UF/IFAS Plant Nutrient Oversight Committee Meeting

Meeting Minutes

January 30, 2024

Attendees:

Tom Obreza, Andra Johnson, John Davis, Saqib Mukhtar, Gopal Kakani, Michael Dukes, Chris Gunter, Wagner Vendrame, Kelly Morgan, Samira Daroub, Lakesh Sharma, Lincoln Zotarelli, Cheryl Mackowiak, Sanjay Shukla, Rao Mylavarapu, Mike Loizzo, Nikolay Bliznyuk, Diego Leitao, & Jerry Fankhauser

Opening Remarks & Comments

Chief Operating Officer for the UF/IFAS Plant Nutrient Oversight Committee (PNOC), Tom Obreza, opened the virtual meeting at 10:00 am and immediately acknowledged Wagner Vendrame who is the new interim Chair of Environmental Horticulture. Diego Leitao is also joining this meeting as he is part of the corn fertility rate team in addition to Nikolay Bliznyuk who is a statistician. Mike Loizzo is also present as he is PNOC's communications specialist. Tom then asked if any Chairs or Deans had comments… none did.

Today's meeting did not include any new proposals, but a few research program updates were given. Today's agenda and the minutes from the September 13, 2023 meeting can be found in the Outlook Calendar invite. There have been improvements in communications with Mike Loizzo assisting in that effort. The UF/IFAS Nutrient Management website (Link: https://bmp.ifas.ufl.edu/) is still up and active and Mike continues to suggest and make improvements. We have also started our nutrient management online blog and it now includes watermelon in the Suwannee Valley region with Bob Hochmuth's group contributing. Sanjay Shukla was asked by FFVA to attend their recent committee meeting – his update to them was well received. Sanjay was also awarded the 2023 researcher of the year by this association. FFAA just had their January business meeting and Tom gave their membership an LBR-funded research activity update. As a result of enhanced communications efforts, our stakeholder relationships seem to be good at present.

One follow-up communication-related issue that has recently been brought up is what exactly does a UF/IFAS nutrient rate recommendation look like… this is leading to the development of a series on EDIS that defines what recommendations are. As an example, Tom highlighted hemp example as it was updated recently. At present, one pulls soil samples and when analyzed by the ANSERV Lab, results and nutrient rate recommendations are provided. In absence of having soil tested, growers must find the UF/IFAS rate recommendations in the appropriate EDIS publication, and this is not very convenient. The idea now is to put the information in a succent form that defines the recommendation (in the 4R or 5R format). The test done was with hemp to see what it might look like so if it gets accepted, we will do the same with other commodities. Authorship is important and their names should be acknowledged in all materials put out. With soil test interpretations, we may have the option to customize those based on region of the state, etc. – this will aid us if/when we move into site specific recommendations.

Questions and Comments

Cheryl Mackowiak – In terms of priorities of commodities updated, are we going to plan it or announce to all and depend on researchers? Tom responded by noting that we already have a suite

of commodities that are being worked on at present. As we progress, he will contact those who work on a crop when funds and timing are appropriate.

Mike Loizzo – We now have a contact intake form online for growers and other stakeholders. To date, we have had one internal and one external comment. Commodity organizations do appreciate this ability to engage with us in nutrient management.

Tom Obreza then talked about the 2nd quarter report that he sent to FDACS-AES yesterday. This 29-page report contained very focused information… details about ongoing field, grove, and laboratory work. There are 19 active sub-projects that has led to large amounts of data being collected – collected faster than it can be analyzed and summarized. Spring planting activities will commence soon with tomato, snap bean, and potato being the farthest along and updates about them were heard later in the meeting. Faculty are getting their students out to industry and other meetings including professional societies (e.g., ASA-CSSA-SSSA). Obstacles include bad weather like freezing up north and flooding down south. Tom also noted that he must do a 6-month and 12-month report to the state legislature – these need to be very short (bottom line) reports. These reports are passed along to Mary Ann Hooks. UF/IFAS does have a $6 million LBR request for FY 2024-2025 for continuing this work. Last year, there was a legislative request to look at updating the sod nutrient rate recommendations, so one never knows what will be asked of UF/IFAS.

Sanjay Shukla then was asked by Tom to present an update on ongoing vegetable work. Sanjay began his presentation which included mentioning that he and his team have pulled at least 10,000 soil samples – a team effort to investigate rates with these key commodities (Note: see Sanjay Shulka's PowerPoint presentation on the PNOC Teams site). Key points include:

- Success to date is due to cooperation of grower cooperators, packing houses, and others.
- Data and preliminary results are actively being shared with involved growers and others.
- Total of 31 experiments to date starting in the Fall of 2021.
- Recent studies have yielded preliminary analyses that show marketable tomato yields increased linearly with Phosphorus (P) rates in central Florida. Leaf P concentrations also increased with P rates.
- Recent studies have also yielded preliminary analyses in bean experiments in central Florida that show increasing yields with addition of P fertilizer. There was up to 64% increase in marketable yield in central Florida compared with the control (no fertilizer P). The yield pattern followed a linear trend.
- There are no other significant findings to report as the major portion of the experiment and data collection for the 2023-2024 is ongoing.

Questions about presentation

Gopal Kakani – Do you collect data on soil P (in ppm) with each rate over time – early, mid, and late season. Sanjay responded that they collect both soil and tissue samples for P.

Lakesh Sharma – Have you tried compiling all the sites? Sanjay responded by noting that this is what he presented with the Mehlich 3 soil test results (i.e., compilation of all the data our project has collected).

