



Thorn Apple Farm Cover Crop Interseeding and Post-Harvest Trial

Soil health is clearly the hot topic in crop production. There have been many trainings and journal articles on this topic. At a recent meeting with the Soil Health Alliance, Steve Groff was the featured speaker. He made the point in his presentation, "It is much easier to connect with the public in discussing cover crops than GMO." Our association has been a very strong advocate of cover crops to improve soil health. Cover crops are used to reduce erosion, improve soil microbiology, increase organic matter, reduce nutrient inputs, increase water infiltration, handle weather extremes, create a mulch, improve public relations, and, ultimately, improve the bottom line. This year, through grants from the Farm Viability Institute and New York State Corn and Soybean Growers Association, along with many agricultural sponsors, we hosted a cover crop interseeding and post-harvest trial at Thorn Apple Farm.



On April 24th, Gerry Hull's staff planted the corn and A.C.D.S Research, Inc. applied 4 different pre-emergence herbicide strips perpendicular to what was planted. The products tested were Acuron at 2.5 pts., Prowl at 2 pts. with Atrazine at 1 pt., Resolve Q at 1.25 oz. with Atrazine at 1 pt., and Sharpen at 1 oz. with Outlook at 8 oz. A control strip was also utilized. At 5-leaf corn stage (June 10th), 9 different cover crop strips were both air-flowed by Chad Branton of Branton Farms, LLC and drilled by Derek Rechberger from Kelly's Garage using a Penn State Interseeder. Looking strictly at efficiency, the 60-foot wide airflow applicator outperformed the four row interseeder by almost seven times.

This year proved to be one of the driest on record at the trial location. The soil, a sandy gravel loam, was very prone to drought conditions. The BMR corn had pineapple symptoms throughout the growing season and, as a result, the corn canopy did not shade the ground. Due to the lack of rain, the airflow application had a very poor catch but the drilled cover crop catch was very good.

One lesson we learn in field trials is to explore take-away points even if the results are not as expected. One ensuing question was, with the drought conditions, will the cover crop affect the yield? The corn silage in the side-by-side strips was harvested and weighed to determine if any yield was lost in the good cover crop catch versus the poor catch. Even in the extreme drought conditions, the yield was higher in every strip with the good cover crop catch, averaging a 1.3 ton increase. In Plot 7, part of the yield bump was due to harvesting some of the sorghum sudan grass

continued from p.1

with the corn silage. Interseeding cover crop trials done by Penn State have produced similar results. This may seem contrary to expectations with more vegetative matter competing for the limited water resources. A couple theories have been formulated. Perhaps the canopy of the cover crop reduced evaporation or the enhanced microbiology of the soil improved the corn production.

Corn Silage Yield at 35% DM: Interseeded Cover Crops Versus Check

Plot	Interseeded Cover Crop (Tons/Acre)	Check (Tons/Acre)	Yield Difference (Tons/Acre)
Plot 1	13.95	11.38	2.6
Plot 2	13.51	12.87	.6
Plot 6	13.91	13.25	.66
Plot 7	15.22	13.7	1.5
Average	14.1	12.8	1.3

The cover crop was sampled November 17th to measure the biomass and nitrogen levels. A sample of each of the herbicide treatments was harvested in 9" x 39" sections. The clover treatments were not harvested because there was not much growth. Very little difference was observed between the herbicide treatments. The dry conditions did not activate the herbicides. The plots will be harvested once again this spring. For each ton of biomass, approximately 60 pounds of nitrogen was gathered.

