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Use of Portray and Container for Quality Planting Material of Horticultural Crop Production

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Introduction:

The Protray nursery represents an innovative approach to enhance the production of high-quality vegetable seedlings. In this method, seedlings are cultivated under shade net, resulting in improved germination rates, robust appearance, and protection against pests and diseases. These seedlings develop well-established root systems within a span of 25-30 days. The advantages of employing the protray nursery technique are numerous, including the production of pest-free and superior-quality seedlings, individualized areas for each seed, enhance seed germination, optimal root development, reduced mortality due to damping off disease, promotion of uniformity, health, and early maturity in the seedlings (Bharathi *el al*; 2014). Furthermore, the protray nursery method facilitates convenient handling, cost-effective transportation, and successful main field establishment with a strong crop stand. This technique proves particularly beneficial when dealing with expensive hybrid seeds, as it effectively minimizes seed wastage, thus contributing to overall cost reduction (Mathers, 2002). When selecting appropriate growing containers, greenhouse owners take into account various factors such as plant growth characteristics (height, width, shape) and root space requirements. Additionally, the choice of container size may vary based on the target market, with retail operations typically opting for larger pots compared to wholesale businesses.

Seedling Trays:

Seedling trays are also called as pro-trays (propagation tray) or flats, plug trays or jiffy trays. The dimensions of the trays generally are 54.0 cm in length and 27.0 cm in width and

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cavity depth is 4.0 cm. These trays are made of polypropylene and re-usable. Life of the tray depends on the handling of the seedling trays. Seedling trays have been designed in such a way that a sapling gets a pre-calculated growing media and the right amount of moisture. The trays have pre-punched holes to each cavity for proper drainage of excess water and also right spacing.

Basic Types of Containers

Various types of containers are available for specific purposes. Rooting containers are usually made from peat, an organic material. Peat pots are filled with growing media. Peat pellets are self-contained growing units that expand when watered. Seeds and cuttings are pressed directly into the pellet; no additional growing medium is required. When the plant develops, the pellet is transplanted into the soil. Peat strips are containers made up of 6-12 square peat pots that are joined together, forming an individual unit. Plants are grown in each pot. Figure 4.5 illustrates three types of rooting containers made from peat. Rooting containers also can be made from plastic flats, metal flats, plastic foam cubes, or rock wool fibers.

Bedding plant containers, made of plastic, produce essential crops for the retail greenhouse owner. Multicell packs, typically containing 36, 48, or 72 cells per flat, are usually used to produce spring flowering annuals. See Figure 4.6 as shown above. Plant packs usually contain one to six cells per unit and six to eight units per flat. Most bedding and garden vegetable plants are grown in these containers. Individual pots, usually made of plastic, come in assorted sizes; 2-4 inches is the most common. These pots are used to produce larger bedding plants. Foliage and flowering plant containers range from 2 to 12 inches or larger. The width and depth of standard pots are equal. This type of pot is best for plants that are not top heavy. The height of an azalea pot is 3/4 of its width, making it ideal for shorter plants with spreading foliage. Its wide base provides stability for top-heavy plants. The height of a rose pot is 1 1/2 times its width. It is ideal for plants with large, deep root systems. In a bulb pan, the width is twice the depth and is best for shallow-rooted plants. Hanging baskets are suitable for many types of plants, especially those whose foliage drapes over the container, such as English ivy.

Material of these pots.

