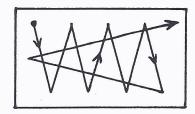
OPERATING INSTRUCTIONS FOR THE BERRY PRECISION SEEDER

- 1. The seeding system should be set up as shown on the second page of our color brochure under the heading *THE COMPLETE SYSTEM*. The valves are in the rear and the vacuum hose is connected on the right. While in this position, the valve on the operator's right hand side is the on/off valve. It is used to cut on and off the air flow from the seeder body to the vacuum. The valve on the operator's left hand side is the vacuum by-pass valve. Adjustment of this valve controls the vacuum level in the seeder body or the force holding the seeds onto the plate. The two valves are used in conjunction to properly hold the seed in place until they can be deposited into the cells of the growing tray. Basically, you are just trying to hold on to the seed with just enough force to overcome gravity.
- 2. To begin the seeding process, first turn on the vacuum and open the on/off valve. Always open the on/off valve prior to sprinkling seed on the seeder plate!! This minimizes doubles or more than one seed per cell. Sprinkle the seed in one of the corner areas of the plate. A large amount of seed is not required, however, the more that are placed on the plate, the shorter the time required for moving the seed about the plate in order to fill each hole. With some types of seed, large amounts of seed on the seeder plate may increase multiples. Make a side-to-side shaking motion while slowly tilting the seeder forward and backward. Try to keep the seeds moving at all times. Seeding can be done most efficiently if the seed are moved about the plate in patterns. For example:



By moving in consistent patterns, the seeding efficiency can be significantly increased over random movements. Also, by moving the seed in a predictable manner, less attention has to be paid to filling the individual holes with seed. Next, move the seed to the back edge of the seeder plate prior to discarding the excess seed into the excess seed dumping tray. From this point, there are a number of things that can be done to enhance singulation depending on the type of seed and desired singulation accuracy. Most methods involve making some type of tapping motion.

- a) THE FIRST TAPPING MOTION INVOLVES HOLDING THE SEEDER IN THE POSITION SHOWN IN FIG. 4 AND TILTING THE SEEDER FORWARD ABOUT 10 DEGREES. LIGHTLY TAP THE BACK BOTTOM EDGE OF THE SEEDER BODY ON THE PLASTIC BUMPERS ON THE EXCESS SEED DUMPING TRAY HOLDER. CONTINUE TAPPING WHILE GRADUALLY TILTING THE SEEDER TO ABOUT 45 DEGREES.
- b) THE SECOND TAPPING MOTION INVOLVES HOLDING THE SEEDER IN THE POSITION SHOWN IN FIG. 6. RAISE THE SEEDER ABOUT AN INCH (3 CM) AND MODERATELY HIT THE BACK EDGE ON THE PLASTIC BUMPERS WHILE HOLDING THE SEEDER BODY SLIGHTLY FORWARD SO THE FALLING EXCESS SEED DO NOT HIT THE SEED BELOW THEM AS THEY FALL.
- c) THE THIRD TAPPING MOTION INVOLVES HOLDING THE SEEDER IN THE POSITION SHOWN IN FIGURE 5. REST THE BACK EDGE OF THE SEEDER BODY ON THE PLASTIC BUMPERS AND TILT THE SEEDER SLIGHTLY FORWARD. WITH A SCREWDRIVER HANDLE OR SIMILAR DEVICE, TAP ALONG THE TOP EDGE OF THE LIP OF THE ALUMINUM SEEDER PLATE. THIS TAPPING IS TRANSMITTED TO THE SURFACE OF THE SEEDER PLATE AND CAUSES A VERY CONTROLLED RESONANCE OR VIBRATION ON THE SURFACE OF THE SEEDER PLATE.

Method c) is the most precise method but requires the most time. **Method b)** is the quickest and is best used with highly uniform or pelleted seed. **Method a)** will work well with most seed and can be combined with **methods b)** and **c)**. Finally, tilt the seeder forward (fig. 6) approximately 10 to 15 degrees and make a quick side-to-side movement. This removes any seed remaining on the back edge of the seeder plate.

- 3. After the seed are in position on the seeder plate, the seeder can be checked for misses by viewing the back of the seeder body and looking for "Lighted Holes" while moving the seeder body in front of the flourescent light. This is particularly useful when you are first learning to use the seeder and helps you move the seed about the tray in a proper pattern. Note that this "Light Scanning" technique is also quite useful when checking for clogged holes.
- 4. Next invert the seeder onto the growing tray (Fig. 7 and 8). The angled edges help to center the plate properly on the tray. Rap the back of the seeder body with your knuckles.

5. VALVE ADJUSTMENTS:

Note two generalities: Small, light seed require very little air flow. Larger, heavier seed require greater air flow. Small, light seed require very little vacuum pressure (Bypass valve more open.) Large, heavier seed require more vacuum pressure (Bypass valve more closed).

EXAMPLE 1: When seeding raw petunias, adjust on/off valve so it will only open approximately 3/16 inch (0.5 cm) and adjust the vacuum bypass valve so it is almost completely open.

EXAMPLE 2: When seeding graphite coated marigold seed, adjust the on/off valve so it will open 2/3 of the way open. (It is never necessary to open the on/off valve greater than 2/3 of the way open for any seed). Adjust the vacuum bypass valve so it is almost completely or is completely closed.