Drilled Interseeding Biomass

Cover Crop	Percent Cover Crop	DM (Tons/acre)	Nitrogen (lbs./acre)
Annual Ryegrass	69.9	2.34	130
Medium Red Clover		NA	NA
Crimson Clover		NA	NA
Ladino, Yellow Blossom, Medium Red Clover		NA	NA
Annual Ryegrass, Medium Red Clover	76.2	2.05	131
Kings Broadcast 6 way mix: Radish, Ryegrass, Crimson, Medium Red Clover, Yellow Blossom, Sweet Clovers	84.8	3.7	232
6 way mix: Ryegrass, Orchard Grass, Radish, Crimson Clover, Hairy Vetch, Sudan Grass	19.6	.9	60
5 way mix: Teff, Millet, Turnip, Buckwheat, Sunflower	18.4	2.5	148
Pea, Soy Millet		NA	NA

continued on p.3

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continued from p.2

Post Harvest Cover Crop

Crop	Percent Cover Crop	DM (Tons/ acre)	Nitrogen (lbs./acre)
Oats	68	.42	37.5
Oats, Peas	33	.27	23.7
Rye	41	.27	13.7
Black oats	45	.35	19.1
Oats, triticale, ryegrass	58	.25	18.4
Triticale	57	.34	20.4
5 way mix: Triticale, Crimson Clover, Hairy Vetch, Ryegrass, Radish	55	.37	25.9
Rays fall mix: Winter Peas, Oats, Triticale, Hairy Vetch, Crimson Clover, Rye Grass, Turnip, Radish	47	.58	36.5
Ryegrass	32	.46	17.4
Radish	32	.43	33.2
Rape Radish	1	.43	24.5

Kelly's Garage is planning to purchase a larger interseeder this year. If your farm is within a 30-minute drive from Perry, they can be contracted to drill some acres. If you are interested, please contact Derek to set up a trial on your farm.

2016 Adapt N Corn Grain Cover Crop Trials

Working with the Cornell Adapt N team, we conducted a corn grain trial with cover crops that were planted in 2015 on fields receiving little or no manure. In all 3 trials, the covers were planted early and had good biomass from the warm fall. Since July 2015, all three sites were dry, limiting nitrogen loss.

R.L. Jeffres & Sons Inc.

Previous Crop: Lima Beans

Cover Crop: 120 lbs. Oats

Planted: 9/1/2015

Pre-plant and Starter N: 55 pounds

Manure: 7500 gallons of separated, estimated rate of 35 units of N

Sidedress N Rate (lbs./acre)	Yield (bushels/acre)	Standard Deviation
0	218.8	2.26
58	217.2	5.29
75	221.5	5.52
103	220.9	4.27
125	219.7	3.74

continued on p. 4

continued from p.3

Willow Ridge Farm, LLC

Previous Crop: Wheat

Cover Crop: 15 lbs. Annual Ryegrass, 5 lbs. Tillage Radish, 10 lbs. Hairy Vetch

Planted: 8/15/2015

Pre-plant and Starter N: 100 Pounds

Manure: None

Sidedress N Rate (lbs./acre)	Yield (bushels/acre)	Standard Deviation
0	171.8	3.9
52.5	171.8	5
84	164.9	4.9
105	162.8	7.5

Edelweiss Farms Inc.

Previous Crop: Peas

Cover Crop: 6 lbs. Red Clover and 3 lbs. Tillage Radish

Planted: 8/1/2015

Starter N: 67 Pounds

Manure: None

Sidedress N Rate (lbs./acre)	Yield (bushels/acre)	Standard Deviation
0	253.8	15.8
52.5	249.6	9
70	252.3	5
154	247.9	9

None of the trials showed any response to the sidedressed nitrogen. A closer look at one of the trials can illustrate the benefits of cover crops. Each bushel of corn requires 1.05 pounds of N. At Edelweiss, the 254-bushel corn required 267 pounds of N. The starter provided 67 pounds, an estimated 45 pounds came from the soil OM (1.5%, over 18 months of mineralization with little loss), and the previous crop of peas contributed 20 units. The majority came from the cover crop. The biomass was likely at least 3 tons and provided approximately 150 units of N. The cost of the cover crop was about \$27 with an additional \$10 to drill. The savings based on the Adapt N model recommendations of 75 units of N were \$37.50 for the nitrogen plus an application fee of \$10/acre. The field yielded 40 more bushels/acre than other neighboring fields with the same soil type in a corn on corn rotation. Overall, the cost of the cover crop and planting was \$37, the savings on N and application was \$47.50, and the yield improvement was \$4.00* 40 bushel = \$160 an acre. **The net benefit was \$170/acre.** Diversified rotation and cover crops made a huge improvement!

