

2014 Holmes County Warner Grant Early Seeded Cover Crop Project Report

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Cover crops bring numerous, well documented, benefits when incorporated into the crop management regimen. It is also clear that cover crop benefits increase the longer the plants are able to grow before harvest, destruction, or they are killed by winter freeze. The 2014 project built on the 2013 project where cover crops were broadcast seeded into corn at the V 10-V 12 stage of growth.

For 2014, a plot was established at the Reuben Yoder Farm, the site of the 2014 Family Farm Field Days to be held 18-19 July. The conventionally tilled organic corn crop was planted 20 May and the cover crops were broadcast seeded after the final cultivation on 30 June, when the corn was in the V 10 stage of development. This plot was publicly viewed and discussed as a part of the Family Farm Field Day program and at a twi-light field tour on 26 August, led by Rory Lewandowski.

In addition, replicated field plots were established on three Holmes County farms. The Mose N. Hershberger Farm, Millersburg. This was a corn silage to no-till corn site with a heavy manure cover, with a Roundup-Ready herbicide regimen. The cover crops were broadcast seeded on 9 July when the corn was at the V 12 stage. The Willis N. Miller Farm, Fredericksburg. This was a corn silage to no-till corn site with a with a Roundup-Ready herbicide regimen. The cover crops were broadcast seeded on 7 July when the corn was in the V 12 stage. The Leon Yoder Farm, Dundee. This was a corn silage to conventionally tilled corn site after the final cultivation. The cover crops were broadcast seeded on 6 July when the corn was in the V 10 stage. These farm plots included medium red clover, annual ryegrass, oil seed radish, ryegrass-clover mix, ryegrass-radish mix with two replications of each seed or seed mix, planted headland to headland.

The Three farm plots were broadcast seeded using the battery powered seeder developed as a part of the Warner Grant project. This seeder was modified to be mounted on a horse drawn sprayer or a horse drawn fore-cart, or an ATV or UTV to facilitate farmer cover crop seeding efforts. Only the sprayer mounting is workable for late seeding of cover crops into standing corn due to the row spacing and height requirement for that special seeding practice. The other mounts will be useful for other cover crop seeding and over-seeding practices. This unit remains intact and will be available for farmer use in the future.

The results

While the wet growing season of 2014 was not ideal for early cover crop establishment, we did make some interesting observations. The Dikon oil-seed radish seedings were successful in every instance tried in 2014. It seems that oilseed radish has potential for cover crop seeding into corn where soil conservation and potential nutrient scavenging are the primary goals.

Medium red Clover and annual Italian ryegrass cover crop seedings had mixed levels of success. Where corn stands were light or imperfect, both these cover crop species seemed to establish satisfactorily. But, where corn plant stands were heavy, both cover crops appeared to have stand establishment problems. We did not ascertain whether the stand problems, in these instances were the result of heavy corn plant competition or if the proliferation of large corn plants (at the time of seeding) interfered with seed distribution and soil contact.

The plots at the Reuben Yoder Farm included the same cover crop species and mixes that were in the other farm plots, but it also included cereal grain rye, cereal grain rye-medium red clover mix, hairy vetch, and forage turnip. The results with the medium red clover, annual ryegrass, and oil seed radish in this plot were consistent with what was found in the other farm plots. While the cereal grain rye, hairy vetch and forage radish did appear to become established, it appears that they did not tolerate the long period of shade till the corn silage was harvested on 21 September.

Conclusions

The results of our early seeded cover crop efforts seem to point to the idea that cover crops can be successfully established by broadcast seeding into standing corn at the V10-V12 stage of development. Dikon oil-seed radish are especially easy to establish. Annual Italian ryegrass and medium red clover also appear to be satisfactorily established by the broadcast seeding method, although stand results may fall short of what would be desired for a forage goal to be met. In all of the efforts, it is clear that the early seeding of cover crop seeds into standing corn did allow for more growth and ground cover at freeze-up, than would have been possible had the seedings been made by conventional methods after corn/corn silage harvest.

The Holmes Soil and Water Conservation District developed a broadcast seeder unit that will be available for use by growers for seeding cover crops in future growing seasons.

Concerns

The practice of seeding cover crops into standing growing corn is not practical where pre-emergence herbicides and many post-emergence herbicides are used to manage weed plant competition. Most of these herbicides have "re-crop restrictions" on the product labels that will prohibit seeding cover crops until much later in the corn plant growing season. The practice is not universally forbidden by pesticide labels, but growers will need to read product label, choose correct herbicides, and time cover crop seeding dates carefully to be successful with cover crop the program.

Thank you for the opportunity to examine the early seeding of cover crops into standing corn crops. It appears, from this limited investigation, that the practice has potential to extend the benefits of cover crops to additional crop production sites in our area.

Respectfully submitted;

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