Age of plant in relation to stage of development of tassels and ears was clearly a critical factor in these experiments. The treatment which was most nearly successful was the 0.5% concentration applied on Purdue 39A at 37 days after planting. As stated, pollen shedding was prevented in 8 of 10 main tassels and only 1 ear showed injury. But some plants receiving this and the related 1.0% treatment developed tiller tassels which shed, as was also true in other treated plots. With the single spray application used, it does not seem likely that tiller tassels can be satisfactorily controlled. Such tassels normally develop and shed several days later than the main tassel. Later spray applications which might control tiller tassels also produce more ear damage.

The immediate mechanism preventing pollen shedding involved adherence of the tassel branches to the main spike, as if they were glued to it (figure 1), and failure of individual spikelets to open. Sometimes a portion of the tassel was only slightly affected; spikes sometimes opened and anthers would dehisce. In plants with more injury, one or more top leaves remained wrapped around the tassel and stuck to it. This degree of injury clearly weakened the plant.

The results indicate that it is difficult to completely prevent pollen shedding in corn by the use of this material without causing other plant damage. Although separate male and female inflorescences should favor the possibility of selective suppression of the pollen, the limited number of ears borne and the fact that they develop only slightly later than does the tassel make successful timing of spray applications problematic. —James W. Cameron and Frank M. Eaton, Associate Geneticist, Department of Horticulture, and Chemist, Department of Soils and Plant Nutrition, respectively.

MAINTAINING SPACED PLANTS OF LADINO WHITE CLOVER IN THE FIELD

One of the problems of research with Ladino white clover has been maintaining spaced plants in the field for more than one season. If the plants are put close enough together to compete with the weeds, they soon lose their identity as the stolons of one plant grow among those of another, and the weaker plants are engulfed by the more vigorous ones. If the plants are spaced far enough apart to maintain their individuality, then weeds become a problem. Removing the weeds with a hoe may damage the stolons and hand pulling is slow and laborious.

A method of growing Ladino clover which eliminates some of these problems has been used in Rhode Island and should be useful wherever the species is grown. Essentially, it is a matter of growing the clover in a redtop sod. The Ladino clover plants were set on the square 8 feet apart in each direction and, except for a square around each plant, the alleys were seeded with redtop at the rate of 8 pounds per acre. As the clover plants grow, the stolons can be allowed to extend into the redtop sod or the sod can be removed in strips ahead of the advancing stolons. Redtop is vigorous enough to produce a sod that will keep the weeds under control but it will not grow vigorously enough to suppress Ladino white clover. It can be managed easily by clipping and when the experiment ends, there is no trouble exterminating redtop before another crop is grown. As a companion crop for spaced plants of Ladino white clover, redtop is superior to other grasses which might have been used—timothy, orchardgrass, smooth bromegrass, Kentucky bluegrass, or perennial ryegrass. These species all have disadvantages of being too vigorous or difficult to manage and in some areas, perennial ryegrass would be hard to eradicate when the field was needed for another crop.

If the redtop sod were established in the summer and the clover plants set from the greenhouse the following spring, it would be easy enough to remove squares of sod and plant the clover in the open spaces rather than sowing the grass around established clover plants. —Irene H. Stuckey, Associate Research Professor of Plant Physiology.

TECHNIQUE TO CONTROL EXCESSIVE SOIL MOISTURE

The control of soil moisture conditions for growing plants has been the concern of many workers. Richards and Loomis found that if plants with daily transpiration rates greater than 350 ml. per day were grown in 10-inch double-walled irrigator pots, it was not possible to maintain a constant soil moisture content by auto-irrigation even when tensions as low as 2 to 4 cm. of mercury were used. They concluded, however, that the assembly was quite valuable to permit rapid drainage to equilibrium.

The purpose of this note is to describe a porous cup arrangement which provides fast drainage of excess surface water in greenhouse work without affecting appreciably the experimental conditions. The unit as shown in figure 1 is not expensive to build.

The porous cups are alundum, RA 360 or RA 98 (Norton Co., Worcester, Mass.). They are 1¼ inches in diameter and 3¼ inches high. A one-holed rubber stopper with glass tubing inserted in it is fitted into the end of the cup. A rubber band is wrapped around the top end of the cup

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1 Contributed by C. A. B. Holmes, Assistant Research Professor of Plant Physiology.


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Figure 1—Diagram showing the arrangement for controlling excessive soil moisture.