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Report

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STORING AND UTILIZING EXCESS RUNOFF BY SPREADING OVER LEVELED FIELDS IN DRYLAND AREAS

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Water in the Great Plains is the principal factor limiting production. Rainfall averages 17 inches annually with 3 to 4 storms producing runoff. Additional water storage from runoff may increase crop production and also may permit annual cropping.

This experiment was designed in 1958 to evaluate the moisture conservation value of spreading excess (flood) water over leveled areas for increased crop production. Different crops are grown to determine their performance under intermittent flooding.

Pan 1 is 6.2 acres and has a drainage/leveled ratio of approximately 50/1. The leveled area has had

three years of continuous grain sorghum production beginning in 1959. During this time instruments were not installed to measure actual runoff quantities. Some runoff was observed into this area following snow-melt in spring of 1960, and again in 1961 following rainstorms on June 2 and July 13. No runoff was observed in 1959.

Grain sorghum production was quite variable the first year because of cut and fill effects. However, this variability has diminished each year with annual fertilizer application and increased moisture supplies.

GRAIN SORGHUM PRODUCTION: LEVEL PAN VS. UNLEVELED AREAS

Year	Sorghum-fallow on non-leveled areas*			Continuous sorghum on pan		
	Rainfall** (in.)	Initial soil moisture (in. of available moisture to 5')	Yield bu/A	Rainfall** (in.)	Initial soil moisture (in. of available moisture to 5')	Yield bu/A
1959	6.0	6.5	22.3	9.4	4.7	18.7
1960	6.1	4.8	0***	8.4	8.6	31.0
1961	8.0	5.4	23.3	8.8	8.2	49.0
1962	---	6.7	---	---	8.8	---

*Values taken from Research Outline, Colo. A-8.

**Includes only actual rainfall, which varied somewhat between plots.

***Immature, not harvested.

Leveled land provided better distribution of moisture received from rainfall and runoff. Crop production has increased as a result of increased

moisture storage on leveled areas. Forages, such as alfalfa, forage sorghum, sudan grass and millet, are currently being grown on other leveled pans.

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