**NCERA 103 – Minutes**

**November 5, 2015, Des Moines, Iowa**

**Meeting called to order at 12:47 pm by Chair Daniel Kaiser**

Attendance:

* Carl Rosen, University of Minnesota (administrative advisor) crosen@umn.edu
* Daniel Kaiser, University of Minnesota (Current Chair) dekaiser@umn.edu
* Edwin Ritchey, University of Kentucky (acting Secretary) Edwin.Ritchey@uky.edu
* John Sawyer, Iowa State University jsawyer@iastate.edu
* Jim Cambarato, Purdue University jcambera@purdue.edu
* Dave Franzen, North Dakota State University David.Franzen@ndsu.edu
* Ed Lentz, Ohio State University lentz.38@osu.edu
* Dorivar Diaz, Kansas State University ruizdiaz@ksu.edu
* Peter Scharf, University of Missouri ScharfP@missouri.edu
* Richard Ferguson, University of Nebraska rfergusen1@unl.edu
* Emerson Nafziger, University of Illinois ednaf@uiuc.edu

Absent

* Matt Ruark, University of Wisconsin (Current Secretary) mdruark@wisc.edu

**Meeting Minutes**

* Carl Rosen gave administrative report - 2014 report was submitted and accepted
* Next year we need to decide the direction of committee and will need a new 5-yr plan
* Renewal in 2017 – make sure we have progression – who takes leadership role after meeting. Chair progression – Minnesota (16-17), then Kansas. This depends on Matt Ruark and if he is able to participate in the future. If Matt is not able to take chair role, then next in succession is Kansas – Dorivar Ruiz Diaz, followed by Kentucky – Edwin Ritchey.
* Emerson wanted quick summary of NCERA 103 - how has it changed, what are the burning questions?
	+ Response to Emerson – answered by several. No big change taken on nitrification inhibitors, used to have product list: (e.g. this company had this product, but now such a large list and it changes yearly. A comprehensive list does not currently exist)
	+ Compendium of non-traditional products (the compendium is all on a website) – criteria for inclusion of a research report or abstract in the compendium includes: 1) at least two site-years of research, with multiple crops or varieties substituting for a site-year; 2) authors listed; 3) replicated with statistical analysis; 4) reasonably applicable to north central USA crop production; 5) reference source available; and 6) author permission.
	+ 2-3 yrs ago industry wanted to know if we would “certify products” admin said no
	+ Each state has something like this (certification of products) but differ between states and doesn’t really have teeth
* We have 60 days to get report turned in – due early Jan.
* Dan will send out state reports
* Short outcomes and outputs

**State Reports**

Minnesota: Dan – not many questions but Winfield products – corn value was down and fewer questions were asked of “non-traditional products”

* WC101 product with chelated iron will turn it red (4 yrs data)
* Levisol - same product but has “safeners” – sell as foliar product, looked like starter response: ie increased early growth but not yield. Dorivor has data as well
* Close to 10 studies with product
* Starter products – Redline, Soygreen
* Fewer questions – producers are trying to trim costs, micronutrient questions are down
* Carbon Works – buy extractions kit from them to manufacture your own humic acid.
* NW Minnesota. American peat to use as microbe carriers – they want to know what to research.
* Worm castings to improved water holding capacity.

Work was continued in Minnesota testing products for in-furrow use in corn and soybean production systems. Several research projects are being conducted with a product called Levisol which is marketed by West Central INC as an additive for liquid fertilizers. The product primarily consists of EDDHA chelate which is supposed to increase the availability of other chelated and non-chelated nutrients. Soybean and corn trials were also conducted for Conklin to test a new experimental product for in-furrow use in corn and soybean. The product was a mixture of plant growth regulators and humic acid.

Most questions currently have focused on inhibitors and Levisol. The additive market has been quiet due to low commodity prices. I did receive questions about Carbonworks which is being sold to growers in central Minnesota. Corbonworks is a humic acid substance sold for in-furrow application. I also received a few questions regarding a product called Generate which is sold by Ralco and I have previously had research plots with this product.

