MEASUREMENTS OF RECOVERY AFTER CUTTING AND FALL DORMANCY OF VARIETIES AND STRAINS OF ALFALFA, MEDICAGO SATIVA

M. A. SPRAGUE AND R. F. FUELLEMAN

THIS paper presents the results of studies on technics for the numerical expression of varietal differences in the vegetative responses of alfalfa in Wisconsin after the first cutting, and the degrees of dormancy during the fall period of growth. The term recovery, as used in this paper, refers to the rate and character of the new vegetative growth of alfalfa after the first cutting in the summer, while dormancy deals with the rate and character of growth after the second cutting and during the fall period. Both rate of recovery and degree of fall dormancy are inherent characteristics of the varieties of alfalfa studied, although their expressions are modified by environmental conditions. Field observations of certain varieties and strains which express major differences in fall dormancy and the rate of recovery after cutting are recorded in the literature. The data presented in this paper add weight to their validity.

METHODS AND PROCEDURE

Growth responses were measured during two periods, since but two cuttings of alfalfa are obtained normally under Wisconsin conditions. The rate of recovery was measured three times at irregular intervals after the first crop had been removed on July 3, 1937. Measures of fall dormancy were made twice during the fall period of 1937 (3 and 7 weeks after the second crop of hay was harvested on September 2, 1937) and once the following year after the second cutting was made on August 26, 1938.

The 196 plots of alfalfa (1/200 acre each) used in these trials were sown on July 25, 1935, on limed and heavily fertilized Miami silt loam soil on a fairly level area of the University Farm at Madison, Wis. Seed of the eight varieties of alfalfa sown included a total of 49 strains which were of the following origins: 29 strains of Ladak grown in Montana, Oregon, South Dakota, and Wyoming; 8 strains of Cossack grown in Idaho, Montana, and Wyoming; 4 strains of Grimm grown in Wisconsin; 4 strains of Common grown in South Dakota, Wyoming, Wisconsin, and Ohio; 1 strain of Hardistan grown in Nebraska; 1 strain of Turkistan imported commercially; 1 strain of Norwis grown in Wisconsin; and 1 strain of Hardigan grown in Michigan. Each lot of seed from a given source is regarded as a regional strain of the aforementioned varieties.

1Contribution No. 158 from the Department of Agronomy, University of Wisconsin, Madison, Wis. Published with the approval of the Director of the Wisconsin Agricultural Experiment Station. Received for publication Jan. 8, 1941.

2Research Assistant in Agronomy, and formerly Research Assistant in Agronomy at Wisconsin, now Associate Agronomist, University of Illinois, Urbana, Ill., respectively. The authors wish to acknowledge the aid given in the establishment of the field plots and in the preparation of the manuscript by Dr. L. P. Graber, Professor of Agronomy at the University of Wisconsin, and Dr. V. G. Sprague, Associate Agronomist, U. S. Regional Pasture Research Laboratory, State College, Pa., and the helpful suggestions relative to calculation of the data provided by Dr. J. H. Torrie, Instructor in Agronomy, University of Wisconsin.