Each tall fescue plant served as the pollen parent for several ryegrass plants. Thus, it was possible to determine whether certain ryegrass plants were more compatible with tall fescue than others.

The results of the 1957 crosses are given in table 1. The range in seed set per plant was 0 to 7. Tall fescue plant 5 served as pollen parent for 5 different annual ryegrass plants, but no seed was obtained; tall fescue plant 2 pollinated 3 annual ryegrass plants and 1 to 6 viable hybrid seeds per plant were obtained. These results indicate differences in compatibility between plants of tall fescue and annual ryegrass.

Since only small numbers of plants can be used with the emasculation technique, the possibilities of selecting plants for crossing that are largely incompatible are great. The advantages of bagging plants of the two genera together at pollination without emasculation then become self-evident. The results obtained in these studies show that relatively large numbers of ryegrass × tall fescue hybrids can be produced by simply enclosing inflorescence of the two genera together without emasculation. In addition, there is an indication that hybrids can be obtained more readily from crosses involving annual ryegrass and tall fescue than from those between perennial ryegrass and tall fescue.


USE OF POLYETHYLENE TUBES FOR SELFING TALL FESCUE

The inbred-line method of breeding is one of the procedures used in the tall fescue improvement program at the Kentucky Agricultural Experiment Station, Lexington. Prior to 1957, selected tall fescue plants were selfed with parchment bags. In this procedure, approximately 4 panicles were enclosed in each parchment bag and 6 to 8 bags were placed on each selected plant. The stems were wrapped with cotton, and the bags were fastened over the cotton with paper clips and then each was tied to a stake for support. The bags were raised once each week until the heads began to emerge from the boot. A wire was tied around the plant and extended over the plants approximately 3 to 4 weeks after anthesis was completed. The wire frame and the completed tube are shown in figure 1.

During 1958, 138 first-generation inbred seed of tall fescue in polyethylene tubes were selfed to produce 129 second-generation inbred seed. These plants were selected to form five families designated 33-5, 45-50, 19-22, 8-34, and 21-32. The synthetic strain were seeded August 27, 1958, in rows 6 feet wide and 25 feet long in a replicated for seed production. Rating of percentage stand 1, 1958, indicated that satisfactory stands from 25 of the 30 inbred plants. Observations...