Accomplishments

1. Levsiol trials (six corn and two soybean trials) Studies consisted of factorial designs of either 10-34-0, chelated zinc, or chelated manganese with and without 2 qt per acre of Levisol
2. No reports submitted to the compendium
3. Presentations given in early 2015 on starter fertilizer use in corn which included some data generated from previous product testing work. I also gave a presentation on starter fertilizer to a group of consultants in Wisconsin which included product testing data.
4. Industry reports generated for Levisol work. Reports were submitted to industry directly and are not available online.
5. No peer reviewed publications
6. Grants: I received a grant to study the impact of the EDDHA chelate from the MN Department of Ag on the release of phosphorus from low P soils.

Kansas: Dorivar – similar to Dan’s report – fewer questions – some nutrisphere/Avail, fewer micro questions

* Dorivor has 2 years of research on Levisol product (currently for sale) – nothing consistent early uptake works okay with iron
* Accomplish LM and Titan – organic chelate . Ed also has data on Accomplish. Loveland products with Bacillus – no response with one site year of data
* The question was asked about combining data across states to meet the requirement for posting to the compendium website. This was in agreement that data can be shared across states to meet this requirement.
* Accomplish & Titan about same thing but Titan had 3% N added to the product and can be sold as a fertilizer product as long as it meets label nutrient concentration.
* John Samper Compendium in page views Nov 2014 – Oct 2015 Page view 3247
* Last year google analytics not tracking
* 228 files/ports in comp
* Circulars also included
* 2015 – 1; 2014 – 0; 13 – 5; 12 – 3; 11 – 4; 10 – 6

Iowa: John Sawyer – gave update on compendium webpage views

* Nov 2014 – Oct 2015 3,247 views
* 228 files/reports in the compendium
* Circulars and committee publications are also included in the compendium
* Reports added
	+ 2015 – 1
	+ 2014 - 0
	+ 2013 – 5
	+ 2012 – 3
	+ 2011 – 4
	+ 2010 – 6
* Last year had some trouble with google analytical tracking views
* We can include journal articles if we can get permission from journal – ASA says no even after waiting one year (like used to allow)
* Compendium “articles” can be abstracts from journals
* Dorivar said that if the journal is open access then you can include in the compendium. He said you can request permission (probably with fee)
* The compendium is a “moving target” as to keep/not keep with ISU IT according to John
	+ The Department of Agronomy IT support has indicated a preference for the site to be housed somewhere else, and for support. The home of the NCERA 103 site will probably depend on the next server update
	+ John asked if anyone wanted to take over the site and house it at another University. John will pass off information. It is not currently “mobile friendly” – is built off old technology, but will function from a smart phone
	+ Is possible to now develop a website that is mobile friendly and would not need a new app; however unknown how that would be accomplished.
	+ Can’t upgrade this site
	+ Australia people use site
	+ It was suggested to look at mobile app – but it had to work with pdf files (format currently used for compendium reports)
	+ Dan might get fertilizer checkoff to pay for development
* North Central Extension-Industry proceedings site still on server – trying to get it moved to IPNI site
* NC proceedings site had 1,222 pg views, and CNRC had 84,747 page views
* John went to several product websites that he had received questions and printed off the product information
* Eco Agro – N-Bound DCD based product 24 oz/A with anhydrous ammonia (0.375lb DCD/A)
	+ The old research showed that 5% of the N should be DCD – use rate to low for N-Bound
	+ There was discussion on real low use rates and how to contend with products that work at a certain use rate, but others use proven products at real low rates???
	+ Labeled in all states but Ohio for sale
* N Yield, a NBPT product
* Super U uses low rate/A, but not on label.
* Rhiz-up, used in Turf, gibberellic acid
* Verdesian - Take off (NUE trait)
	+ Some kind of N-fixing technology for non-legumes
	+ Seed coating technology from University of Nottingham
* Monsanto putting seed coating biological on their seed
* Ed mentioned that Pioneer makes seed treatment sales pitch. Often a producer will need the “whole package” to get replant options
* Microbes – no testing required (even though guaranteed )
* For seed treatments, they are EPA regulated only if the treatment is killing something

