THE EFFECT OF HEIGHT AND FREQUENCY OF CUTTING ALFALFA UPON CONSEQUENT TOP GROWTH AND ROOT DEVELOPMENT

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THE increased acreage of alfalfa in the north central section of the United States, particularly in Michigan, is partially due to its use as a pasture crop during the hot summer months of July and August. During this period conditions of low rainfall and high temperatures usually prevail and native bluegrass pastures are largely dry and dormant. Experiments conducted at the Michigan Agricultural Experiment Station at East Lansing show that alfalfa or a mixture of alfalfa and smooth brome grass, because of the drought resistance of these plants, will furnish more green feed during the hot months than any other combination of perennial plants yet tried. Alfalfa has proved to be highly productive, palatable, nutritious, and reasonably enduring provided proper management practices are followed.

Research has shown that cutting at immature stages of growth may result not only in damage to the stand, but also in a reduction of the amount of new growth produced. Graber, et al. (2) found that frequent cutting of alfalfa at immature stages of growth lowered the productivity and vigor of the plants, favored weed encroachment, and accelerated both winter and summer damage to the stand, all of which was primarily the result of depleted food reserves in the roots.

Albert (1), Willard (6), Nelson (4), and Kiesselbach and Anderson (3) substantiate the findings of Graber. Experiments have also shown that alfalfa should be pastured at a higher level than is generally practiced on pasture plants in order to secure the best yields and allow for adequate storage of food reserves in the roots.

With the above facts in view the experiment described here was set up in the greenhouse at East Lansing, Mich., to study the effect of the height and frequency of cutting alfalfa upon the production of "recovery" growth and root development, and to obtain an indication as to the proper height-level of grazing alfalfa for maximum production of feed and maintenance of the stand.

EXPERIMENTAL PROCEDURE

In September, 1937, several hundred Hardigan alfalfa plants were dug from a 1-year-old alfalfa field. These plants were brought into the greenhouse, selected for uniformity, and transplanted into sand cultures in 10-inch clay pots, eight plants per pot. They were kept growing until April, 1938, by frequent watering and the application of a complete nutrient solution at regular intervals.

On April 13 the cultures were selected at random and arranged in five sets of nine each, to be cut back to 1, 3, 6, 9, and 12 inches, respectively. Three of each of the sets of nine were cut at weekly, three at biweekly, and three at monthly