The Influence of Cutting Practices on the Nitrogen Content of Ladak Alfalfa in the Yakima Valley

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The nitrogen of alfalfa forage decreases as the plant matures. Woodbury and Evans (4) have shown that the decrease is due not only to the change in the leaf-stem ratio but also to a decrease in the nitrogen percentage of both the leaves and stems. The early studies on the chemical changes that occur during the development of the alfalfa plant have been reviewed by Woodward, et al. (5).

The purpose of this investigation was to determine the influence of several management practices on the nitrogen percentage and the total nitrogen in Ladak alfalfa forage produced in the Yakima Valley. The trend in nitrogen percentage associated with (a) increase in dry matter, (b) the advance of the growing season, (c) interval between cuttings, and (d) previous management was determined. The influence of spring clipping and interval between cuttings on total nitrogen was also studied.

MATERIALS AND METHODS

The samples of forage used for nitrogen determination were obtained in 1948 from an alfalfa management experiment conducted at the Irrigation Experiment Station, Prosser, Wash. A description of this experiment and the forage yield data has been reported (1).

The treatments of the 20 main plots were all combinations of four types of spring clipping (unclipped and clipped when 4, 7 and 12 inches tall) and five different intervals between cuttings (25, 29, 33, 37 and 41 days). The main plots were split in the fall, and one-half of each plot was cut after September 1. The treatments were randomized three times. These treatment combinations gave alfalfa forage harvested at various stages of maturity and at different times during the growing season. The number of times each combination was cut is given in Table 1.

Each time a plot was cut for a yield determination, a sample of about 500 grams of fresh material was saved, oven dried at 70° C, ground in a laboratory hammer mill, and stored for chemical analysis.