NCERA103 Annual Meeting Minutes and Report

Website report: Compendium of Research Reports on Use of Non-Traditional Materials for Crop Production (website)

5,150 page views

1,564 entrances

1,011 new visitors

Products discussed during meeting:

Hibrix organic liquid fertilizers (http://www.hibrix.com/) corn farmers can reduce costs (fertilizer?) by a factor of 10. Research results from UK: Hybrix was evaluated on both corn and soybean as a ground application prior to planting and as a spilt application (half prior to planting and half foliar vegetative growth prior to flowering V8 for both corn and soybean), and in the presence and absence of fertilizer and lime applied at 50% of recommended rates. There was a fully fertilized control. With corn there was a strong yield response to fertilizer/lime application, but no benefit to Hibrix application. With soybeans, there was no significant yield response to fertilizer/lime application or to Hibrix use. Yield potentials for corn and soybean were 200 and 75 bu/A, respectively.

Liquid carbon several companies

Carbon Fertilizer Technologies Carbotech: 270 g/kg organic carbon and CEC > 2,500 cmol/kg

(http://www.cft-sa.za.cx/)

Multi-Crop Products Liquid Carbon: 16-24 ounces per application

(http://www.multi-crop.com/liquid_carbon.asp)

Solutions4Earth BTN Products (http://www.solutions4earth.com/index.php)

Monty□s Liquid Carbon □ Endorsed by Dr. Ron Heineger NCSU 1 quart/A and get 10-15 bu/A increase in wheat yield (http://www.montysplantfood.com/)

Most products have similar claims and include; reduces soil compaction, improves overall soil health, enhances breakdown of plant residues, reduces UAN burn with top dressing, etc. The most common product in KY is Monty□s, but I have received questions regarding other products.

Helena Products □ A UK researcher worked with five numbered products in tobacco, but not sure of the actual products from the five. Three of the five are listed below. No response was seen with any of the products. Company truncated data when presenting for growers to make differences seem greater.

Hydra-hume (liquid carbon) 4 oz to 1 gallon/A

Ele-max (34 Products under Ele-Max umbrella)

CoRon (24 products under CoRon umbrella)

Biobased.US-Soysoap (http://www.biobased.us/index.htm) A UK researcher worked with Soysoap in tobacco and did not observe any beneficial response in two years of research

Sulfur □ □All of Kentucky is low in sulfur□ □ James Comer, KY Commissioner of Agriculture. This is not what we are seeing, but hearing a lot of □Sulfur need□ from dealers and some producers.

NRCS Multi-Species cover crop mixture (8 component mixture) □ seed costs are approximately $185/A and have no data in support of the claims. NRCS is losing legitimacy with some producers over this.

State reports

University of Wisconsin-Madison. In 2013, research was conducted on controlled-release and enzyme inhibitors on potato and field corn. The product ESN® is becoming popular in the Central Sands of Wisconsin. Current research supported by the Wisconsin Potato and Vegetable Growers Association is focused on use of ESN compared to conventional dry fertilizers and the subsequent need for late season applications (i.e. rescue applications). Results in 2013 showed yield gains in potato with ESN over conventional and in some cases, yield reductions with late-season N applications. Other products tested on potato were SuperU and NZone. Statistical analysis on these trials is being conducted. Results of this research were disseminated at the 2013 Wisconsin Potato Growers Conference (attendance 300).

For field corn, use of alternative N fertilizers was evaluated in no-till corn-based production systems (corn-corn, corn-alfalfa, or corn-soybean). The products evaluated were ESN, SuperU, and Agrotain. Benefits were mixed across all six field sites. At one site, ESN resulted in significantly greater yields, at one site SuperU resulted in significantly higher yields and at four sites there was no effect of any fertilizers compared to urea. Results of this research were disseminated at the 2013 Wisconsin Crop Management Conference (attendance 1,525) and at the 2013 Soil, Water, and Nutrient Management Meetings (attendance 500).

