**NCERA 103 Specialized Soil Amendments and Products, Growth Stimulants and Soil Fertility Management Programs**

Meeting: November 18, 2021

Holiday Inn Des Moines-Airport/Conf Center

6111 Fleur Dr, Des Moines, IA 50321

Present:

Carl Rosen (Administrator) – University of Minnesota (virtual-Zoom)

Bijesh Maharjan (Chair) – University of Nebraska-Lincoln

Dorivar Ruiz Diaz (Secretary)– Kansas State University

Kurt Steinke – Michigan State University

Edwin Ritchey – University of Kentucky

David Franzen – North Dakota State University

Dan Kaiser – University of Minnesota

Mark Licht– Iowa State University

Jason Clark – South Dakota State University

Emerson Nafziger – University of Illinois

Jim Camberato – Purdue University (virtual-Zoom)

Edwin Lentz – The Ohio State University (virtual-Zoom)

John Lory – University of Missouri (virtual-Zoom)

Matthew Ruark – Wisconsin - University of Wisconsin

Administrator Report

* Carl Rosen gave the administrative report.
* Renewal process is ongoing: Participants need to request authorization to participate on the renewed project.

Rotation/leadership update

2021: Chair, Nebraska; Secretary, Kansas

2022: Chair, Nebraska; Secretary, Kansas

Previous chairs, 20-OH, 19-OH, 18-WI, 17-WI, 16-MN, 15-MN, 14-MN, 13-SD, 12-IN, 11-IN, 10-ND, 09-ND, 08-NE, 07-NE, 06-NE, 05-OH, 04-IL, 03-SD, 02-IA, 01-ND, 00-MO

Compendium website

During this year a significant progress was made to move the compendium from the Iowa server. The committee agreed to work with PAQ Interactive Inc. the data/publications from the Iowa server were already transferred to PAQ, and any additional information needed will be requested to the Iowa State representative.

State reports

* Given by each member. Detailed written reports are included below. The state reports constitute most of the meeting time which involve recaps of current product trials, identification of new products on the market and their potential effectiveness, and extension publications and programming in the area of non-conventional products.

New business

* Discussion on bio-stimulants/biologicals
	+ We ought to keep generating field trial data and enrich the Compendium database for producers use.
	+ Dan will put a report on ProveN.
	+ Several presentations were included on this topic at North Central Meeting in 2021 based on planed from the previous year.

**Adjourn**

**STATE REPORTS**

**Illinois - University of Illinois**

**Nafziger, Emerson**

*List of new products, with short description*

While marketing efforts for various microbial products continue, most such products do not seem to be getting much attention. Two that are getting attention are Envita from Azotic North America that claims to “replace(s) 25 to 50% of the [corn] plant’s nitrogen needs” while also increasing yield of soybean “by up to 8%” (from the website.) It is claimed to be a “food-grade” bacteria that provides nitrogen to every cell in the plant…throughout the growing season.” The website claims a yield increase of 8.4 bushels per acre, and a 4.6-bushel increase in soybean yields in US trials in 2020.

A product for which similar claims are made is ProveN 40 from Pivot Bio. This is from a California-based startup with what appears to be major venture-capital funding, and which has been very aggressive in marketing, including engaging local sales reps. The microbe in this product is claimed to be a free-living N fixer (active in the rhizosphere) that has been “bioengineered” to perform better. The number “40” refers to the putative amount of fertilizer N that this product “replaces.”

The concern with both of these products is the claim that microbes can fix N in such large amounts, in plant cells (that are not in root nodules) or in the soil. Pivot Bio, in particular, requires that any (corn) data that they report be from trials to which the “recommended” rate of N has been applied. This inability to estimate how much additional N the microbes produced is downplayed in marketing. Azotic does not impose such a restriction, but the data on their website is similarly limited. Both emphasize testimonials. On the plus side, having producer decrease N rates that are too high is positive, even if the claim that microbes will “replace” that N is untrue.

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

The nitrification inhibitor Centuro from Koch continues to gain some market share with retailers due to its being noncorrosive and able to be added to other N forms besides anhydrous ammonia. There seem to be fewer questions about products that make claims (such as being an “inhibitor”) that aren’t backed by research or a label, but that doesn’t mean they aren’t being sold. Yields were good in Illinois in 2021, making is possible for those who used non-traditional products to accept that these products helped yield even if there is no supporting evidence for that. While leaving “check strips” is still mentioned by some, it is likely that lack of any yield response can be set aside by astute sellers of such products who may easily find that the checks were not able to show “true” responses.

