Cover Crops for Soil Health

(Elgin County Soil and Crop Major Project)

Purpose:

Great concern exists over the long term health and "resiliency" of our soils. On sandy soils, and with wheat production problems, more and more growers in Elgin County are going to shorter rotations of mainly only corn and soybeans. There is excellent research that organic matter additions in these rotations are extremely low, and result in declining soil health. Cover crops seeded into maturing soybeans or immediately after soybean harvest may be one way to overcome this decline in soil health.
This project will evaluate various cover crops seeded close to soybean harvest for their ability to establish, fall growth, and impact on subsequent corn yield.

Methods:

Four 2 replicate field scale trials were initiated in the fall of 2013 in Central-West Elgin County. Treatments included:

1. No cover crop seeded
2. Oat cover crop spread into standing soybeans at early leaf drop
3. Cereal rye cover crop spread into standing soybeans at early leaf drop
4. Oat cover crop drilled immediately after soybean harvest
5. Cereal rye cover crop drilled immediately after soybean harvest

At several locations different seeding rates were added as additional treatments (1 bu/ac, 2 bu/ac). At one location annual ryegrass was used in place of cereal rye. Broadcast treatments were applied using an Amazone three point hitch spreader that delivered a uniform spread pattern of seed over exactly 30 feet. Drilled treatments were installed by cooperators using their own seeding equipment.

Results:

Cover crop establishment was good for all treatments. Seeding dates between broadcast and drilled treatments differed by only 14 to 20 days, based on rapid soybean development and good early harvest conditions. Growth was good on all cover crops, although limited due to cool wet October conditions. Broadcast treatments of oats on sandy soils were killed by an early frost, while drilled oat treatments continued to grow well into the fall. This is the result of the growing point of the crop being above ground and unprotected in broadcast treatments, but below ground and protected in drilled treatments.
Plots have been marked, and corn yields from the 2014 crop will be reported. There are no further results to report at this time.

Summary:

Cover crops established well in both broadcast and drilled treatments into or after soybeans. Fields will be followed, and corn yields reported from the 2014 crop.

Next Steps:

This trial will continue in 2014 with reporting of cover crop impacts on corn yields. This would be an excellent project to continue, with the addition of cover crops into the corn

crop as well. Anyone interested in participating in this project should contact Margaret May @ mmay@ontariocoilcrop.org or Peter Johnson at peter.johnson@ontario.ca

Acknowledgements:

A huge vote of thanks goes to our co-operators. Thanks to Ontario Soil and Crop Improvement Association for their financial support. Thanks to Margaret May for ensuring the administration and completion of this project occurred.

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Location of Project Final Report:

Peter Johnson

Figure 1. Amazone Dry Fertilizer Spreader Used to Apply Broadcast Cover Crops.

Figure 2. Drilled Oats

Figure 3. Broadcast Oats