GREEN AND AIR-DRY WEIGHTS FOR DETERMINING HAY YIELDS OF VARIETIES OF ALFALFA

RALPH M. WEIHING

The most rapid and accurate methods in harvesting plots and in computing yields are desired in conducting experiments with alfalfa. The practice of computing the forage yield of alfalfa from green weights is rapid but is accurate only when there are no differences in the percentage dry matter between plots. Procedures in which it is assumed that all strains, treatments, replications, or plots contain the same percentage of dry matter decrease in precision with increases in differences between the above listed variables. At times it may seem expedient to report forage yields of alfalfa as air-dry hay. The accuracy of this method is dependent largely upon the variability, if any, of the strains in dry matter content when air-dry.

The experiments presented were designed to ascertain the differences of a number of strains and varieties of alfalfa in percentage dry matter of (a) the green forage and (b) the air-dry forage.

LITERATURE

Investigators differ in opinion as to the accuracy of green weights in determining the yield of forage plants. Arny (1), McKee (2), McRostie and Hamilton (3), and Vinall and McKee (5) point out that forage yields based on green weights are not very reliable. Wilkins and Hyland (7) conducted experiments with several varieties of alfalfa and with several varieties of red clover and reported that "yield determinations would have been essentially as accurate on a green weight basis without sampling." Wilkins and Westover (8) found the difference in moisture content of Grimm and Turkestan alfalfa so slight that yield data may be based on green weights.

The following investigators agree that accurate results are obtained by reducing field weights of green or field-cured forage to air-dryness: Arny (1), McKee (2), and Vinall and McKee (5).

EXPERIMENTAL TECHNIC

The percentage dry matter in the green and the air-dry forage was determined for Grimm, Hardistan, Nebraska Common, Meeker Baltic, and Ladak varieties of alfalfa grown in the following five types of nursery plots: Single rows 3 feet apart; single rows 20 inches apart; three-row plots with rows 20 inches apart and 20-inch alleys; three-row plots with rows 12 inches apart and 20-inch alleys; five row plots with rows 12 inches apart and 20-inch alleys. These plots are described more fully by Weihing and Robertson (6).