CURRENT interest in the utilization of smooth brome grass, *Bromus inermis* Leyss., for forage purposes has created a demand for a supply of high-quality seed. Although farmers have shown that brome grass seed can be produced in Michigan, information on desirable cultural practices is lacking.

The experiment here reported was designed to study the response of brome grass during the first and second seed years to different quantities of nitrogen. In conjunction with the study, the yield and protein content of the forage at the time of seed harvest, the number of fertile and barren tillers, several panicle characteristics, and the quality of the seed produced were investigated.

In August, 1937, a field of moderately fertile, slightly acid, Brookston loam soil on the experiment station farm at East Lansing, Mich., was fertilized with 400 pounds per acre of 0-20-20 fertilizer. Brome grass seed was mixed with oats and the mixture planted in 28-inch rows with a grain drill set to sow 2 bushels of oats per acre. Approximately 2 1/2 pounds of brome grass seed were planted per acre.

**1938 EXPERIMENT**

The experiment was designed so that 0, 100, 250, 500, 750, and 1,000 pounds of ammonium sulfate (21%N) per acre were applied to each of triplicate 1/140-acre plots in mid-April, mid-May, and mid-June. The field was divided into three areas and each area was further divided into three blocks. The six rates of application were randomized within each block. This gave a 3 (replications) X 3 (dates of application) X 6 (treatments) layout. All of the experimental results were subjected to analysis of variance, and comparisons were made with reference to the average of the nine control plots which received no treatment.

Fig. 1 shows the actual and normal rainfall by months from June 1937 to July 1939.

The applications of ammonium sulfate were broadcast between the rows. One foot at each end and the outside rows of the plots were cut prior to seed harvest, the ultimate plots consisting of four 20-foot rows.

The seed was harvested by stripping the seed from the panicles August 20, dried 30 days at room temperature, and then threshed. The percentage purity was based upon a random three-gram sample of the threshed seed and the seed yield data were calculated to a pure seed basis.

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