Pasture Renovation: I. Seedbed Preparation, Seedling Establishment, and Subsequent Yields

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The improvement or renovation of unproductive pastures has held the interest and attention of agronomists and farmers for many years. Topdressing grazing lands with fertilizers and manure has markedly increased production, but with such treatment improvement is often slow and the resulting pasture still retains the serious limitation of most permanent pastures, that of low midsummer yields. More recently, the objective in some pasture investigations has shifted to the establishment and maintenance of species of grasses and legumes which are better adapted for production during midsummer.

In the summer of 1942 five of the state experiment stations of the Northeast region, in cooperation with the U. S. Regional Pasture Research Laboratory, initiated investigations in the renovation of unproductive pastures. The primary objective of this work was to increase the production of pastures, particularly during midsummer, by the replacement of weeds and other unproductive species with grasses and legumes which continue to grow during this hotter, drier period. In the attainment of this major objective experiments were initiated on three principal phases, namely, (a) seedbed preparation, seedling establishment, and subsequent yields; (b) comparative evaluation of different grasses and legumes under the various climatic conditions and soil types found at several state experiment stations; and (c) management practices for maintenance of the seeded grass and legume species. This paper presents results of investigations conducted at State College, Pa., on the first of these phases of the problem.

Review of Literature

A brief review of some work in pasture renovation and of objectives and procedures is presented as a background for these experiments and for others still in progress at State College. For the most rapid improvement of pastures in the northeastern states, in 1910 Cotton (4) recommended plowing the old sod, growing a cultivated crop for two or three years, and then reseeding with

1Cooperative investigations of the U. S. Regional Pasture Research Laboratory, Division of Forage Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Dept. of Agriculture, State College, Pa., and the Departments of Agricultural Engineering, Agronomy, and Animal Husbandry of the Pennsylvania State College. Contribution No. 78, of the U. S. Regional Pasture Research Laboratory, State College, Pa. Part of this paper was presented at the annual meeting of the Society in Columbus, Ohio, March 1, 1946. Received for publication July 24, 1946.

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4Numbers in parenthesis refer to "Literature Cited", p. 24.