THE SEASONAL OCCURRENCE OF SOIL EROSION IN NEW YORK AS RELATED TO RAINFALL INTENSITIES

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If it were possible to predict with any reasonable degree of accuracy the time of year when soil erosion is likely to occur, it would simplify the problems of control. Cropping practices and other necessary measures could be adjusted to provide the soil with adequate protection during critical periods.

Neal (5) and others have shown that rainfall intensity is probably the most important of the factors that influence runoff and soil erosion. Later studies by Borst and Woodburn (3) and Laws (4) indicate that the greater impact of the larger drops, which seem to occur with the more intense rainfall of continental areas, may be as important or even more important than the intensity factor alone. Studies of the effects of intensity of natural rainfall in such areas are combined with those of impact.

Blumenstock (2) finds the highest intensity rainstorms occurring in the summer months in Washington, D. C., Elkins, W. Va., and Lynchburg, Va. The same condition is indicated for New York, in a general way, by Yarnell (7).

The purpose of this report is to present specific data for New York conditions with recommendations for erosion control practices.

METHODS

Rainfall, runoff, and soil loss measurements were made in three locations in the State, namely, 17 miles southwest of Ithaca at the Arnot Forest; 45 miles northwest of Ithaca at Geneva; and 45 miles northeast of Ithaca near Marcellus. The erosion station at the Arnot Forest is typical of the Appalachian Plateau of southern New York and northern Pennsylvania. The experimental plots are at an elevation of 1,900 feet on Bath flaggy silt loam, with a 20% slope to the southeast. The plots at the New York State Agricultural Experiment Station, Geneva, have an elevation of 600 feet. They are located on two soil series, Dunkirk silty clay loam, 5% slope to the south; and Ontario silt loam, 8% slope to the north. Both are representative of the Erie-Mohawk-Ontario plain. The Marcellus erosion station is located on Honeoye silt loam at 1,000 feet elevation and represents the deep limestone till soils of the state. The plots have an 18% slope, southwest exposure.

The precipitation was measured through the full year with recording type rain and snow gages and standard U. S. Weather Bureau pattern gages. More than...