Interim SVP Rob Gilbert – First… going forward, John Davis will be taking over the Dean for Research role in PNOC. Second… my question to Sanjay is that when you put up data at presentations, you

may have sites that show significant yield increase with added fertilizer, but others do not show that effect, so how do you follow the science with that (i.e., best practices)? Sanjay responded that one must look at the majority of sites with a significant effect and also the size of the experiments and variability of data in studies. Also, looking at environmental data is important but increases at a majority of studies and sites is key.

Samira Daroub – Mabry McCray worked on updating Sulfur (S) recommendations with studies having a lot of variability, so he looked at soil pH and Calcium content and consider them with S recommendations. Also, when one has a 311 ppm test result via Mehlich 3 and is still getting a yield response with added P in snap beans something may not be right.

Chris Gunter – As you show your data via PowerPoint, it might be easier to interpret if the scales in your graphs were the same (i.e., normalized). Sanjay responded by noting that the graphs are as they are because doing so makes them easier to see. Chris then reinforced that with PNOC it is important that members have normalized data since they do not have much time to consider proposed nutrient rate changes.

Tom Obreza then asked Lincoln Zotarelli to present his summary of ongoing research. Lincoln talked about potato studies at Hastings AEC-Cowpen Branch and getting data like soil tests summarized for today's presentation (Note: see Lincoln's PowerPoint presentation on the PNOC Teams site). Key points include:

- Around 30,000 pounds potato yield and above is needed on a per acre basis for grower profitability in Florida.
- Most growers are banding their fertilizer applications with P applied pre-plant – correct timing and source works.
- Multi-year studies show a response to P_2O_5 fertilizer.
- 100-150 pounds per acre P may cover 90-95% of economic yield in potato growing areas in Florida.
- Maybe a strong correlation between Mehlich 1 and Mehlich 3 with acid soils?

Questions about presentation

Samira Daroub – For the granular applications are the growers using broadcast or banded delivery of P? Lincoln responded that growers are banding their fertilizer – this transition in fertilizer delivery happened about 12-13 years ago due mostly to a state cost-share program back then.

Tom Obreza – What I am noticing between studies done at Hastings AEC-Cowpen Branch and south Florida is soil test calibration and what is the true critical value of P for these vegetable crops. This goes all the way back to when Scott Angle came to UF/IFAS and visited with growers about these rates. What is high soil test P for these crops? If it is 45 ppm then growers cannot apply any P? UF/IFAS has never classically calibrated Mehlich 3 with our soils and crop needs.

Tom Obreza then asked Lakesh Sharma to present an update on field corn Nitrogen (N) rate studies in the Suwannee Valley area (Note: see Lakesh's PowerPoint presentation on the PNOC Teams site). Lakesh thanked his team and staff from NFREC-Suwannee Valley for their efforts and support of this sub-project. There is a corn advisory committee that is made up of growers and consultants in the Suwannee Valley region – this committee has been a driving force for this research including rates,

number of treatments, application methods, timing of applications, etc. New production practices and corn hybrids led to this need to update N rates in field corn. Key points include:

- It is commonly known that 40-60 pounds per acre of N can come from a previous peanut crop.
- There were 8 rates of N in studies with application rates being increased as the corn developed.
- 228 pounds per acre N looks to be a good rate across several of the studies in 2022 and 2023. Compiling data from the two sites at NFREC-Suwannee Valley to date shows a rate range of 210-280 pounds per acres.
- In 2023 (at Site 1), the efficiency of N removal from the soil/uptake by corn crop (biomass) was very high. The application splits were well-timed.
- Regarding total N update, 280 pounds N per acre rate resulted in 240 pounds per acre removed and around 40 pounds per acre lost – 350 pounds per acre applied led to 255 pounds per acre removed and resulted in 95 pounds/acre lost.

Questions about presentation

Cheryl Mackowiak – Are you using a N stabilizer with your N fertilizer? Lakesh responded by noting that N stabilizer usage is part of another DEP-funded study which includes urease inhibitor, controlled release forms, and bio-fertilizer and convention fertilizer products.

Tom Obreza – You irrigated these studies right after N applications, right? Lakesh responded that yes, same-day irrigation was applied to these study locations.

Cheryl Mackowiak – So you did not use an inhibitor for these studies, right? Lakesh responded that no because the grower-cooperators desired straight fertilizer as that is what they are using.

Sanjay Shukla – The fertilizer was hand-applied in your studies and was most likely more accurate so how does that scale up to what growers are doing with rates and application methods? Lakesh responded by saying that these studies are done with soil moisture sensors because growers apply nitrogen through their pivots (7-8 split applications) – hand application was relatively uniform across the 30-inch row spacing in an effort to mimic N application via pivot fertigation. Lakesh added that more split applications should reduce chances of N loss.

Rao Mylavarapu – So you are saying that hand application of fertilizer does mimic fertilizer application through center pivots, right? Lakesh responded that yes… grower cooperators endorsed this methodology with 8 split applications.

Tom Obreza then reminded all that the current N recommendation in irrigated field corn is 240 pounds per acre (maximum) and that recommendation is about 45 years old. Cheryl Mackowiak asked Sanjay Shulka via Zoom Chat if tissue tests will be correlated with soil test P…. Tom believes that the answer is yes.

With no other comments or questions, Tom Obreza closed the meeting by announcing that the next virtual PNOC meeting will be held on May 1st at 10:00 am. He then thanked all for attending and the meeting was adjourned at Noon.

Submitted by: Jerry Fankhauser