

EXPLORING DIRECT SEEDING OPTIONS FOR ORGANIC GRAINS

Introductory Research Report E2006-07

INTRODUCTION

Organic farming has been criticized for intensive tillage for weed control and seedbed preparation. Recent research from the University of Manitoba revealed that soil organic matter (SOM) levels can be lower under organic management (A. Nelson, 2005). Despite this, the soil seems to hold together equally well in organic systems. The type of SOM and microorganisms present may be different in organically managed soils. Reducing tillage can increase SOM and favour soil life. Organic researchers around the world are exploring methods of direct seeding and tillage reduction. The OACC has initiated an exploratory trial at the NSAC to investigate direct seeding fall crops into stubble or cover crop residues.

SEEDING SPELT INTO FLAX & MIXED CROPS

On September 25th, 2005, spelt was seeded into flax stubble and mixed crop stubble that had been either disc harrowed and s-tined, or not tilled. We used a Tye drill, which is typically used for zero-till seeding, across all plots. Straw was removed from all plots before seeding. On October 19th, weed density and ground cover estimates were made across all of the plots (Figure 1). Weed populations were much higher in the flax plots than in the mixed crop plots, due to the lower competitive ability of flax. Stitchwort was more common in the flax plots and dandelion was more common in the mixed crop plots. Tillage reduced weed populations in both the flax and mixed crop plots.



Fall rye seeded into oilseed radish – tilled and no-till

SEEDING FALL RYE INTO COVER CROPS

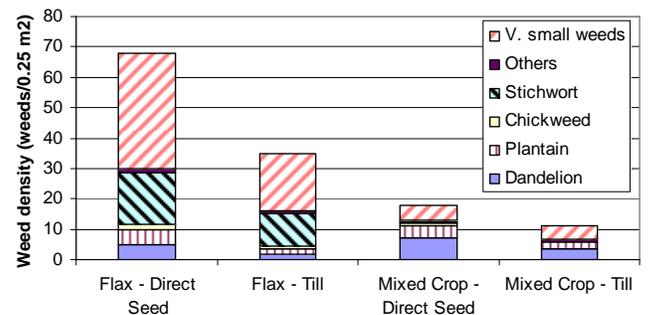


Figure 1. Weed density in spelt fall-seeded on flax or mixed crop stubble into tilled or direct seeded plots

Fall rye was seeded into cover crops of oilseed radish and buckwheat, which had been established in June 2005. The buckwheat was mown just prior to setting seed in mid-August. Dandelions were the prevailing weed in this field. With no tillage, they grew quite well after the buckwheat was removed. Just prior to seeding on September 25th, strips were disked into the buckwheat stubble. The fall rye was seeded across the tilled and no-tilled strip using the Tye drill. Crop establishment appeared good; however, stronger growth was observed in the tilled areas. Similar results were observed on wild radish that had been mowed and either tilled or not tilled prior to seeding.

NEXT STEPS

In 2006, we will assess crop establishment rates, weed populations and crop yield in these fields. This will help determine the best direct seeding practices for those organic farmers who want to reduce tillage.

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