Iowa State University. First year studies on urease and nitrification inhibitors. Results are currently being analyzed.

North Dakota State. North Dakota researchers continue to evaluate non-conventional products. These products include high priced liquid starter fertilizers, including those with benefits not normally associated with a starter fertilizer. Products also evaluated include seed treatments and humic acid additives. Educational programs that include research data to help growers choose products that perform according to claims is on-going.

An NDSU Extension report was published titled, Integrated nitrogen management strategies for ND Crops that includes statements that will direct producers and their suppliers from urease inhibitors that do not perform as advertised.

University of Minnesota

Questions on the use of specialty amendments have been few in 2013. Most questions have been around the use of nitrogen extenders, particularly Instinct which has been receiving more attention as of late. Avail still is being marketed around the state in radio advertisements. However, there is no information on how much of the product is actually being sold. The major marketing focus for many of the companies has been on micronutrient packages for use as a starter or foliar application mainly for corn and soybean, but also for small grains and sugar beet. Research is ongoing in the state on specialty products. We just finished the third year on two studies, the first study evaluating the use of Accomplish LM/Soilbuilder AF with 10-34-0 and the second study evaluating the use of Titan (a biological additive with 3% N for dry fertilizer) in combination with Accomplish LM in a 3-year corn-corn-soybean rotation. Other research has focused on the use of Generate in combination with starter fertilizer for corn (1 site) and Riser and Riser F/A along with some experimental fertilizer additives as a starter fertilizer for corn (3 sites).

Kansas State

Recent work with non-conventionals: During 2013 we completed research on slow release N (ESN) for wheat under dry-land conditions and placement with the seed. Additional studies were completed to evaluate urease inhibitors with different application timing for corn. Research on phosphorus enhancement products (P-Max) was completed for corn in 2013.

Extension activities included consultations on multiple non-conventional products during 2013: Nutrisphere, N-Zone, Avail, 40 rock, P-Max, Micros foliar □ bio-forge, Humics + micros.

Short-term Outcomes: results from our research on non-conventional products were used for extension educational programs providing local information to producers to improve efficiency and reduce cost. This information also helps to adapt new technologies and products for local produces.

Outputs: Reports and research progress update were developed.

University of Kentucky

I have not worked directly with any of the non-conventional products, so the work reported here has been conducted by Lloyd Murdock, Greg Schwab, and/or John Grove. The work on SPF Avail that was conducted in fescue over a two year period is attached. Kentucky NRCS only allows products to be utilized in cost share programs for nutrient management that land-grant universities have recognized. This does not allow for the use of many of the available products. As a result of NRCS guidelines and University of Kentucky research and outreach, the use of these unrecognized, non-conventional products in Kentucky is low.

University of Nebraska

Information from the North Central Committee on Specialized Soil Amendments and Products, Growth Stimulants and Soil Fertility Management Programs (NCERA-103) is regularly disseminated to Nebraska crop producers and their advisors through a variety of methods. The website for the Compendium of Research Reports on Use of Non-Traditional Materials for Crop Production (extension.agron.iastate.edu/compendium/index.aspx) maintained at Iowa State University is regularly shared as a means of obtaining research information on products growers have an interest in. Current research findings and recommendations from various states reported at the annual meeting of the committee are shared with crop producers and advisors in Extension workshops through the winter. In particular, efficacy of enhanced efficiency fertilizers and additives to nitrogen fertilizers are disseminated through certification sessions for growers who farm in Groundwater Management Areas (GWMAs) supervised by Natural Resources Districts (NRDs) in Nebraska for the purpose of protecting groundwater quality. Periodically the compendium website and relevant information is provided through the CropWatch newsletter (cropwatch.unl.edu/).