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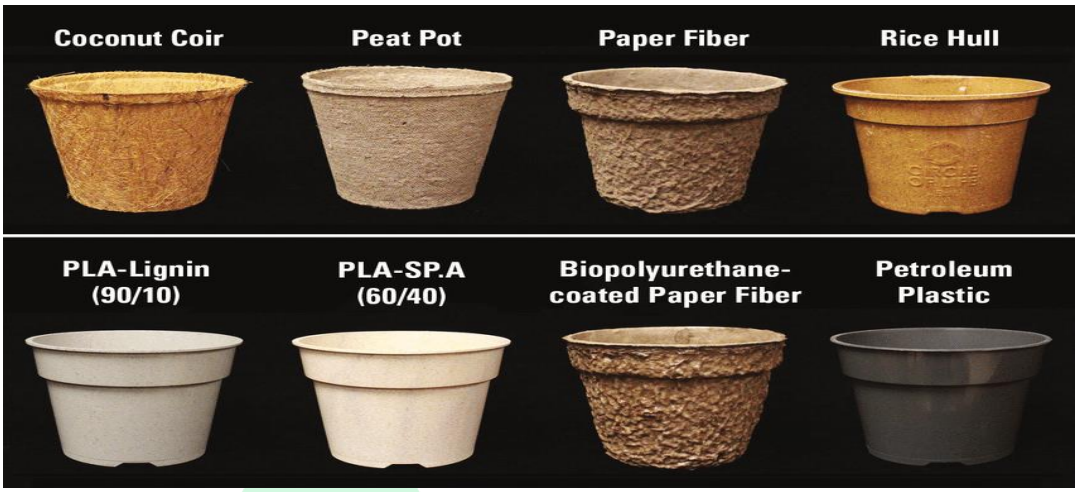

Common Materials for Growing Containers

Plastic is the most common material used for plant containers. Round plastic pots, grouped together, effectively circulate air. Square containers maximize space efficiently; the greenhouse owner can group them close together on benches. However, less air circulates among square pots, which can lead to diseased leaves. Plastic containers offer several advantages. They are lightweight, making lifting and shipping easy, and inexpensive. New plastic pots are sterile and can be used immediately; used containers must be sterilized with liquid chemicals. Plants grown in plastic containers are less likely to have fertilizer residue or algae buildup and require less watering. Finally, these containers come in a wide selection of sizes, shapes, and colors. But there are some disadvantages to using plastic. The first problem is that they are not porous, which means that the material does not "breathe." As a result, the root system has less aeration and the growing medium can become waterlogged. Another drawback is that plastic containers can crack and become brittle with age. (Anonymous; 2003). Also, using plastic pots presents an environmental concern of how to dispose of them in a responsible manner. For centuries, clay has been used as a plant container. It is porous; aeration and gas exchange between the plant and the environment optimize growth. Clay pots drain very well, which prevent the growing medium from becoming waterlogged. They are also sturdy, less likely to tip, durable, and can be steam sterilized and reused. The disadvantages are that plants dry out faster and require watering more frequently. Fertilizer residue and algae accumulate in clay pots. In addition, they are heavy to lift and ship, and they break easily. Clay pots also tend to be relatively more expensive than plastic or peat pots. Peat pots are made from peat moss that is pressed into sheets and formed into shapes. Seedling roots grown in peat pots

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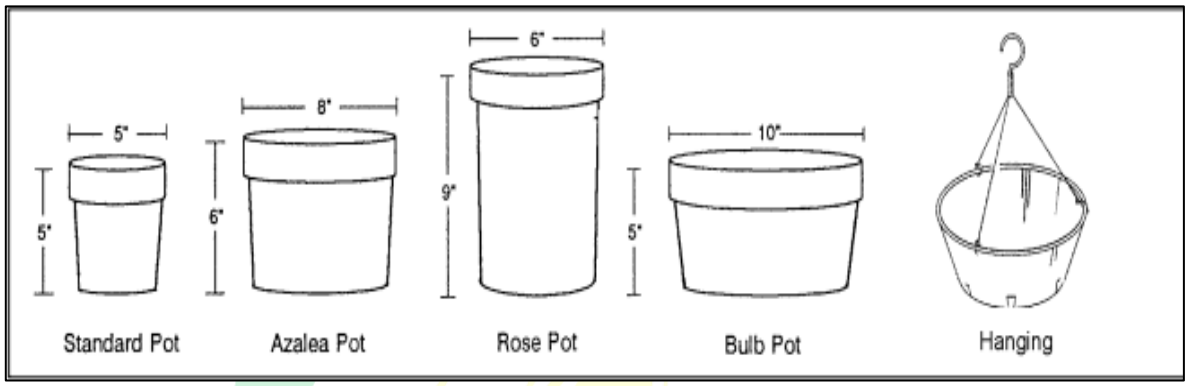
penetrate directly through the container into the soil. The entire peat container can be transplanted into the soil, thereby reducing stress and lessening damage to the roots. Unfortunately, peat pots do not last very long and they can dry out quickly and become difficult to rewet.

Shape of container:



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