THE NITROGEN CONTENT OF *POA PRATENSIS*: ITS RANGE AND RELATION TO FLOWERING DATE1

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DURING studies of individual plants of Kentucky bluegrass, a survey of the range of variation in total nitrogen (crude protein) was made and certain relationships of the total nitrogen content to the date of flowering were noticed.

That young grass of all species is richer in protein than more mature grass and that the percentage of protein decreases regularly up to the stage of seed ripening is common knowledge. Henry and Morrison,3 among many others, give data to support this. It should follow that late strains which have not proceeded as far to maturity as early strains should be higher in protein than early strains at any comparable date up to maturity. Evans and Thatcher4 have shown that this is true with timothy.

Differences in composition between early and late flowering plants at other times than during the reproductive period have not been pointed out. In this paper are presented data concerning the range in composition of Kentucky bluegrass plants and the association of the date of flowering of an individual plant with its nitrogen content during flowering and at non-reproductive periods of its growth.

MATERIALS AND METHODS

The plants studied were from two sources. One, which may be designated as series A, consisted of 139 plants grown from commercial seed in the greenhouse and transplanted to the field in the spring of 1937 as individually spaced plants. Observations during flowering and collections for analysis were made of these plants in 1938. Slips were taken from them and established in pots, after which they were transplanted again to a different field. In addition, 18 were increased sufficiently to furnish three 3-foot rows. Observations of the flowering dates and collections for analysis were made in 1940. The initiation of anthesis is referred to here as flowering.

Another group of plants, designated as series B, was composed of 164 plants which had been isolated from sod plugs gathered in pastures in several states of the northeastern region but primarily in Pennsylvania. They had been placed in the field as individual plants in 1938. Flowering observations and collections for analysis were made during 1939. A selected group of 32 plants of the series B was used for greenhouse studies during the winter of 1939–40.

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1Contribution No. 24, of the U. S. Regional Pasture Research Laboratory, Division of Forage Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture, State College, Pa., in cooperation with the northeastern states. Received for publication July 3, 1941.

2Physiologist and Director, respectively. Acknowledgments are due to O. N. Breivik, J. G. Conti, and A. G. Morin for assistance in the analyses.
