SOIL-CONSERVING AND SOIL-IMPROVING CROP ROTATIONS FOR THE PALOUSE

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This paper deals with the problem of the introduction and establishment of soil-conserving and soil-improving crop rotations in the Palouse of eastern Washington and adjacent Idaho. The information presented has been developed from the demonstration project of the Soil Conservation Service located on the South Fork of the Palouse River in the vicinity of Moscow, Idaho, and Pullman, Washington.

The Palouse is a relatively new country having been plowed out of prairie only a little more than five decades ago. Large scale operations are employed on the crop land which constitutes approximately 75% of the total acreage (7, 8). A typical farm unit has been about 500 acres divided into two major fields. Farm cropping systems have been largely soil depleting, conducive to erosion and accelerated run-off. Soil loss through erosion and decline in fertility have simultaneously progressed under past systems of management to the extent that productivity has decreased and approximately one-fifth of the cultivated land is submarginal for cash crops. Soil-conserving and soil-improving rotations in combination with crop residue utilization and improved methods of tillage have been found to be the most important means of checking these conditions. Terracing and strip-crossing had not been applied to the area because of topography, farming methods, and limited diversity of crops. Soil conservation is being accomplished by treatment of the soil itself to enable it to absorb and store the moisture it receives.

DESCRIPTION OF THE AREA

McGrew and Horner (2) state that, "The typical Palouse topography consists of a series of somewhat dune-shaped loessial hills, which, in general, have south and southwest slopes that are longer than and not so steep as the north and northeast slopes. A considerable part of the cultivated land has slopes ranging from 10 to 40%. Some of the land has more than 50% slopes. A characteristic feature of this topography is the steep amphitheatre-like north and northeast slopes. Narrow valleys of alluvial land make up a well-defined drainage system."

The area lies at an approximate elevation of 2,700 feet.

The normal precipitation at Pullman, Wash., based on records over a period of 43 years, is 20.75 inches. However, only about 79% of this is effective moisture as 21% is lost immediately as run-off (2). The annual rainfall has varied from

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2Regional Assistant, Agronomy-Range Section; Project Agronomist, South Fork Palouse Project; and Assistant Project Agronomist, South Fork Palouse Project, respectively, all of Soil Conservation Service, Region 11. The authors gratefully acknowledge the aid given by Dr. A. L. Hafnerichter, Regional Nurseryman, Soil Conservation Service, Region 11, in the preparation of this paper.
3Figures in parenthesis refer to "Literature Cited", p. 313.
4Four-year average (1932-35) from 2.3 acre watershed cropped to a wheat-fallow system.