THE EFFECT OF CONTOUR PLANTING ON CROP YIELD AND EROSION LOSSES IN MISSOURI

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CONTOUR farming is adaptable either with or without terraces to over 7 million acres, or about 60%, of Missouri crop land. At present, the practice is in use on less than 800,000 acres. A study of census data shows that corn is grown on about one-third of the potential contour acreage. This is approximately 2.4 million acres, or about 50% of the total corn area of the state. Studies have shown an increase in yield of over 12% by contour planting over up-and-down-hill planting. Assuming the yield increase by contour planting over planting parallel to fence lines is two-thirds this amount, the application of contour planting to all of the corn land in the potential contour acreage would result in an increased corn yield of nearly 6 million bushels annually in Missouri. It is also estimated that contour farming of all the potential contour acreage would reduce erosion losses in Missouri by more than 60 million tons of soil annually.

The results of studies on the effect of contour planting on the yield of corn, soybeans, and oats, and its effect on soil and water losses are the subject of the following discussion.

CORN YIELD

The average yield of 40 contour-planted corn tests in the 3-year period 1943-45 has been 53.2 bushels per acre, or 7 bushels more than the yield from up-and-down-hill planting. The relative yield increase was 12.5%. The contour-planted corn significantly out-yielded the up-and-down-hill corn in 29 of the 40 tests. The yield differences were insignificant in seven tests. There was a definite decrease in yield with contour planting in only four tests.

There have been two main factors responsible for the higher yields from corn planted on the contour. An acre of contour-planted corn has averaged 6,220 stalks. This was 550 more than on an acre of corn planted up-and-down hill. Intense rainstorms that occurred when the corn was small washed out numerous stalks as the runoff rushed down hill in the planter tracks, as illustrated in Fig. 1. This has occasionally necessitated replanting of the up-and-down-hill rows, whereas it was not necessary on the contour-planted areas. Erosion between the rows from torrential rains following corn cultivation, as shown in Fig. 2, decreased the root feeding zone for nutrients and moisture. This resulted in a less vigorous growth.

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