A TECHNIC FOR GROWING SEEDLINGS OF GRASS AND OTHER PLANTS FOR FIELD TRANSPLANTING

W hen the seed supply for a field planting is limited, or when plantings of single, spaced plants are desired, a common practice has been to start the seedlings under favorable conditions in the greenhouse or hotbed and transplant them to the field. Such a procedure is particularly effective in the establishment of experimental plantings of many forage grasses when individual plants are to be studied. Low germination in some species and lack of seedling vigor in others result in considerable difficulty in securing uniform stands when single seeds are planted directly in the field.

None of the usual technics in seedling culture seem particularly suitable for handling large numbers of grass seedlings. Grass plants, for transplanting, cannot ordinarily be started in flats without partitions of some kind to keep the individual plants separated. The smallest available clay or fiber pots and wood veneer or paper bands were not considered practical for grass seedlings when thousands of plants must be grown each spring in limited greenhouse space and at a reasonable cost. A plant band method for handling seedlings of grass and other forage crops prior to their transfer to the field has been developed which may be of value to others engaged in crop improvement programs.

Tests were run with several kinds of paper made into bands of various sizes to determine the most suitable container for growing grass seedlings in the greenhouse for periods of 2 to 8 weeks. The aim was to develop a plant band (1) of the minimum dimensions necessary to produce a seedling of sufficient size to permit successful establishment under field conditions, (2) which need not be removed from the roots at the time of transplanting, (3) made from inexpensive and accessible material, and (4) which would keep the root systems of individual plants separate during the greenhouse growing period.

Types of paper tested included No. 10 asphalt building paper; plain, oiled, and paraffined, 50-pound kraft wrapping paper; and plain and paraffined newsprint paper. Plant bands 3 3/4 inches deep and 3/4, 1, and 1 1/2 inches square were made from these materials. The completed bands were set up in redwood flats and filled with a soil fertilized with either ammonium sulfate or a 4-12-4 commercial fertilizer. Investigations carried out by Youden and Zimmerman1 and others have shown that in order to produce normal growth nitrogen must be added to the soil when seedlings are grown in fiber or paper containers.

Greenhouse and field trials showed that bands 3 3/4 × 3 3/4 × 3 3/4 inches made of untreated newsprint most nearly satisfied the requirements for grass seedlings. When filled with sandy loam soil to which commercial fertilizer had been added, these containers provided satisfactory conditions for growth of grass seedlings for at least 8