers.

MATERIALS REQUIRED :

A. PLASTIC TRAYS

- Plastic trays hold shallow cells where seeds can be directly sown into the coco-peat potting soil to remain warm and well-ventilated
- The soft plastic material facilitates safe seedling removal
- Trays can be re-used up to six times depending on handling and quality
- The capacity of seedling trays varies from 221/98 tomato seedlings and 50 cucumber seedlings.

B. GROWING MEDIA

- Coco-peat is used as a media for the germination of the seeds.
- It provides a relatively sterile environment compared to soil
- Their lightweight cellulosic structure allows the roots of a seed to establish by themselves and has 6 times water holding capacity to its weight.
- Other recommended media are coco-peat+ vermi-compost or vermi-compost + sand or soil loam + FYM in equal proportion with Trichoderma added to prevent fungal diseases.