EFFECTS OF VARIOUS PLANT FOODS ON GROWTH ACTIVITIES AND DEVELOPMENT OF OATS

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In connection with a study made on the spring tillering of winter oats, a different fertilization was given to various pots and rows to which the oats were transplanted.

The details of the planting in pots and individual plant records are given in an earlier paper. It was thought preferable to include the effects of the different plant foods on the growth phenomena in a separate report. In the present report, along with the summary of these pot experiments, the records of two other tests are included. One of these was upon winter oats transplanted to the field and the other upon spring oats fertilized in the drill at planting time.

RESULTS OF POT TESTS WITH TRANSPLANTED PLANTS

In Table 1, are given the results of the pot experiments grouped according to treatments given and which are of value only as showing the relative effects of the elements nitrogen, phosphorus, and potassium on the tillering of the plants. The plants were of the Lee variety and uniform in type with one exception, viz., that while most of the plants had from 0 to 6 tillers this one put on 13 new tillers and was apparently of the Turf type. When data on this plant are included in the averages, the results with applications of nitrogen or those including nitrogen are distorted to a certain extent. The average number of new tillers per plant with no treatment was 1.15; on all plants having nitrogen alone or in combination, 1.42; on all plants having phosphorus alone or in combination, 1.67; and on all plants having potassium alone or in combination, 1.42, indicating that in spite of the above advantage in favor of nitrogen, phosphorus causes the most tillering.

The highest rate of tillering (2.44 per plant) was in the pots having phosphorus and potassium and the lowest (0.36) in the pots receiving potassium alone. Those having nitrogen and potassium also showed a low rate of development, while those having nitrogen and phosphorus were but very little better.

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