



## **Keeping soil in the field - runoff and erosion management in asparagus crops**

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Row crop production (including potatoes, onions, carrots, asparagus, bulbs and lettuce) is regarded as one of the most erosive agricultural cropping systems. This is a result of the many practices involved that increase erosion risk including: fine seedbed preparation, a typically short growing season where adequate ground cover protects the soil, permanent bare soil areas between crops, and often intensive harvesting methods that can damage soil structure and result in soil compaction. Sustained exposure of bare soil coupled with onsite compaction on slightly sloping land results in soil and water issues in asparagus production. Asparagus production is a growing British industry covering > 2000 ha and is worth approximately £30 million yr<sup>-1</sup>. However, no tried and tested erosion control measurements currently exist to manage associated problems. Research has recently been undertaken investigating the effectiveness of erosion control measures suitable for asparagus production systems. These consisted of surface applied wheat straw mulch and shallow soil disturbance (< 350 mm) using several tine configurations: a currently adopted winged tine, a narrow with two shallow leading tines, and a modified para-plough. These treatments were tested individually and in combination (straw mulch with each shallow soil disturbance tine configuration) using triplicated field plots situated on a working asparagus farm in Herefordshire, UK. Testing was conducted between May and November 2013. Rainfall-event based runoff and erosion measurements were taken including; runoff volume, runoff rate and total soil loss. Runoff and soil erosion was observed from all treatments. However, the surface application of straw mulch alone out performed each shallow soil disturbance practice. This suggests that runoff and erosion from asparagus production can be reduced using the simple surface application of straw.