The Effect of Clipping on the Yield, Botanical Composition, and Protein Content of Alfalfa-Grass Mixtures

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The Palouse area of eastern Washington is primarily a wheat-producing region. However, in recent years, there has been an increasing number of grass and legume plantings made in this area in an attempt to check erosion and maintain soil fertility. Furthermore, there has been an increased interest in the use of grass with legumes as a source of pasture for livestock.

It was the purpose of this study to compare nine alfalfa-grass mixtures and alfalfa alone in order to determine which was the most productive when cut at the hay stage and when clipped to simulate pasture conditions. The mixtures were compared on the basis of total forage yields, percentage and yields of protein, and botanical composition. The calcium and phosphorus content of two selected mixtures were also compared with that of alfalfa grown alone.

LITERATURE REVIEW

Many comparisons have been made of the forage production of alfalfa-grass mixtures with that of grass or alfalfa in pure stands. Enslinger, et al. (6) and Fuelleman, et al. (7) have reported that alfalfa-grass mixtures are more productive than pure stands of grass. Such mixtures have been found to be nearly as productive as pure stands of alfalfa by Koonce (10), Rather and Harrison (13), Robertson et al. (14), and Fuelleman, et al. (7).

Cutting forage mixtures at the hay stage results in higher forage yields than does more frequent cutting at younger stages of growth. This has been reported by Nowosad and Stevenson (12), Ellett and Carrier (5), and Woodman, et al. (16). It has also been reported by Nowosad and Stevenson (12), Newell and Keim (11), Koonce (10), and Rather and Harrison (13) that more frequent cutting favors the grass component of alfalfa-grass mixtures as compared to cutting at the hay stage.

Hodgson, et al. (9) compared continuous and rotation pastures in western Washington by measuring the production of milk from grazing dairy cattle and found that approximately nine per cent higher production was obtained from rotation pastures than from continuously grazed pastures. Others to report higher yields from rotational grazing as compared to continuous are Woodward, et al. (17), Newell and Keim (11), and Alexander (1). However, Rather and Harrison (12), Harrison, et al. (8), and Carrier and Oakley (9) found little advantage in rotation grazing as compared to continuous grazing.

Herbage from frequently cut forage plots contains more protein than that cut at the hay stage. This has been reported by Woodman and associates (16), Eheart and Ellett (4), Ellett and Carrier (5), Wilsie, et al. (15), and others. Fuelleman, et al. (7) and Koonce (10) have found that the protein, calcium, and phos-

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3Figures in parenthesis refer to "Literature Cited", p. 1082.