EFFECT OF LEVEL TERRACES ON YIELD AND QUALITY OF PASTURAGE AND WATER CONSERVATION

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THE amount and distribution of rainfall are important factors influencing the amount and seasonal distribution of pasture growth. This is especially true on upland sandy soils of the South where runoff and percolation are sometimes so rapid that moisture becomes a limiting factor in pasture growth even during relatively short periods of drouth. Mayton (3) found that the average seasonal yield of pasturage was associated very closely with the average distribution of rainfall with an approximate 20-day time lag.

Studies by Greene (r), using closely-spaced terraces, 40 inches apart, showed that level terracing was effective in preventing all runoff for the season except for excessive rains which overflowed the terraces. According to his observations, more forage was produced per acre where level terraces were used and cattle preferred the pasturage on the terraced area to that on the unterraced.

Since moisture is often a limiting factor in pasture production on upland soils in the South, it is desirable to know some practical means of conserving moisture and thus increasing production. The experiment herein reported was therefore conducted to determine the effect of level terraces on water conservation and on yield and production of pastures. These studies were made at the Alabama Agricultural Experiment Station, Auburn, Alabama.

EXPERIMENTAL

An area of Norfolk sandy soil with a slope of 15 to 20% was selected. This area had been in pasture for several years but was supplying very little grazing because of its low fertility (Fig. 1). By making a small drain down the slope the pasture was divided into two approximately equal areas. One area was level terraced and the other was left unterraced (Fig. 2). On the terraced area about twice the number of terraces was built that would have ordinarily been used for cultivated fields (Fig. 3). These terraces were of the Nichols (2) type with a base of from 16 to 20 feet and a depth of about 18 inches in the center of the channel. One end of each terrace was closed and the other end was so constructed that after the channel was filled, the excess water drained into a cistern where it was measured. Each terrace had a holding capacity of about 6 cubic feet of water per linear foot, making it possible to hold about a 2-inch rainfall on the area.

The terraced area was prepared for seeding by breaking to a depth of about 4 to 6 inches. It was then subsoiled to a depth of about 14 inches between terraces to increase the absorption of water. The unterraced area was prepared by breaking to a depth of 4 to 6 inches and was not subsoiled.

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3Figures in parenthesis refer to “Literature Cited”, p. 767.