Accomplishments:

Working on an upgrade of the database and also the website for the N rate calculator

1. Reports submitted to the compendium: One, on N rate x Envita trials at two sites in Illinois in 2021. November 2021.
2. Presentations given: two N management webinars (February and October) arranged by the Illinois Fertilizer & Chemical Association; an N management webinar under the Farmdoc (Extension) program on October 7; a presentation at the 4R field day event (Pontiac, Illinois) on September 21, 2021; two recorded webinars as part of the regional UI Extension Crop Management Conferences on climate change, including N management; and a presentation on the MRTN N recommendation approach at the North Central Extension-Industry Soil Fertility Conference in Des Moines, Iowa, on November 17-18, 2021.
3. Reports (proceeding papers, industry reports, etc.): Presentation at the NCEISFC included a summary on the conference website. Several articles at the Crop Central website spoke to use of non-traditional products, including “[Does This Products Work](https://farmdoc.illinois.edu/field-crop-production/does-this-product-work.html)” posted on April 6, 2021.
4. Peer-reviewed publications (soil fertility related):

Nafziger, Emerson D. and Rapp, Derek. 2021. Corn yield response to late-split nitrogen fertilizer. *Agronomy Journal*. 2021;113:527-536. <https://doi.org/10.1002/agj2.20472>

Ransom CJ, Kitchen NR, Sawyer JE, Camberato JJ, Carter PR, Ferguson RB, Fernández FG, Franzen DW, Laboski CAM, Myers DB, Nafziger ED, & Shanahan JF. 2021. Improving publicly available corn nitrogen rate recommendation tools with soil and weather measurements. *Agronomy Journal* 112:2068-2090. <https://doi.org/10.1002/agj2.20627>

Ransom CJ, Clark JD, Bean GM, Bandura CJ, Shafer M, Kitchen NR, Camberato JJ, Carter PR, Ferguson RB, Fernández FG, Franzen DW, Laboski CAM, Myers DB, Nafziger ED, Sawyer JM, & Shanahan JF. 2021. Data from a public-industry partnership for enhancing corn nitrogen research. *Agronomy Journal* 113:4429-4436. <https://doi.org/10.1002/agj2.20812>

Preza-Fontes, G., Wang, J., Umar, M., Qi, M., Banger, K., Pittelkow, C., Nafziger, E. Development of an online tool for tracking soil nitrogen to improve the environmental performance of maize production. Sustainability, 2021, 13, 5649. <https://doi.org/10.3390/su13105649>

Nafziger E D, Yoder B, Mathesius J, Carter P. Nitrogen deficiency and corn yield with delayed N application. *Agronomy Journal*. 2021;113:3665–3674. <https://doi.org/10.1002/agj2.20760>

Correndo, A.A., Rotundo, J.L., Tremblay, N., Archontoulis, S., Coulter, J.A., Ruiz-Diaz, D., Franzen, D., Franzluebbers, A.J., Nafziger, E., Schwalbert, R., Steinke, K., Williams, J., Messina, C.D., Ciampitti, I.A., 2021. Assessing the uncertainty of maize yield without nitrogen fertilization. Field Crops Res 260. <https://doi.org/10.1016/j.fcr.2020.107985>

Correndo, Adrian A., Tremblay, Nicholas, Coulter, Jeffrey A., Ruiz-Diaz, Dorivar, Franzen, David, Nafziger, Emerson, Prasad, Vara, Moro Russo, Luiz H., Steinke, Kurt, Du, Juan, Messina, Carlos D., Ciampitti, Ignacio A. 2021. Unraveling uncertainty drivers of the maize yield response to nitrogen: A Bayesian and machine learning approach. Agricultural and Forest Meteorology 311: 108668. <https://doi.org/10.1016/j.agrformet.2021.108668>

