GRASSES FERTILIZED WITH NITROGEN COMPARED WITH LEGUMES FOR HAY AND PASTURE

B. A. BROWN AND R. I. MUNSELL

WHEN the war ends, some of the products of the synthetic nitrogen factories may be available for purposes other than munitions. For some time this question has been under study by a joint committee of the American Society of Agronomy, the American Society for Horticultural Science, the Association of Land-Grant Colleges and Universities, the National Fertilizer Association, the Tennessee Valley Authority, and the U. S. Dept. of Agriculture. The general idea appears to be that if nitrogen in fertilizers should be relatively cheaper than before the war, it might be a good policy for farmers to increase their use of this important plant nutrient.

For many years, the Agronomy Department of the Storrs, Conn., Agricultural Experiment Station has had hundreds of plots on which the response of grasses to various rates and times of application of nitrogenous fertilizers has been determined. On the same field and during the same seasons, legumes and legume-grass mixtures have been under test. It is the purpose of this paper to present the many data now available on these comparisons. All of the experiments were located at or near Storrs, on Charlton fine sandy loam soil, which, because of its compact subsoil, retains water relatively well and is therefore one of the best soil types in Connecticut for the growth of grasses.

TIMOTHY FOR HAY

Timothy is the chief grass grown for hay in the hay-dairy belt of North America. Usually it is seeded with red clover, but after the second season, the clover is largely gone and the growth of the timothy is retarded for lack of nitrogen, unless topdressed with manure or nitrogenous fertilizers. To learn what changes in quantity and quality of hay could be obtained with nitrogen and different dates of cutting, a 1931 seeding of red clover and timothy was divided in 1933 into duplicated, 100×10 foot plots which were fertilized and mowed as outlined in Table 1. By 1938, the stand of timothy had become considerably mixed with other grasses, so the field was plowed and reseeded to timothy and a similar experiment continued through 1941. The pertinent results for the period of 1939-41 are presented in Table 2. For comparison, the yields of alfalfa from nearby plots and during the same years are included in Table 1 and yields of Ladino mixtures in Table 2.

It is apparent that the added nitrogen was responsible for marked increases in yields of both dry matter and protein from the timothy in the 5-year period 1933-37. If not cut before June 15, each of the two 28-pound increments of nitrogen enhanced the dry matter by 900 to 1,200 pounds. It will be noted, however, that the protein

---

1. Contribution from the Department of Agronomy, Connecticut Agricultural Experiment Station, Storrs, Conn. Received for publication April 7, 1943.

2. Associate Agronomist and Research Assistant in Agronomy, respectively.