Research on products or practices reviewed by the committee is on-going in Nebraska with two approaches. Some products or practices are evaluated as part of the Nebraska On-Farm Research Network (cropwatch.unl.edu/farmresearch), in which growers collaborate to share research they have conducted on their own farms. These research efforts are conducted in a scientific manner, with randomized, replicated treatments and statistical analysis of results. In addition, University of Nebraska faculty regularly conduct small plot or strip trial research on current and developing products and practices, primarily related to controlled and slow release nitrogen formulations, and additives to nitrogen fertilizer for urease and nitrification inhibition. Results from these studies are published in state conference proceedings, such as the Nebraska Crop Production Clinics, regional conference proceedings, such as those of the North Central Extension-Industry Soil Fertility Conference, and occasionally refereed journal publications.

Recent Publications

Peng, X., C. Yu, R. Ferguson 2012. Use of enhanced efficiency nitrogen fertilizers to reduce leaching and volatilization loss. In: Proceedings of the 42nd Annual North Central Extension-Industry Soil Fertility Conference, November 14-15, 2012, Des Moines, IA. Pp 80-88.

Shaver, T., R. Ferguson, G. Hergert, C. Shapiro, C. Wortmann. 2012. Nutrient management: now and in the future. In: 2012 Crop Production Clinic Proceedings, pgs. 145-148.

Hergert, G.W., R. Ferguson, C. Wortmann, C. Shapiro, and T. Shaver. 2011. Enhanced efficiency fertilizers: Will they enhance my fertilizer efficiency? In 2011 Crop Production Clinic Proceedings, pgs. 145-148.

South Dakota State

R.Gelderman, J.Rickertson and B.Swan. 2012. Broadcast and seed placed ESN and urea nitrogen on winter wheat grain yield and protein, and other parameters, Brookings, SD, 2012. PR 12-6. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm (verified 7 Feb. 2014).

R.Gelderman, J.Rickertson and B.Swan. 2012. Rate and timing of ESN nitrogen on winter wheat grain yield and protein, SD, 2012. PR 12-6. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm (verified 7 Feb. 2014).

R.Gelderman, S.Berg, C.Smith and B.Rops. 2012. Corn Response to Nitrogen-loss Additives. PR 12-8. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm (verified 7 Feb. 2014).

R.Gelderman, S.Berg and C.Smith. 2012. Application of foliar and furrow applied products for Corn near Brookings, SD. PR 12-9. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm (verified 7 Feb. 2014).

R.Gelderman and S.Berg. 2013. Application of foliar and furrow applied products for Corn near Brookings, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R.Gelderman and S.Berg. 2013. Influence of Vitazyme and fish products on Corn near Aurora, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R.Gelderman and S.Berg. 2013. Loveland Products on Winter Wheat near Brookings, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R.Gelderman and S.Berg. 2013. Loveland Products on Soybean near Brookings, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R.Gelderman and S.Berg. 2013. Influence of foliar growth promoter on Corn near Brookings, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R.Gelderman and S.Berg. 2013. Influence of Winfield products on Corn near Brookings, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R.Gelderman and S.Berg. 2013. Influence of Winfield seed treatment on Corn near Brookings, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R.Gelderman and S.Berg. 2013. West Central Products on Corn near Brookings, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R. Gelderman, S. Berg, C. Smith, and B. Rops. 2013. Corn Response to Nitrogen-loss Additives.

In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R. Gelderman, S. Berg, C. Smith, and B. Rops. 2013. Corn Response to Nitrogen-loss Additives.

In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R.Gelderman and S.Berg. 2013. West Central Products on Winter Wheat near Brookings, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R.Gelderman and S.Berg. 2013. Influence of Vitazyme on Soybean near Aurora, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm.

R.Gelderman and S.Berg. 2013. Instinct use with UAN on Corn near Aurora, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm

R.Gelderman and S.Berg. 2013. Instinct use with Urea on Corn near Aurora, SD. In Press. [Online]. Available at http://www.sdstate.edu/ps/research/soil-fertility/reports/index.cfm