ACS Nitrogen Rate Trials

Why are you here?

To find a data-driven predictive nitrogen tool that helps us put the right rate of nitrogen on corn at sidedress time. This tool will allow us to legally put on more nitrogen when needed and gives us enough confidence to reduce nitrogen when called for.

Objective(s):

(1) To use farm data to identify the "right" rate of nitrogen in any year for fields with trials.

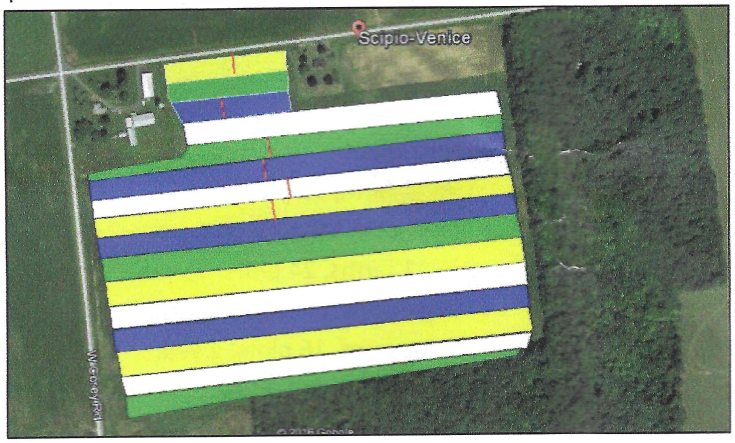
(2) To collaborate across farms to identify if this "right" nitrogen rate is close to being the same across fields that have similar conditions.

(3) To identify which predictive tools are on the market that can help us get to this "right" nitrogen rate the highest percentage of times.

The "Right" nitrogen rate is defined in this project as the Economically Optimum Nitrogen Rate (EONR), which is the N rate that will result in the maximum dollar return to N. The EONR can be different from the Agronomic Optimum Nitrogen Rate (AONR) which is the maximum yield regardless of cost.

2016 ACS Nitrogen Rate Trials

Four farms: Sunnyside Farms, Oakwood Dairy LLC, Wood Farms LLC, Broughton Farm Operations LL.



	0 lbs of Sidedress N
	50 lbs of Sidedress N
	100 lbs of Sidedress N
	150 lbs of Sidedress N

Sunnyside Trial Specs

Planting date:	4/24/16
Starter fertilizer:	30 lbs N
Manure:	128 lbs N
Sidedresse date :	6/18/16

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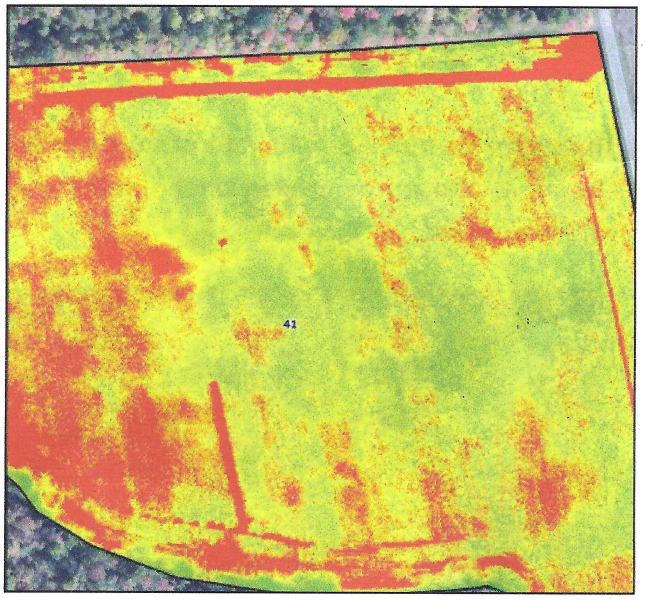
2015 ACS Nitrogen Rate Trials



2015 Rate trials were flown over with a drone to document different imagery as N management tools. The redder the area in the imagery to the left, the more stressed the plants were. The stripping of red visible in our plot area corresponds to where the 0 and 40 lb plots were. In 2015 there was a significant difference between the 0 and the 120 lbs rates

Treatment	Yield Estimate	Standard Error
0	16.6 [a]	1.6
40	18.1 [abc]	1.6
80	20.1 [abc]	1.6
120	21.3 [c]	1.6

In addition to drone imagery other N management tools that were tested out in 2015 were the Cornell N Equation, Adapt-N and Pioneer's Encirca. Adapt-N programmers were able to use the results of the 2015 research to fine-tune their predictive model and they continue to collaborate with ACS by funding some trials and reviewing our results together. Pioneer and ACS are collaborating to discuss and compare results of each of our trials across the state in.

ACS Farmer Driven Research

A client-driven research service

* Ideas are initiated by farm clients * Research is funded by farm clients * Plots are full field sized located on client fields * Work is completed using farm's equipment and local agri-service providers * Field days are held for all work * Cornell statisticians give advice on plot design and do all the statistical analyses.

Research Completed To-Date:

- ❑ Fungicide Program on Alfalfa
  - ➢ 1 farm, 44 plots, 2 years
- ❑ BTN on Corn
  - ➢ 4 farms, 42 plots, 2 years
- ❑ BTN on Alfalfa
  - ➢ 5 farms, 20 plots, 1 year
- ❑ Agro-Culture on Alfalfa
  - ➢ 1 farm, 24 plots, 2 years
- ❑ Nutriplant
  - ➢ 1 farm, 39 plots
- ❑ Instinct in Manure on Corn
  - ➢ 1 farms, 24 plots, 1 year
- ❑ Organic Fertilizer Comparison
  - ➢ 1 farm, 16 plots, 2 year
- ❑ Aphanomyces Survey
  - ➢ 32 farms, 42 fields, 1 year

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