

Strategic tillage- Evolution or Devolution of Zero Tillage?

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Abstract

Producers who practice zero tillage are concerned that a single tillage operation will cause serious negative long term impacts to their system. A study of **Strategic tillage** , “planned occasional tillage which occurs for a purpose other than seedbed preparation”, was established in 1999 on a clay loam soil near Brandon Manitoba with 2 rotations: canola-wheat-pea and canola-wheat-flax. While all crops were sown each year and tillage occurred each yield the impact of tillage in subsequent seasons could not be measured until one or two years following the tillage operation. The objective was to determine the impact of tillage in a long term zero tillage system on crop yields, weed numbers, foliar disease and nutrient uptake.

Tillage just prior to planting flax or pea resulted in lower yields of that crop in that season. While total weed numbers were up to 30% greater in the year of tillage weed numbers returned to near pretillage numbers the second season after tillage In 2003 barley yields were greater on plots which had received tillage in any of the previous seasons however the mechanism, timing and frequency of this response is unclear. Since strategic tillage did not have long term negative impacts on crop yields, or weed pressure it is possible to use tillage in the subhumid black soil zone to control difficult weeds or level a rough field without long term negative impacts.