- 6. Normally most people have some initial difficulty with the seeder for the first 10 to 15 minutes. Then they rapidly learn to use the seeder successfully. The most important thing to remember is to set up the seeder as indicated in the instructions and follow the instructions. We are always available to answer any questions.
- 7. Because of the irregularity of some seed, it is impossible to achieve 100% singulation of seed. Typically, the most accurate seed are highly uniform or pelleted. Some of the most difficult raw seed to singulate are tomato, pepper and marigold seed. With these seed, 80 to 85% singulation is considered normal.
- 8. Excess multiples or lodging (sticking) of the seed in the holes can normally be attributed to having too high air flow, having too little vacuum bypass (high vacuum level), or both. Excess misses can normally be attributed to having too low air flow, having too much vacuum bypass (low vacuum level), or both. Excess misses can also be attributed to not moving the seed about the plate properly or excessive tapping of the seeder to eliminate multiples.
- 9. The seeder plates should be kept clean with Windex or similar cleaner. The holes can be cleaned, if they become clogged, with the orifice cleaner. Be sure not to use too large a cleaner in the holes or damage to the plate may occur. Baby powder can be used to prevent small seeds from sticking to the edges of the seeder plate and to the plastic excess seed dumping tray.

BERY SEEDER COMPANY 1231 SALEM CHURCH ROAD ELIZABETH CITY, NORTH CAROLINA, USA 27909

PHONE: (252) 330-2227 or (800) 327-3239 FAX: (252) 330-2343 Berryseeder.com

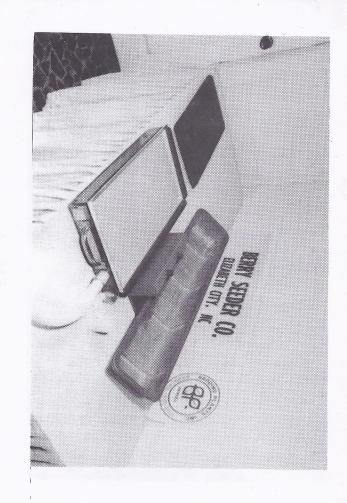


FIG. 1

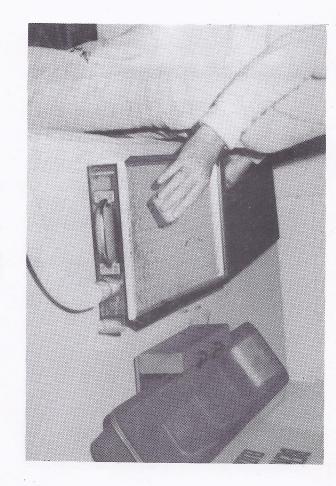


FIG. 2

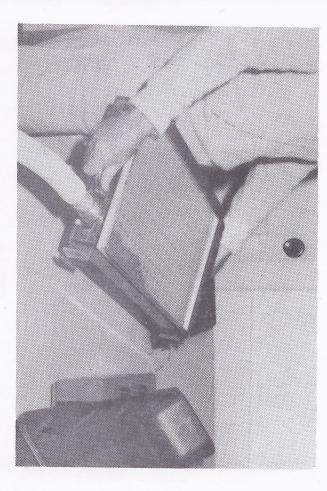


FIG. 3

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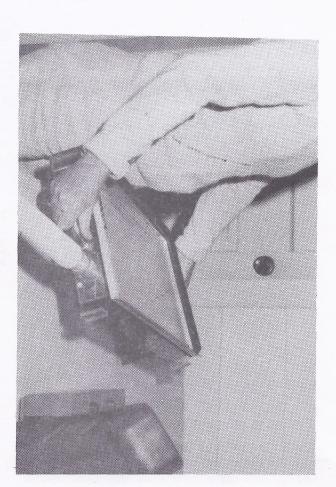


FIG. 4

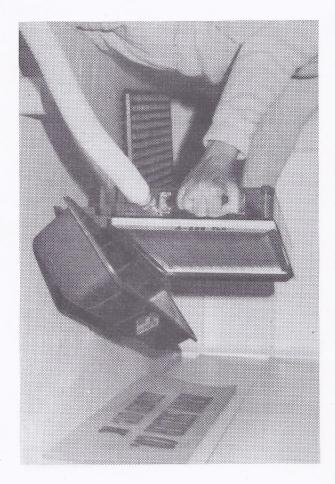


FIG. 5



FIG. 6

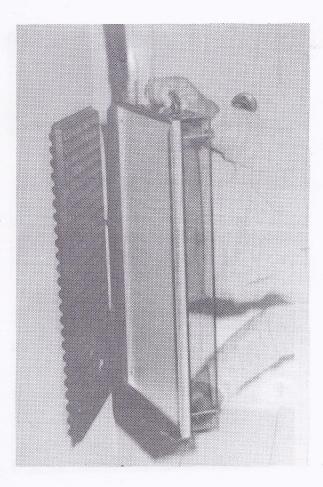


FIG. 7

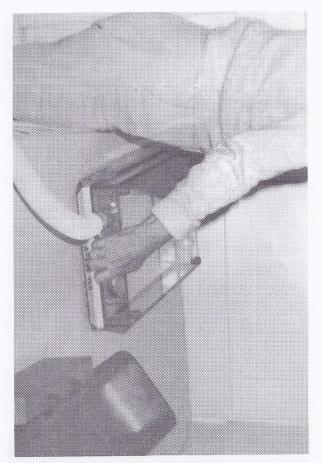


FIG. 8