

A Hand Transplanter For Small Containerized Seedlings

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Abstract.

A hand transplanter for small container plant seedlings is described. The device makes a hole in the ground, spaces the plants, allows the seedlings to be planted and pushes soil around the root block; all of this is accomplished from a standing position.

Advantages of the container transplanting system include savings of water, fertilizer, pesticides and thinning costs (1). For these and other reasons many researchers and small area growers either transplant or would like to transplant containerized seedlings rather than direct seed. Unfortunately, the unavailability of an inexpensive mechanical transplanting system means that the operator must stoop over to transplant the seedlings by hand. This, of course, discourages the adoption of the container system by many growers.

This paper describes a simple, inexpensive transplanter that eliminates the need to stoop over when transplanting containerized seedlings.

A picture of the transplanter is shown in Figure 1. The operator locates the transplanting tube over the cavity in the soil created by the soil hole former in the previous operation. A containerized seedling is dropped through the tube and falls into the cavity. The operator presses the tool straight downward about 8 cm (the optimum depth will vary according to the type of container); this causes the soil press trowels to push soil firmly around the root block and a new hole is simultaneously formed by the soil hole former. The entire operation requires less than 2 seconds. The plants will always be evenly spaced because the tool has a fixed distance between the transplanting tube and the soil hole former.

This tool can be most efficiently operated if one person carries the seedling tray and feeds seedlings into the transplanting tube while the other person operates the transplanter.

Sizes of transplanter components vary according to the size of the container transplant. A transplanter for containers up to 3 cm diameter is described. The basic framework is 81 cm wide x 34 cm wide but this may be altered if a different height or plant spacing is desired. It

consists of 2.5 cm schedule 40 PVC pipe connected by tees to a 3.8 cm diameter schedule 40 PVC transplanting tube. The tees are fit over and glued to the 95 cm long transplanting tube; this allows the tube to be continuous and free from interior obstructing edges. A handle assembly consists of a 30 cm long x 2.5 cm diameter schedule 40 PVC pipe glued into a tee which fits snugly over but is not glued to the transplanting tube. This allows the operator to place the handle into whichever position is comfortable and also the handle can be folded away for easy storage. The soil hole former consists of an inverted pyramid (5 cm sides at its upper base x 8 cm depth) made of reinforced, high strength concrete. A 5 cm length of 2.5 cm PVC pipe extends from within the concrete pyramid and conveniently fits into the tee at the base of the PVC basic frame. The soil press trowels consist of 2 quarter angled, trowel shaped steel blades (16 gauge) located directly opposite each other. The blades angle outward 45 degrees and are 7.5 cm long. Each soil press trowel is attached to the tee on the transplanting tube with a stainless steel hose clamp.

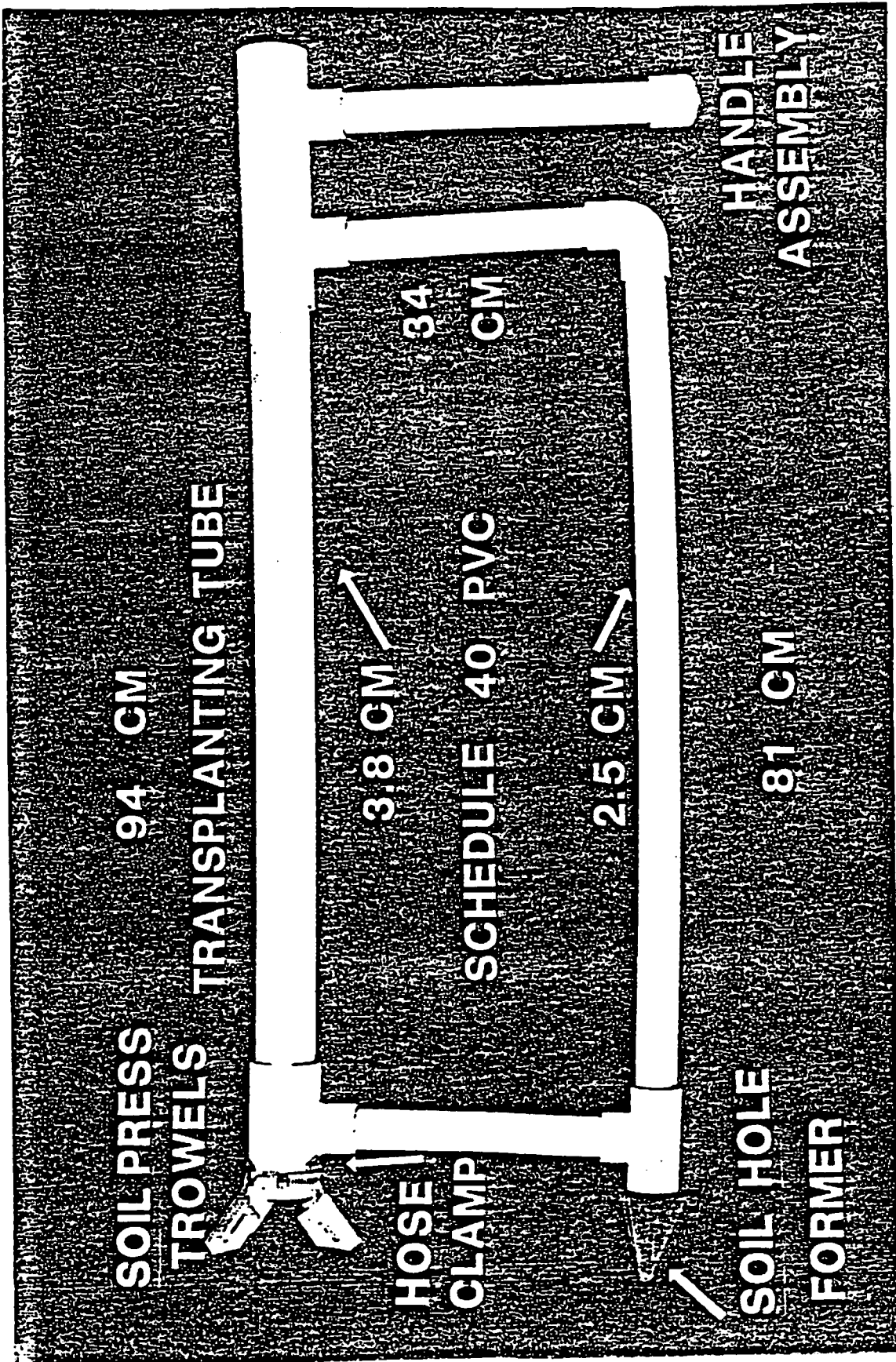
Lumpfree, moist soil conditions are ideal for the operation of this tool. Dry soil conditions cause the soil cavity to fill in with soil before the seedlings are planted. Lumpy and rocky conditions interfere with the performance of this tool but these situations can usually be avoided because the tool is hand-guided.

We feel that the use of this less strenuous transplanting technique will greatly encourage the adoption of the container transplanting system by small area plant growers.

This transplanter also works effectively as a seeder for large seeds such as corn and beans and plants small tubers and bulbs.

Reference

1. Bowen, J.E. and B.A. Kratky. 1981. Container transplants--innovation in vegetable production. *World Farming* 23:86-93.



Hand Transplanter