Are You Spraying With the Right Volume of Water?

by Mike Youngers

The past two years have gone from one weather extreme to another. In April thru early July 2015, the growing season was wet with slightly below normal temperatures, whereas 2016 was hot and dry. Mid July thru September of both the 2015 and 2016 growing seasons were hot and dry. In both years, cornfields sprayed with pre-emergence herbicides had both broadleaf and grass weed escapes, but for different reasons.

Pre-emergence herbicides require 10 to 80 gallons of water per acre during application. For economic and efficiency reasons, it does not make sense to spray 80 gallons/acre. On the other end of the spectrum, 20 gallons of water per acre is more effective than 10 or 12 gallons/acre. More water will assist the herbicide in running off any existing vegetation in the field and increase contact with the soil. Several industry representatives confirmed this assessment. One stated that, in using only 10 gallons/acre of water, we are counting on rain or heavy dews to wash the pre-emergence chemical into the soil. He also commented that the less favorable the conditions in the field, the more water you will need. Several examples include residue trash on the field, clumpy soils, and/or poor early burndown of cover crop, sods, or early weeds.

In 2015, we received the rains to push the pre-emergence herbicide into the soil which controlled the early weeds, but with all the rains in the month of June, the corn was short and did not canopy. Since the corn did not canopy, it allowed the light to come in contact with the soil, which led to the emergence of late season grasses (foxtail and fall panicum). Unfortunately, these appeared too late for follow-up spray. In 2016, we did not get the early rains to push the pre-emergence herbicides into the soil, so farms that sprayed using only 10 gallons of water/acre had more weed escapes of broadleaves and grasses than farms using 20 to 25 gallons of water/acre. Early season weed escapes could be scouted and resprayed with good control of all weed species.

Mid to late planted corn came up during hot dry conditions in 2016. Much of this corn was shorter, did not canopy and was subject to the same escape issues of late season grasses (foxtail and fall panicum) as in 2015. Although raising the water volume/acre may not have eliminated the entire weed control problem, several situations could have been avoided or reduced.

As we look toward 2017's crop season, we cannot predict the weather, but we can increase our odds of success. To help get the pre-emergence herbicides into the soil, consider increasing the water rate from 10-12 gallons/acre to 20-25 gallons/acre. **Also, please remember to always read the chemical label and follow labeled rates!**

NEW YORK CORN AND SOYBEAN GROWERS ASSOCIATION ANNOUNCES 2016 YIELD CONTEST WINNERS:

Congratulations to our members: Charlie Bares- #1 corn yield and Keith Dawydko- #2 and #4 soybean yields in the state; Todd Roberts- #1 Western Region Group 3 Soybean yield.

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CAFO Update

by Lori Whittington

What is the latest with the CAFO permit today?

CAFO Thresholds: In 2013, Governor Andrew M. Cuomo announced an initiative to change the Medium CAFO threshold from 200 mature dairy cows to 300 mature dairy cows. Although this occurred, it's still important to remember that farms with 200–299 mature dairy cows (that includes both milking and dry) are **not** to be discharging to waters of the U.S., and the DEC can require them to be permitted if they discover otherwise. Although not mandated, there are good reasons for a farm below threshold to maintain a CAFO permit.

- Having and maintaining a Comprehensive Nutrient Management Plan (CNMP) increases the value of your farm.
- Financial lending institutions often require a current CNMP and a copy of the Annual Compliance Report. Recently, we have received several requests from lending institutions to confirm the discharge status of farms, even those below the CAFO threshold.
- NRCS and Soil & Water Conservation District Programs require a CNMP to apply for funding for a waste storage or a vegetated treatment area.
- Working regularly with a farmstead planner helps ensure compliance with regulations that promote and sustain a healthy environment.
- With a permit, you are protected from a citizen lawsuit filed under the Clean Water Act.
- Any funding you may have received to install Best Management Practices to become compliant with your existing permit can still be jeopardized for failure to properly operate and maintain those systems.