Indiana: Jim Camberato

* Limus(?) Started a long term gypsum trial, the first year showed no benefits
* Ed mentioned that Ohio – NRCS wrote gypsum use in as an eligible practice to receive EQIP payment. They are getting their information from ARS in Beltsville.
* Valent bought “Oregon” company – AycoApply
	+ No impact of MycoApply on yield but can stop up screens in sprayer
	+ Ed – said organic industry is driving a lot of these products in Ohio
* Haney test – many states not only Indiana
	+ Ray Archuleta told people in Indiana to ask Jim how to make soil fertilizer recommendations using the Haney test – Jim doesn’t know (no one does)
	+ Carl had NRCS ask him what it meant
	+ Antonio is looking at P-side of money
* Wise drop – a dew wetting material to funnel dew water down the stalk
* Some type of N decision tool side-dress versus all preplant N
	+ Decision tool had bad defaults in tool, but could change the defaults it aware
	+ Ray Massey wrote the program
	+ Had yield loss magnitude wrong – not large enough (in Ag Answers – got award)
* Koch comparing DCD vs Instinct.
* Sidebar question - how many have been provided a numbered compound and does a numbered compound make work unpublishable? The consensus was they thought it was still publishable.

North Dakota: Dave Franzen

* Will take the time to revise the Nitrogen Inhibitor circular
	+ New data is available
	+ Will list those products that work and not ones that don’t work
	+ Will remove nutrisphere because it doesn’t work
* Instinct –Joy Goos it took 5X the rate of nitrapyrin because its slow release
	+ Jim agreed that the slow release rate hindered the products effectiveness.
* Instinct – not very effective (nitrification inhibitor) DCD low rate/Instinct doesn’t work
* If a product label matches website then Iowa will register product
* Nutrient Reduction Strategy – companies trying to get on list
* No NutriSphere questions, some N-Zone
* Ag Spectrum (not heard from in long time) – not balancing cations anymore
* Small quantities of “products” being sold because low commodity prices

There were a great many products sold in North Dakota that would fit into the purview of our committee. Almost all of them have been marketed in the past.

There were more questions about N-Zone than any other N fertilizer amendments. Use of urease inhibitors, nitrification inhibitors and ESN poly-coated urea is up. Most urease/nitrification inhibitor use is directed towards products with proven mode of action and efficacy, but there are significant acres where products of questionable benefit are used. There is an increase in non-descript seed-company applied seed treatments that generally claim to enhance early growth and final yield, but there is little transparent evidence that they actually do anything positive.

My studies included Limus urease inhibitor (BASF), N-Serve (Dow Agri-Sciences), and ESN (Agrium).

I have no reports to file. The study is on-going and data will be released on final report, probably in 2017.

Information for annual reports:

Accomplishments:

1) 2015 product trials – (with short description of experimental design)

2015 urease studies

These studies were RCB’s, 4 replications, which included treatments of ESN, Limus at various rates on urea, untreated urea, Agrotain Ultra and Agrotain Advanced as well as an experimental poly coated urea. Within selected treatments an ammonia volatilization cylinder with dilute phosphoric acid soaked foam pad with rain cover was installed prior to fertilizer application after seeding and a separately weighed out treatment corresponding to the general plot treatment was applied inside the cylinder before applying pad and the rain cover. The pads were removed and replaced after certain periods of time up to a month following application and sent off for ammonia analysis. The plot treatments were applied in winter wheat in April top-dress timing, in spring wheat at emergence, and in corn directly after seeding.

Plots were taken to yield and protein was also analyzed on the wheat treatment samples.

2) Report submitted to the compendium-none

3) Presentations given

I provided ten presentations within North Dakota and one in Minnesota, to a total of 800 farmers and ag-industry representatives that included information generated and archived by the NCERA-103 committee.

4) Reports (proceeding papers, industry reports, etc.)- none

5) Peer-reviewed publications- none involving this committee

6) Grants (non-gifts)- BASF for Limus research $20,000

Impact Statements:

Most products of questionable value to farmers evaluated by this committee simply add needless expense to farmer financial operating funds. However, products that claim urease or nitrification inhibition, but do not perform are particularly insidious because not only do they waste farmer operating funds, but if these properties were truly required for greater farmer profit, they do not provide the profit that chemistries with a true mode of action as urease inhibitors or nitrification inhibitors would provide. There is therefore a yield/quality/profit decrease in N loss-susceptible years with the use of these products. As long as the basic farmer fertilizer requirements are met when other non-conventional products and amendments are also included, most of the time yield/quality losses are not incurred. The activity of the committee within North Dakota helps to limit operating fund losses due to use of non-performing products and programs and helps direct farmers to more profitable N stabilization products.

