

The effect of erosion on wheat yield on two soil types.

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A mean maximum wheat yield depression of approximately 50% has been reported from a real-time soil erosion experiment at Wagga Wagga (1). In addition this experiment, on a red texture contrast soil, also showed that relative grain yield following the most and least erosion changed little over a 4 year period (1).

The experiment, which involved measuring wheat yield and grain protein from plots that had experienced varying crop rotations and degrees of soil erosion over a 30 year period was also carried out on deep cracking black clay soils at Gunnedah during 1981 and 1982.

Total soil loss, from the 0.01'ha plots, for 26 years at Gunnedah and 30 years at Wagga Wagga compared to grain yield over 2 years (1981,1982) at Gunnedah and 4 years at Wagga Wagga (1977,1979,1980,1982) is shown in Figure 1.

Average total soil loss was 88.6t/ha at Gunnedah and 30.3t/ha at Wagga Wagga.

Substitution of average total soil loss data in the regression equations (Figure 1) predicts an average yield decline of 17% at Gunnedah and 28% at Wagga Wagga. At double the average soil loss rate the equations predict a yield decline in excess of 50% at Wagga Wagga but only 21% at Gunnedah.

The data show a marked difference in grain production response to erosion between a relatively shallow, low fertility, texture contrast soil and a deeper, more fertile, clay soil.

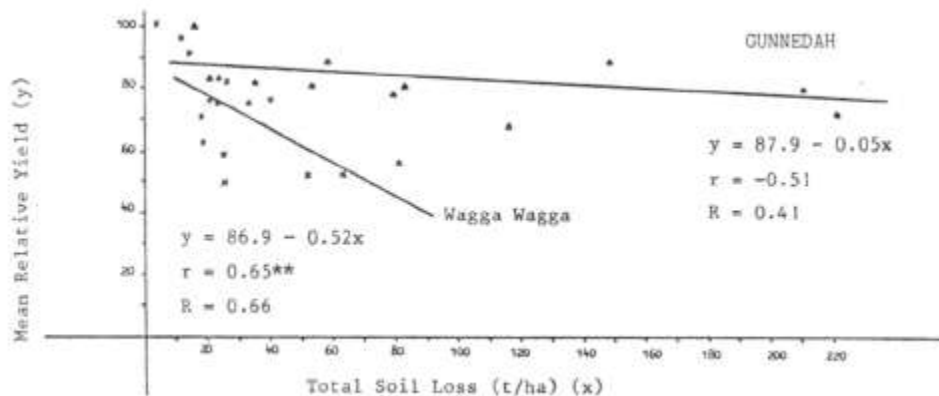


Figure 1. The Linear Relationship Between Total Soil Loss at Gunnedah (26 years) and Wagga Wagga (30 years) and Mean Relative Grain Yield over Two and Four Years Respectively . (R.O.S.L. Trial).

1. Aveyard, J.M. 1982. Proc. Second Australian Agronomy Conference, Wagga Wagga, p 248.