TIMOTHY SELECTION FOR IMPROVEMENT IN QUALITY OF HAY

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SOME timothy plants, as they approach maturity, tend to preserve the normal green color of their leaves longer than others. This tendency, observed in the course of timothy breeding at North Ridgeville, Ohio, through a period of several years, has been used as the basis of further selection aimed at improvement in the quality of hay. To determine the relation between the number of late-maturing leaves and the quality of hay, a special study was made in 1935. The factors considered in measuring quality were color of leaves, commercial grade, and protein content of the hay.

MATERIALS AND METHODS

The strains studied included ordinary unimproved timothy which blooms and matures at a medium date; one early selection, F. C. 11901; and one late selection, F. C. 15167. The two selected strains represent three generations of continuous selection for either earliness or lateness and for the tendency for the leaves to remain green.

Late in April, 1935, 20 shoots, all of approximately the same size and age, of each strain of timothy studied were selected for observation from broadcast plats which had been sown in September, 1933. The 20 shoots of each strain were distributed in triplicate plats—7 in each of two plats and 6 in the third plat. Since a small portion of the stems became broken, records of less than 20 shoots of each strain were completed.

Observations were made at intervals of 2 or 3 days from April 18 until the growth of each shoot was completed, with the exception that, due to unfavorable weather conditions, no records were obtained from June 14 to June 20. A record was made of the date the tip of each leaf blade appeared, when the blade had fully emerged and unfolded, when the blade began to dry at its tip, and when it had finally become entirely dry.

At frequent intervals composite samples from each one of the triplicate plats were collected and cured in a building where they were protected from sun, rain, and dew. Each sample later was analyzed for nitrogen, and the percentage of protein calculated by multiplying by 6.25. On eight dates other composite samples were also collected, cured in a similar manner, and used for determining the color reading or hue, the percentage of green color, and the U. S. grades of hay which they represented.

1The data in this report were obtained at the Timothy Breeding Station, North Ridgeville, Ohio, conducted cooperatively by the Division of Forage Crops, Bureau of Plant Industry, U. S. Dept. of Agriculture, and the Department of Agronomy, Ohio Experiment Station, Wooster, Ohio. Received for publication August 11, 1936.

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