

WHEAT PRODUCTION ON FALLOW, SECOND CROPPING AND CONTINUOUS CROPPING

In 1976, an excellent year for small grain production on stubble land, in southwestern North Dakota, yields on conventional summer fallow were 43 bushels per acre, on second cropping 27 bushels per acre and on continuous cropping 22 bushels per acre. In 1977, a year when hot, dry spring weather conditions were not particularly favorable to the germination and early growth of the crop, yields were appreciably reduced, even though rainfall in late May and June provided ample soil water for satisfactory crop growth. Yields on fallow were 26.9 bushels per acre, on second cropping 11.5 and on continuous cropping 5.5 bushels per acre. Relative differences between production methods were remarkably similar for both years.

In 1978, wheat on summer fallow averaged 28.5 bushels per acre in this trial compared with 31.4 on second cropping and 30.6 on continuous cropping. High yields on stubble land were a result of the excellent soil water recharge provided by the well above average precipitation coming in the fall of 1977 plus adequate seasonal moisture and cool growing season temperatures.

In 1978, fall precipitation was only 4.58 inches compared to more than 10 inches in 1977. In addition, a late spring planting date and a very dry period extending from April 20 to June 18 was unfavorable for good, uniform germination and early crop growth. The effectiveness of stored soil water in fallow under stressed conditions is readily evident in the harvested yields.

In 1980, severe drought conditions prevailed through the third week in June. Grain production was reduced on summer fallow and was zero on recrop and continuous cropping treatments.

In 1981 early seeded small grain crops were severely frosted by a severe freeze on May 9th, but seemed to recover very well. The most severe weather affecting crop production occurred the first ten days in July when temperatures of 93°F and above were recorded on 7 days, with a maximum reading of 110°F. Evaporation measured 3.93 inches during this ten day period.

Table 33. Wheat Production on Fallow, Recrop and Continuous Cropping

Bushels per Acre

Treatment	1976	1977	1978	1979	1980	1981	6-yr Avg.
Fallow	43.0	26.9	38.5	32.4	22.3	21.3	30.7
Recrop	27.0	11.5	30.2	15.9	0.0	14.5	16.5
Continuous crop	22.0	5.5	30.6	12.8	0.0	14.0	14.2