Effects of Strain Differences, Seed Treatment, and Planting Depth on Seed Germination of Zoysia Spp.¹

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JAPANESE lawngrass, Zoysia japonica Steud., and Manila grass, Zoysia matrella (L.) Merr., form a very desirable type of turf for many standard uses in large regions of the United States east of the Great Plains and south of the region of bluegrass adaptation (3,5).³ Z. japonica appears to be of special value in the crabgrass belt (3). Z. matrella has special value as a shade-tolerant grass in the Bermuda grass region (5,6), and appears to be well adapted in Puerto Rico (2). The extensive planting and utilization of these grasses has been inhibited by two factors, viz., no commercial sources of seed have been available (2,3), and extremely poor germination of seed has been obtained (2,4). These two factors have limited the use of Zoysia to relatively small areas established by expensive vegetative plantings. Investigations on seed production are in progress at several experiment stations (1,3). This paper deals with the investigation of the low germination of Zoysia seed and methods by which it could be improved.

Lefebvre (4), working with seed of Z. japonica, reported 36% germination on moist blotters in an incubation chamber with alternating temperatures of 20°C to 35°C. When the seed was treated with 75% sulfuric acid for 20 minutes, the germination was improved to 58%. Childers (2) reported slow germination of less than 1% under field conditions for Z. matrella.

EXPERIMENTAL

This investigation involved two series of temperature chamber and greenhouse germination studies, designed to determine the effects of strain differences, chemical and mechanical seed treatments, and depth of planting. In germination test series I, Z. japonica seed of six strains (Z-10, Z-13, Z-14, Z-17, Z-21, Z-33), all harvested in July 1946, at Beltsville, Md., was used. In germination test series II one strain of Z. japonica, Z-16, from the above harvest, and seed of Z. matrella harvested in the fall of 1946 at Mayaguez, Puerto Rico, was used. The seed of Z. matrella was obtained from Norman F. Childers, Assistant Director of the Federal Experiment Station, Mayaguez, Puerto Rico. The germination studies were carried on from January to March 1947.

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³Figures in parenthesis refer to "Literature Cited", p. 732.