A TECHNIQUE FOR INSTALLING PLANT ISOLATION CHAMBERS

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A NUMBER of different types of isolation chambers are used in plant breeding work, and each has its particular merits and meets a specific need. For biosystematic studies in the genus *Agr.opyron* it was necessary to isolate whole clones of grasses so that the percentage of selfed seed could be determined for strains and species. This need led to the development of an isolation chamber (Figure 1a) which was adequate for this purpose and which may be used to advantage by other plant breeders.

The principal components of the isolation chamber are a metal basal cylinder, a wire framework, and a cylindrical cloth sock (or sleeve) which fits over the wire framework and is secured to the metal base. The base cylinder (Figure 1b) is made of 20-gauge galvanized sheet metal, 24 inches in diameter, and 10 inches in height. The top of the base cylinder is rolled over eight gauge steel wire to form a lip for holding the sock. This rolled top also lends a considerable amount of strength to the base. The bottom is left as cut, rather sharp, so that it can be easily pushed into the soil around the plant to be isolated (Figure 1c). It should be pushed into the soil to a depth of 4 to 5 inches.

After the base cylinder is in place three 8-gauge steel wires are cut to form the framework for the sock. The 2 ends of each wire are pushed into the ground, 180° from each other, to a depth of about 10 inches. The 3 wires, forming 6 legs, are equally spaced just inside and in contact with the metal base cylinder. After the framework is in place, the 3-way cross at the top should be wired tight enough to prevent any slipping. The set-up framework is shown in Figure 2a. When the chamber is no longer needed, the top "tie" wire is cut and discarded and the other parts stored for future use. A large rubber band is used to secure bottom of sock (Figure 2d).

The cloth sock is pulled over the wire framework and should be a rather tight fit. When it is in place around the metal base the doubled rubber band is pulled over the hook and this holds the bottom of the sock securely in place (Figure 2d). The top of the sock is tied with an overhand knot to fit snugly at the top of the wire framework (Figure 1a).

After the sock is in place, secured at the bottom and knotted at the top, a metal fence post is driven in the ground at an angle, and the top of the sock, just below the knot, is tied to the post (Figure 1a). This lends strength to the chamber and helps prevent damage in case of high winds. A wooden post would work as well as the metal one, but the metal post is much easier to install and remove.

The cost of the chamber, about $5.50, is reasonable, considering the fact that it can be used for several years.

Figure 1—(a) Plant isolation chamber; (b) Metal base cylinder; (c) Base cylinder being placed around plant.

Figure 2—(a) Wire framework; (b) Cotton sock being placed over framework; (c) Base of sock, showing hook, eye, and rubber band; (d) Sock secured on metal base.

To prevent tearing out with use, a reinforcing patch is used under each hook and eye. The hook and eye are sewn in place about 7 to 9 inches from each other. A large rubber band is used to secure bottom of sock (Figure 2c).

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