New Permits: In November, Jackie Lendrum of the DEC and Karl Czymmek from Cornell Pro-Dairy spoke about the status of the two CAFO Permits (CWA and ECL) at a meeting in Syracuse. Draft permits were released December 2015, followed by a six-week comment period. At the November session, Ms. Lendrum announced that, although the permits were not yet finalized, she anticipated a release this January and reviewed a few of the “more talked about” changes.

1. Reducing winter land application of waste is still topping the charts and the language in the permit is being modified once again.
2. A new requirement is a signed certification from any individual (private or commercial) who is providing land application of manure.
3. Some form of training will be required when manure application is ongoing, assuring that the applicator is fully aware of any required setbacks and the recommended rates.
4. Another new requirement involves having someone actively observing the transfer of manure beyond the production area (i.e. transferring manure to a satellite storage).

Once the permits are released, we can provide more exact details on the contents. At that point, you'll have considerable time (5 months minimum) to review and make a decision about which permit would best fit your needs. Everyone will have to file a NOI (Notice of Intent) to apply for the permit they choose, and we'll gladly do that for you. We'll provide a comparison of the permits and will be available to discuss the differences and potential pros and cons. We also anticipate providing an overview of the permits at our Annual Meeting on February 21st in Batavia. Ms. Lendrum also noted that the DEC will once again be holding open meetings (CAFO Roadshows) throughout the state to review the permits and answer questions. We expect this to happen during the first quarter of 2017. We look forward to working with you through the permit changes and are confident the transition will be seamless.

A circular orange logo with the word "FREE" in white, bold, sans-serif capital letters.A collage of four images: top left shows people looking at green farm equipment; top right shows a large red barn with a white porch; bottom left shows a field of golden wheat; bottom right shows a black and white cow in a barn.

February 2-4, 2017

A logo featuring a stylized sun with orange rays and a green crescent shape below it.

WNY Farm Show
The Fairgrounds, Hamburg, NY

5600 McKinley Parkway Hamburg, NY 14075

2017 Farm Show Hours:

Thursday: 10 AM - 4 PM, Friday: 10 AM - 6 PM, Saturday: 9 AM - 3 PM

Thursday, February 2nd

Controlling Pasture Weeds, Flies & Parasites on Small Farms: Nancy Glazier, 10-11 AM

How to Produce High Yielding Corn: Chad Stoeckl, 1-2 PM

Non-insured Crop Disaster Assistance Programs & Farm Storage Loan Programs: 2-3:30 PM

Friday, February 3rd

Agriculture Pesticide Regulations in Relation to Small Farms: Michael Nierenberg, 10-11 AM

Napa High School Mechanics Competition: 10 AM - 5 PM

Corn Leaf Diseases: Don't Forget to Look at Corn While it is Growing: Josh Harvey, 1-2 PM

Saturday, February 4th

Keeping Long-Term Hay Fields: Dan Steward, 10-11 AM

Cover Crops: Not Just for Post-Harvest Anymore!: David DeGolyer, 1-2 PM

Non-insured Crop Disaster Assistance Programs & Farm Storage Loan Programs: 2-3:30 PM

Daily Sessions:

What Milking Robots Can Do For You: 12-1 PM

Farmer Elite Toss: Hay Bale Throwing Competition: 1-1:30 PM

Manure Pit/Confined Space Simulator Safety Demonstration: all day

There will be 1 pesticide credit offered for each hour-long class; you must attend the entire class to receive the credit.

WNY Crop Management created a Map App, Webmaps and even a database for members to utilize. These tools are free and available for all of our members to view and edit various farm information. You can enter manure applications, planting records and some of the required CAFO records. We even provide installation and training services. For more information, contact your consultant or call a CMA office.

Did You Know?



WNY Crop Management
5242 Curtis Rd.
Warsaw, NY 14569

«FarmName»
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Save the Date: February 21, 2017
WNYCMA Annual Meeting
More information to follow!