Bean, GM, Ransom CJ, Kitchen NR, Scharf, PC, Veum, KS, Camberato JJ, Ferguson RB, Fernández FG, Franzen DW, Laboski CAM, Nafziger ED, Sawyer, JE & Nielsen, RL. 2021. Soil hydrologic grouping guide which soil and weather properties best estimate corn nitrogen need. *Agronomy Journal*. 2021;1-15. <https://doi.org/10.1002/agj2.20888>

1. Grants (non-gifts): none to report.

Impact Statement:

Although results from research such as our N rate x Envita trials in 2021 may be easily set aside by those who sell such products, simply carrying on such research, especially when it isn’t funded by the seller, is a valuable public service. Large increases in fertilizer prices between the fall of 2020 and the fall of 2021, accompanied by relatively small changes in crop prices between spring and fall, 2021, has brought intense pressure on producers to apply N fertilizer in the fall of 2021 (with prices likely to rise before spring 2022) and to begin applying ammonia early to get this done. The second half of October was wet in Illinois, which helped delay application until soils were cool enough. Articles and webinars on N rate with N and corn price changes, on managing P and K when fertilizers are high-priced, and on making proper N application helped educate on these issues.

**Iowa - Iowa State University**

**Licht, Mark**

Non-traditional products are continuing to be of interest to Iowa farmers and are becoming more available. In 2021, I had two trials with humic acid products. One humic acid trial was on corn and the other on soybean. Treatments were designed to gain an understanding of application rate (4, 8, 16, 24 oz/ac). The application rate was split between two application timings (V1 and V5 for corn and V2 and V5 for soybean). There is continued interest on the use of N and S for soybean production; in 2021 I had two trials (3 locations) with ammonium sulfate, urea, and/or gypsum. One trial with two locations was designed to determine if N and S applications would impede or enhance N fixation. The other trial is designed to determine if S applications (timing and rate) are beneficial for soybean production.

Publications

Cano Camacho, V, MA Licht and M McDaniel. 2021. Biological seed coatings influence on soil and plant health in central Iowa. Research and Demonstration Farm Progress Report, Iowa State University, Ames, IA. <https://www.iastatedigitalpress.com/farmreports/article/id/12532/>

Witt, M, LT Rossiter, J Rogers, Z Koopman, KT Pecinovsky and C Hesseltine. 2021. On-farm corn nitrogen enhancer foliar treatment demonstration trials. Research and Demonstration Farm Progress Report, Iowa State University, Ames, IA. <https://www.iastatedigitalpress.com/farmreports/article/id/12551/>

**Kansas - Kansas State University**

**Ruiz Diaz, Dorivar**

List of new products this year that you've come across, with short description of what they are and any potential concerns you may have.

* *We continue to see new products defined as “biologicals” that might include inoculants applied with the seed, or with starter fertilizers, in-furrow.*

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

* *Many of the questions are related to the “biologicals” currently offered in the market.*
* *Also “enhanced” fertilizers with the addition of humic acids.*
* *Many questions on “liquid calcium” as a source of Ca for crops.*

Impact Statements:

*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.*

**Kentucky Cooperative Extension**

**Ritchey, Edwin L**

Proven40: (Turn to a better nitrogen I Pivot Bio) 40 microbes form a symbiotic relationship with the

corn plant.

4 G Soil Restoration - Organic Growth Burst: (4G Soil Restoration) Organic Growth Burst is a soil enhancer that will restore beneficial nutrients, increase earthworm population, and naturally reduce invasive weeds and insects.

CarbonGro (CarbonGro I Liquid Carbon for Agriculture I Discover CarbonGro) The little green pill for your plants. Forget magic beans, discover carbongro. Non-ionic organic surfactant and Plant wash. Ingredients NIS, corn, soy, plant based oil fatty acids, organic alcohol and water. Same product as Soy Soap.

Monty's Plant and Soil Products (Corn - Monty's Plant Food (montysplantfood.com)) Many products listed.

Agritec International (About Liquid Calcium I AgriTec International Inc.) Bio-activated liquid calcium

**Michigan - Michigan State University**

**Steinke, Kurt**

Inquiries regarding products and amendments was up from 2020. Some “newer” sulfur-related products continue to see increased marketing. With the uptick in both input and commodity prices, topics including cation balance, micronutrients, and biologicals are increasingly being discussed. Inquiries into utilizing biologicals to improve soil health increased with many unsubstantiated claims on biologicals or growth promoting fertilizers intended to “balance” the microbiome and improve plant nutrition.

