

Beyond erosion: relationships between soil redistribution, soil properties and crop production within an agricultural field in Devon, UK

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This paper uses erosion data derived from caesium-137 measurements and field survey of rill networks to explore the role of tillage erosion and water erosion in the development of observed within-field spatial variation in soil properties and crop production. It is suggested that soil redistribution by tillage is a major contributor to the observed spatial variation in soil properties. Relationships between crop production and soil properties and erosion rates were found to be complex and non-linear. Simulation of a further 40 years of tillage erosion suggests that spatial variation in soil properties will become more extreme and is likely to have a deleterious impact on crop production.