A Selection Experiment With Kentucky Bluegrass

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Kentucky bluegrass, *Poa pratensis*, L. according to Hitchcock, is the most important species of *Poa*. It is used widely as a lawn grass in the cooler regions and is the standard permanent pasture grass in the humid regions. It is widely distributed as a pasture grass in Minnesota and for that reason it seemed of interest to learn the value of selection as a means of isolating high-yielding pasture types as well as types that were adapted for lawn purposes.

A recent paper by Ahlgren, Smith, and Nielsen has reviewed other experiments on selection with *Poa pratensis*. The present report includes a summary of the performance of clonal lines and of selected seed progenies in mowing plots when cut at an approximate height of 4 inches. Observations were made also on desirability for lawn purposes with particular reference to appearance in summer.

MATERIAL AND METHODS

In 1937, divots of Kentucky bluegrass were collected from 60 old pastures and waste places throughout Minnesota, the material being taken from a wide range of soil and environmental conditions. These divots were broken down to individual plants and 281 vigorous plants with different growth habits were selected and increased as clones.

From 30 of these clones seed was saved under bag in 1939 for testing in comparison with open-pollinated seed of the same clones. Seedlings were started in the greenhouse in the spring of 1940 and transplanted into 4x4 foot rows in the field. Plots consisted of 10 plants and there were two randomized replications each containing paired adjacent plots of seed progenies from bagged and open seed from each clone.

In the fall of 1939 the 281 clones from Minnesota origin, 3 selected from a variety introduced from Svalof, and 2 from Ottawa were selected for testing in randomized block trials. Each block consisted of 23 clones, one of which, called the check, was established by clonal reproduction from 11 plants increased from a single pasture. Care was taken to plant the checks so that clones of each of the 11 plants were used with equal frequencies in each check plot. The 286 clones were placed in 13 groups and the clones in each group were randomized within each of two blocks. Each plot was established by setting clonal pieces 7 inches apart each way in a rectangle containing 7x11 pieces. Satisfactory sods were formed during 1940 and these were clipped for forage yield in 1941 and 1942.

There was a relatively good agreement between the performance of the 281 clonal lines in 1941 and 1942 and selections were made of clonal lines on the basis of total average yield using the check variety as a means of classification of the performance of the clonal lines. Significant differences at the 5% point were established by analysis of variance for each group of 23 clonal lines. The individual clones were classified in relation to the check variety as follows: Class 1, those that yielded 3 times the S. E. of a difference at the 5% point above the check, yields in all cases being taken in dry matter. Other classes were made in the same

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3Figures in parenthesis refer to “Literature Cited”, p. 197.