SymTRX20S (16-1-0-20S) and SymTRX10S (16-20-0-10S) are two N, P, S replacement products that were tested on sugarbeet soils with STP near 30 ppm. The two N, P, S replacement products evaluated appear to perform similarly this growing season to other conventional products using MAP as a base in co-granulated fertilizers or AMS. One of these products is now being marketed as Susterra.

Micronized sulfur products including MAP-MST, MOP-MST, ASM-MST, UAN-MST were tested in corn and wheat. Mixed results in corn and wheat with some positive and negative significant differences.

Polyhalite and polyhalite blends were trialed as an alternative K source for potato and sugarbeet crops. Few differences in sugarbeet tonnage or quality. Some significant yield differences in potato with low dose polyhalite blends outperforming higher rates of polyhalite blends and 100% MOP.

Biologicals continue to increase in discussion whether applied at coatings on seed, impregnated on fertilizer, or applied directly to soil. Several trials with proprietary biologicals impregnated on conventional fertilizers. Few results observed during this growing season.

Interest in biologicals that claim to fix N gaining interest. Worked with Envita on potatoes in 2021. Full and 50% N rates with and without Envita applied in-furrow. No significant differences other than half rates of N reduce yield.

What products did you test in 2021?

• SymTRX20S and SymTRX12S

• MAP-MST, MOP-MST, AMS-MST, UAN-MST

• Anvol, Centuro, Tribune

• Polyhalite and polyhalite blends

• Envita

• Other proprietary bacterial and fungal solutions impregnated on fertilizers

Accomplishments:

1. 2020 product trials – See above list with additional products and yield data available at soil.msu.edu
2. Nine presentations involving at least some product testing data
3. Rutan, J., N. Rosenzweig, and K. Steinke. 2021. Soil bacterical community composition following cover crops and corn nitrogen management. Soil Sci. Soc. Am. J. (*Accepted Sept 2021*).
4. Correndo, A., N. Tremblay, J. Coulter, D. Ruiz-Diaz, D. Franzen, E. Nafziger, V. Prasad, L. Moro Rosso, K. Steinke, J. Du, C. Messina, and I. Ciampitti. 2021. Unraveling uncertainty drivers of the maize yield response to nitrogen: A Bayesian and machine learning approach. Agricultural and Forest Meteorology. Vol. 311. 11pp. doi: 10.1016/j.agrformet.2021.108668.
5. Steinke, K., S. Purucker, and M. Chilvers. 2021. Integrating multiple inputs for soft red and white winter wheat. Agron. J. 113:4306-4322. Doi: 10.1002/agj2.20790.
6. Rutan, J., and K. Steinke. 2021. On-farm corn phosphorus response reveals importance of soil testing. Crop, Forage, & Turfgrass Mgmt. Vol.7:e20105. doi:10.1002/cft2.20105.
7. Correndo, A., J. Rotundo, N. Tremblay, S. Archontoulis, J. Coulter, D. Ruiz-Diaz, D. Franzen, A. Franzluebbers, E. Nafziger, R. Schwalbert, K. Steinke, J. Williams, C. Messina, and I. Ciampitti. 2021. Assessing the uncertainty of maize yield without nitrogen fertilization. Field Crops Res. J. Vol. 260. 11 pp. doi: 10.1016/j.fcr.2020.107985.

**Minnesota - University of Minnesota**

**Kaiser, Daniel**

The primary product and questions related to products have centered around Pivot Bio and their product ProveN. We are in the third year of testing ProveN and have only had one location were the amount of nitrogen needed for corn was reduced. The reduction was around 30 lbs of N which is consistent with product claims. I have not found any difference in N uptake with the product as has been reported and corn grain yield was the same across 8 rates of nitrogen with or without the product at 5 additional sites. I have not had any conversations with Pivot Bio about additional sites in 2022 but I would like to have two more if possible. I have also been testing a phosphorus enhancer, Trivar, which is sold through CHS. I had one location in 2021 with the product and no clear increase in yield. I have not analyzed any of the plant tissue data to determine if P uptake was increased. Questions have been few regarding other products. I will likely be speaking about some of the product testing work at meetings in 2022, particularly the work with ProveN.

**Nebraska - University of Nebraska**

**Maharjan, Bijesh**

*General Comments:*

There are quite a few biologicals promoted in the state. There is a growing interest among producers about nitrogen stabilizers.

*Accomplishments:*

Nebraska has an on-farm research program which had several on-farm trials on various products this year. Compilation of multi-year on-farm research will be drafted and submitted to the Compendium.

Organic matter solubilizing biological products from Wilber Ellis were evaluated in the laboratory setting. Soil respiration under different products was measured periodically and mineral nitrogen was measured at the onset and end of the experiment to evaluate the effects of the company products on manure pellet mineralization.

There is a Nebraska Department of Agriculture funded project on use of N stabilizers in potato production. More N stabilizer projects in sugar beet and corn were continued.

*Impact Statements:*

University evaluation of biological product is generated much-need research-based data to inform growers in their decisions pertaining to non-traditional products. Particularly, on-farm trials on non-traditional products involve growers directly and therefore, provide them first-hand knowledge on products.

**North Dakota - North Dakota State University**

**Franzen, Dave**

Presentations that include non-traditional amendments and additives since November, 2020 through November 1, 2021

December 8, 2020. Virtual presentation to 150 attendees, sponsored by University of Minnesota Extension- Nitrification and Urease inhibitors; the science behind them and their application.

January 8, 2021. Virtual presentation to 120 farmers/ag-professionals- Devils Lake Roundup. Included materials on urease and nitrification inhibitors, differences in their use and products with proven effectiveness.

February 11, 2021. Presentation to 125 farmers/crop consultants, Minot, ND, virtual event. Includes urease inhibitors and their proper use.

February 12, 2021. Presentation to 40 ag-professionals from Farmers Edge company, Iowa. Included material on band P application at seeding at deeper banding.

February 18, 2021. Presentation to 60 farmers/crop consultants, Langdon, ND virtual event. Included training of use of inoculants for soybean and the proper iron fertilizer to use to reduce injury from iron deficiency chlorosis.

February 19, 2021. Presentation to 200 farmers/ag-professionals at virtual Corn and Soybean Prepping the Fields day. Included material on banded P at planting.

There were reports from NDSU Extension County Agents, farmers and ag-consultants on many products in the category ‘biologicals’. There is also considerable marketing including billboards along major roads advertising products that claim to help farmers reduce their N rates. None of these products has been tested by NDSU researchers. I have a project before the North Dakota Corn Council to examine two N inoculants this coming season, with the collaboration of researchers from Fargo and Carrington REC’s.

We plan to have 4 site-years of data in the 2022 season if funded and crops grow to maturity.

**Ohio - Ohio State University**

**Lentz, Edwin M.**

*General Comments:*

More marketing push on biostimulants. Farmers continue to ask questions about starter fertilizers, sulfur, and micronutrients in Ohio. Big topic was on the efficacy of nitrogen stabilizers and biostimulants*.*

*Accomplishments:*

Corn and wheats plots investigating N stabilizers and biostimulants. Yields were unusually large for the state. Several studies the N rate checks were too high to detect differences. Studies did not see benefits from using Instinct II or Radiant.

15 presentations were given on reducing P and N losses from fields in the Lake Erie watershed

1 national presentation was given on N management for wheat

Revised and updated publication of the Universities’ Tri-State Soil Fertility Recommendations for Corn, Soybean, and Wheat is one of the top requested Extension publications from Ohio State University. Cooperative publication among Michigan State University, Ohio State University and Purdue University

*Impact Statements:*

Completed research on non-traditional products has assisted Ohio growers in determining the efficacy potential of these products for their production systems and assisted them in their purchasing decisions for these products.

Producers have reduced their total fertilizer rates and reduced nutrient losses from fields based on the 4R Principles by participating in one of the 15 soil fertility programs given in Ohio.

Producers have confidence in university recommendations as the new Tri-State Fertilizer Recommendations has completed and released late 2020. The Tri-State is a multistate publication from Michigan State University, Ohio State University, and Purdue University.

Producers have the most recent information on nutrient management, diagnosing nutrient deficiencies, and field methods to measure nutrient availability for corn, soybean, wheat, and forages in the updated and expanded publication: Corn, Soybean, Wheat and Forages Field Guide. This is a multi-state publication with Penn State University. Publication received the 2019 First Place Award in educational publications from the American Society of Agronomy and a 2020 National Award from the National Association of County Agriculture Agents.

Publications:

Culman, S. W., Brock, C., Doohan, D., Jackson-Smith, D., Herms, C., Chaganti, V. N., Kleinhenz, M., Sprunger, C. D., & Spargo, J. Base cation saturation ratios vs. sufficiency level of nutrients: A false dichotomy in practice. *Agronomy Journal, In Press*. <https://doi.org/10.1002/agj2.20787>

Slaton, N. A., Lyons, S. E., Osmond, D. L., Brouder, S. M., Culman, S. W., Drescher, G., Gatiboni, L. C., Hoben, J., Kleinman, P. J. A., McGrath, J. M., Miller, R. O., Pearce, A., Shober, A. L., Spargo, J. T., & Volenec, J. J. Minimum dataset and metadata guidelines for soil-test correlation and calibration research. *Soil Science Society of America Journal, In Press*. <https://doi.org/10.1002/saj2.20338>

Chaganti, V. N., Culman, S. W., Herms, C., Sprunger, C. D., Brock, C., Leiva Soto, A., & Doohan, D. (2021). Base cation saturation ratios, soil health, and yield in organic field crops. *Agronomy Journal*, 113(5), 4190–4200. <https://doi.org/10.1002/agj2.20785>

Fleuridor, L., Herms, C., Culman, S., Dick, W. A., Paul, P. A., & Doohan, D. (2021). Short-term responses of soils and crops to gypsum application on organic farms. *Agronomy Journal*, 113(5), 4220–4230. <https://doi.org/10.1002/agj2.20669>

Sprunger, C. D., Culman, S. W., Deiss, L., Brock, C., & Jackson-Smith, D. (2021). Which management practices influence soil health in Midwest organic corn systems? *Agronomy Journal*, 113(5), 4201–4219. <https://doi.org/10.1002/agj2.20786>

Awards

The National Association of County Agricultural Agents awarded The Tri-State Soil Fertility Recommendations for Corn, Soybean, and Wheat publication as the 2021 National Winner in the Communication Category for publications.

**South Dakota - South Dakota State University**

**Clark, Jason j**

*General Comments:*

Following products are under trial.

* Palisade: Growth regulator to reduce lodging in oats

Oat Performance at Different Nitrogen Regimes when Grown with and without Plant Growth Regulator

The study funded by SD Nutrient Research and Education Council (NREC) was initiated in 2018 and still in progress. Nitrogen rates of 20, 40, 60, 100, and 140 lbs N/a were used at several locations each year, and at least at two locations, we tested Plant Growth Regulator ‘Palisade’ (Palisade EC, ai. trinexapa-ethyl 12%, Syngeta) as an additional variable to study its effects on plant height and lodging. A split plot design was used as nitrogen rate as main factor and plant growth regulator as a split factor. The PGR was applied at Feekes 6 growth stage at 14 oz/a rate with 15 g water. In all cases, the PGR significantly reduced plant height, however, its effects on lodging was dependent on the environment. In high-yielding environments, plots that did not receive PGR lodged significantly more than the ‘check’ plots, especially the high nitrogen rate plots. We did not notice any lodging at our test sites in years with above normal temperatures and low precipitation.

*Accomplishments:*

Twenty-one presentations given regarding soil fertility (in-person, radio, and magazine),

2 proceedings papers, 4 research reports/extension articles, and 3 peer-reviewed publications were produced.

*Impact Statements:*

- Potential use of Palisade as a growth regulator to reduce lodging of oats

**Wisconsin - University of Wisconsin**

**Ruark, Matthew D**

List of new products this year that you've come across, with short description of what they are and any potential concerns you may have.

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

 I continue to get questions regarding inoculation with free living N fixers although there has not been any work conducted at UW-Madison with these products.

Accomplishments:

1. Product trial – in 2021, we conducted a full N response study with ESN® on potato (in comparison to conventional fertilizers that are split applied). ESN® release was evaluated using buried bags. This work was funded by the Wisconsin Potato and Vegetable Association.

Impact Statements:

The value of the NCERA 59 is in the meeting itself. This meeting provides an opportunity to get together and discuss new products and how they are being marketed. It serves to help prepare us all better in our state extension efforts.