Kentucky: Edwin Ritchey

* Asked if anyone had a publication about “More than Manure” – no compendium publications
	+ Research paper by Daniel Anderson found it worked at 8X rate
* Also noticed fewer questions this year than in previous years
* Will direct questions of “non-conventional products” to NCERA 103 Website
* Soil Health agenda and the Haney test
	+ Having dialogue with NRCS State Con on a unified message regarding “Soil Health”
* Show John Grove “research report” on Small Grain Growers funded project.
	+ If John has two site years of data, he can send to John Sawyer, give permission for posting to compendium website, and John will post.
	+ He will have a report coming for corn and soybeans (two reports) when data is compiled and analyzed.
* Nutrisphere and avail questions down, but still being sold by Southern States. Can request other N-stabilizers to be used for treating N
* Monty’s products are still being promoted in some areas

There were a few new products sold in Kentucky this year that have questionable characteristics as to enhance crop growth, lower production costs, or reduce conventional inputs.

1. AgriCal  liquid calcium (AgriGro). This product was being promoted to replace limestone additions. It looks like the web page actually has been changed since we wrote a blog post regarding it not being a liming material. This was picked up by several others and reposted. I actually received phone calls from Texas regarding the product. I have included links to the original blog post and a follow up webcast that was developed. Here is the link to their webpage (http://www.agrigro.com/). Here is the original blog post (http://graincrops.blogspot.com/2015/04/buyer-beware-when-it-comes-to\_8.html) and the following plant management network webcast (http://www.plantmanagementnetwork.org/edcenter/seminars/soybean/LimingMaterials/)

2. Several Monty’s products. One in particular that was being promoted was Humi-Till. (Labels attached to email as pdf files.) it is a new microbial product that is purports to accelerate crop residue/con stalk breakdown and speed nutrient release. Our soil microbiologist said that he was not familiar with the product, but it sent up several red flags. (http://www.montysplantfood.com/wp-content/uploads/2015/07/1090-Humi-Till-Flyer.pdf)

What products are people asking about (current or new products) and if there specific questions asked about a product.

1. Avail is still being marketed, but it appears that there is limited use of this product. It is now being marketed by Verdesian. A Verdesian representative emailed Josh McGrath and myself to request us work with their product. Josh told them in so many words that he was not interested, I didn’t respond. They continued discussion and Josh finally gave them a very high price for research and the data was UK’s to use as we see fit. They agreed, but have not heard back from them regarding protocol.

2. NutriSphere is still being sold from many of the Southern States stores. Unless you request a different product, this is what urea is going to be treated with at most stores. They will use other stabilizers if a request is made.

3. ACT (Agricultural Compaction Treatment) is manufactured QUIK-GRO in Daviess County, KY and is ammonium laurel sulfate (I believe-can’t find label now). It is labeled as a soil conditioner which reduces soil tension much like the way a wetting agents effects surface water, only presenting a very effective change. John Grove worked with a producer in McLean county and divided a field in quarters. The producer measured yield (no differences observed) and Grove collected soil penetrometer resistance measurements (no differences observed). The Daviess county extension agent was contacted by a representative to test the products. I told the agent to go ahead and I would help him with experimental design. I have not heard back as to the response http://qgtest.mobileideahosting.net/

4. Still hearing a lot of gypsum promotion, some for needed calcium, some for needed sulfate, some for improving soil structure and drainage. We have seen a very limited number of fields that appear to have a true sulfur deficiency (maybe 2-3 that have responded to sulfur applications). Must more push than demand warrants.

5. Haney Test and Soil Health. NRCS has backed off some due to increasing pressure from county agents and UK specialists. State NRCS administration has agreed to meet with UK specialists/researchers to discuss this and make sure that KY producers are receiving information pertinent to their operation.

What products did you testing in 2014?

John Grove tested several products this year in wheat, corn, and soybeans in collaboration with the variety testing program. The products listed for wheat are listed below. The below information was for only one site. I was mistaken when I mentioned there were multiple sites, it was the corn and soybean tests that were conducted at multiple sites but the data has not been processed yet. I have attached the final report Grove submitted to the Kentucky Small Grain Growers Association to this email.

