

Improving Yield of Second Year Soybeans

(Interim Report)

Purpose:

The purpose of this project is to determine the value of a rye or winter wheat cover crop in fields where soybeans follow soybeans. Many growers find themselves in a situation where for cropping, economic or other reasons they plant soybeans in a field two or more years in a row. This results in yield loss and can increase pest and disease pressure in the field.

The rye or wheat is planted immediately following soybean harvest and killed off in the spring prior to planting soybeans. Hopefully enough growth will be generated to provide some benefits to the soil and increase the yield of the succeeding soybean crop. There is some research from Pennsylvania indicating that cover crops can improve soybean yields in these situations. The intent of the project is not to replace a good crop rotation for soybean production but to provide a tool for growers who find themselves growing multiple years of soybeans.

Methods:

The project will be established in the St Clair Region Soil and Crop Improvement Association (OSCIA) area (Essex, Kent and Lambton) with some sites in the Huron-Perth area and possibly a few sites in the Niagara and Haldimand areas. Fields will be selected which have had one or more years of soybeans previously and will be going into soybeans. Immediately following soybean harvest the winter wheat and rye cover crop will be drilled in or broadcast and worked in. Main project sites will have both cover crops and secondary sites will have a minimum of one cover crop. Each site will have at least two replications. The cover crop will be left over winter and be killed prior to soybean planting.

At cover crop establishment soil samples will be taken to determine fertility, organic matter content and soybean cyst nematode levels. Other soil quality measurements may be taken either at establishment, the next season or both. Soybean growth and yield measurements will be taken for the strips.

Results:

The soybean crop was later maturing this year and then the fall became very wet, so plots were only able to be planted in Essex County. One main and two secondary sites were planted in the first week of November. The main site had a corn strip in it and has two reps of the rye and wheat cover crops. One secondary site has both wheat and rye and the other has just rye. Cover crop growth was slow due to the late planting and by the end of December 2006 there were only one or two leaves on the plants. Fertility, organic matter and soybean cyst nematode (SCN) samples were taken and analyzed. The three sites have adequate fertility and organic matter averages about 3.5%. The main site SCN samples were generally in the low to moderate risk range. The two secondary sites had no SCN present. Bait lamina strips were inserted in four treatments of the main site. These strips are inserted into the soil about 8 cm or 3" and have "soil

life food” in holes at different depths. They are removed from the soil after 10 days and give an indication of the amount of biological activity in the soil. Results are not available yet.



Essex main plot, summer 2006. After harvest wheat and rye strips were planted on both sides of the corn strip.

Summary:

Due to the wet fall the cover crops will not achieve the growth expected so yield differences in the 2007 soybean crop due to the cover crop are unlikely.

Next Steps:

Soybeans will be planted following the cover crops in the spring and yields will be taken in the fall. The rye and wheat cover crops will be planted following the 2007 soybean harvest for another cycle of the project. The St Clair District SCIA will be pursuing funding to complete three full cycles of the project.

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Location of Project Final Report: