

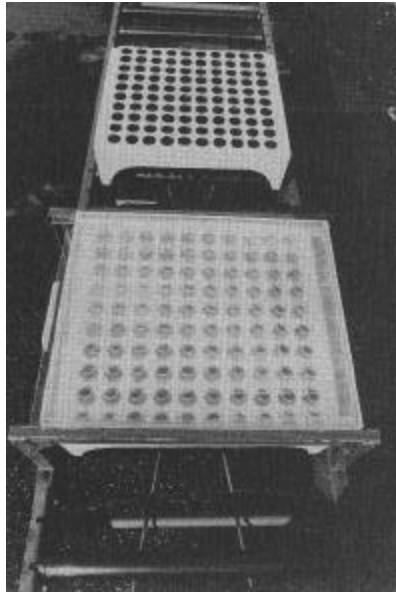
## A NEW MANUAL SEEDER FOR ROUND SEEDS

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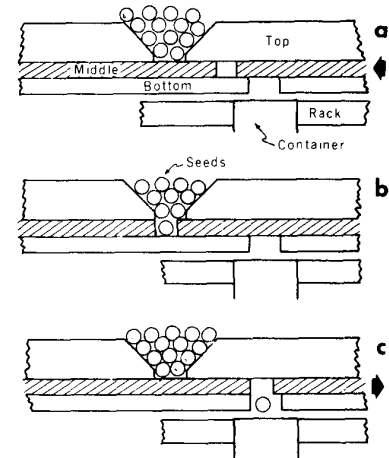
Seeding of containers for nursery plantings must be done efficiently, accurately, and precisely. A number of devices have been designed to accomplish this, ranging from sophisticated automatic vacuum seeders to simple manual ones. We have developed a simple manual seeder (fig. 1) that sows *round* seeds just as well as most sophisticated seeders. Our seeder is easier to operate than other manual type seeders because it does not have to be picked up. The seeder, designed for sowing into Hawaii Dibbling Tube containers, can be adapted for use with different types of containers. As constructed, it requires a specific size seed, but it can be easily adapted to handle other sizes of round seeds as well.

The seeder consists of a frame that holds three plates above a rack of containers. Our racks hold 100 containers. The plates are made of plexiglass. The top plate is one-half inch thick to provide deep storage holes for seeds, and has a 1/2 -inch-high rim around it, to keep the seeds from falling off. The middle plate is about the same thickness as the diameter of the seeds. The bottom plate is about one-fourth of an inch thick. The holes in all three plates have the same arrangement as the containers in the rack, but are of different sizes. The top and bottom plates are held in a fixed position so that their holes do not line up (fig. 2);



**Figure 1.**—The manual seeder pictured here sows pelletized *Eucalyptus saligna* seed in Hawaii Dibbling Tube containers. A rack holding 100 containers has been rolled under the seeder, and the middle plate has been adjusted to receive seeds from the top plate. The middle plate will then be moved so that one seed drops into each container.

the middle plate slides between. The diameter of the holes varies with the size of the seed. We have found that the holes in the top and bottom plates should be at least 2.5 times the diameter of the seed. The holes in the top plate are countersunk, as shown in figure 2, to concentrate the seeds in the proper places. Holes in the middle plate are just slightly larger than the seeds. Beveling the top edges of these



**Figure 2.**—Schematic of the operation of the manual seeder: (a) Holes in the top plate are filled with seeds; (b) the middle plate is moved so that holes are aligned with holes in the top plate, and seeds drop into the holes; (c) the middle plate is moved so that the holes in it line up with the holes in the bottom plate, and seeds fall into the containers.

holes reduces the chance of damaging seeds as the plate is moved back and forth.

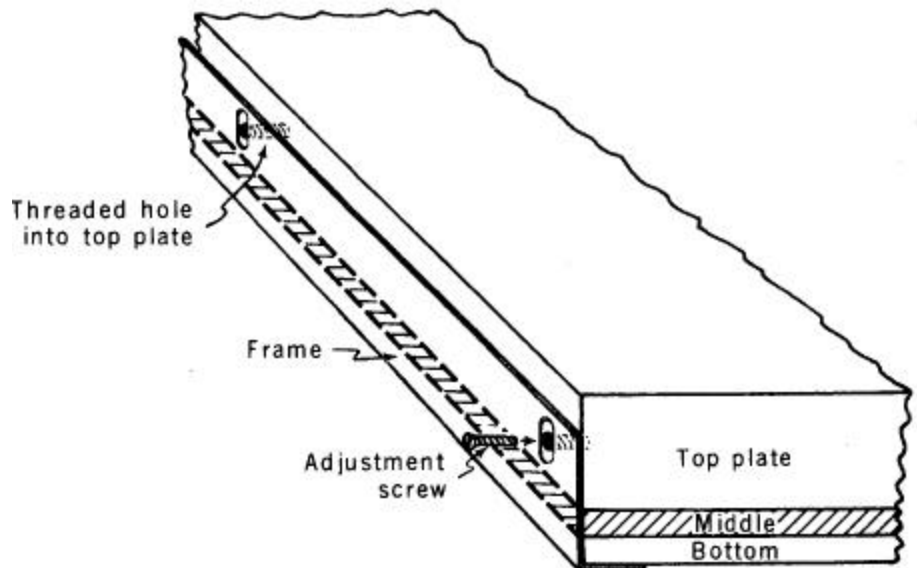
For the sowing operation, seeds are placed on the top plate, and a rack of containers is placed underneath (fig. 2a). The middle plate slides so that the holes in it line up with the holes in the top plate. When the holes in the two plates are lined up, a seed falls into each hole (fig. 2b), because movement of the middle plate

causes agitation of the seeds in the top holes. When the holes in the middle plate are lined up with the holes in the bottom plate, the seeds fall through to the container (fig. 2c).

A sowing cycle of placing a rack of containers under the seeder, sowing the seeds, and removing the rack requires about 15 seconds.

Sowing more than one seed per container is accomplished by sliding the middle plate back and forth. Each reciprocation of the middle plate drops one seed into each container.

It is important to use round seeds of uniform size. Seeds larger than the holes in the middle plate will not drop in and thus will not be sown. Conversely, if the seeds are too small, more than one seed may drop into the hole in the middle plate. Then either two seeds may be sown, or the hole may jam, thus preventing any seeds from being sown. Flat or bean-shaped seeds cannot



**Figure 3.**—Schematic of a method of adjusting the top plate to allow for different middle plate thicknesses. To move top plate up or down, loosen the adjustment screws, move the top plate to the desired direction, and then tighten the adjustment screws.

be sown with this seeder.

The same basic seeder can be used for different sizes of round seeds. A different middle plate is required because the thickness of the plate should be about the

same as the diameter of the seed.

The top plate must be adjustable up or down to allow for different middle plate thicknesses. Figure 3 illustrates one method of top-plate adjustment.