1. Avail

2. BioForge

3. Coron (28-0-0-0.5%B)

4. TJ QuickRoots (seed treatment)

5. SabreEx (seed treatment)

6. Jumpstart (seed treatment)

7. LCO (seed treatment)

Information for annual reports:

Accomplishments:

1) 2015 product trials – (John Grove’s study above)

Six replications in a RCB at one location. Data collected included stand counts, tissue nutrient determination, and wheat yield.

2) Report submitted to the compendium – none. Will submit Grove’s other work when it is completed.

3) Presentations given – Grove presented three meetings with the above information to farmer groups this fall. I have presented 3-4 where “questionable” products were included in the discussion (no talks specifically focused on these or similar products)

4) Reports (proceeding papers, industry reports, etc.) – none other than attached paper

5) Peer-reviewed publications – none

6) Grants (non-gifts) – none active besides Grove’s grants he received from Kentucky Small Grain Growers Association, Kentucky Soybean Promotion Board, and Kentucky Corn Promotion Council for the above research or similar research.

Impact Statements: As commodity prices decrease, the use of many of these products decreases by producers. The pressure is prevalent, but informed producers are not willing to invest in many of these products due to the absence of positive returns as shown by unbiased research.

Ohio: Ed Lentz

* Soil health push big in Ohio
* Steve Cullman has a new field research program that tests non-traditional and specialty fertilizer and amendment products being supported by company entry fees

Nebraska: Richard Ferguson

Few products being pushed in Nebraska

* Few products are currently being pushed in Nebraska
* Inhibitors
* State agronomist asks Richard if certain inhibitors work, related to EQIP payments.
* Synthetic gypsum funded trial – unreacted lime

Minnesota: Carl Rosen

* Polyhalite – contains K-S-Mg-Ca, a low grade fertilizer: 0-0-14-19(S)-3.6(Mg)-12.1(Ca). May possibly useful in blends to supply S and Mg

Missouri: Peter Scharf

* PAN 32-0-0 CNR enterprises nanotech N source
* N Zone trial requested by Rhodesia
* Agronomy Meeting Community at ASA
	+ good time for gypsum publication
	+ how to proceed with ASA (nip gypsum in the bud)
	+ Gypsoil folks invested in ASA meetings
	+ Who runs ASA? Headquarter staff or scientist?
	+ 2015 Ads, webinars, community “crack pots” are getting worse – what to do? Can’t get rid of – how to accomplish

Illinois: Emerson Nafziger

Verdesian group at the 2015 Farm Progress Show displayed special equipment they are selling for injecting Nutrisphere (water-based) into anhydrous ammonia at the knife.

* Not selling as “inhibitor” but as a way to increase yield, citing (among other things) a trial Steve Ebelhar did some years ago in southern Illinois.
* Producers can agree to buy a certain amount of product and the company will subsidize the purchase of equipment.
* Claims to inhibit nitrifying bacteria by withdrawing Cu due to “high CEC” of product.
* Jim Camberato mentioned also injecting Instinct into anhydrous ammonia. [Note – I don’t know if Dow is promoting this?]

**Other Business**

Dan needs to summarize state reports for final NCERA 103 report.

Send compendium related material to John

* Dan needs to summarize state reports for final NCERA 103 report
* Get Grove to submit his product trial reported with two site years of data to John for posting
* Publications – Dave will revise inhibitor paper.
* A need for a polymer coated/slow release products publication still exists.
	+ Rachel Cook did meta analysis on these products, see if she wants to do a regional paper.
* Need to check to see if Matt Ruark will be able to serve as 2016-2017 NCERA chair
* Phosphorus paper, Dan and Dorivar to cover only Avail and Jumpstart –
	+ Send KY Avail data
	+ Another P extender (P-Max)
* Renewal – suggestion – find out who is next – Chairs for 2 years – therefore one more year for Dan.
* Any pubs get in for posting to compendium
* Plan to have NCERA 103 meeting after North Central Soil Fertility meeting next year
* Daniel will send email reminder for state reports

3:28 pm meeting adjourned

Minutes submitted by Edwin Ritchey

**Meeting agenda – Des Moines 2015**

1) Administrative report - Carl
2) State reports - all

3) Compendium update (John Sawyer)

4) Renewal timetable

5) publications
-P publication
-N publication

6) Any other business