PURDUE UNIVERSITY COOPERATIVE EXTENSION SERVICE

*Marshall County*

112 W. Jefferson St. Rm. 304

Plymouth, IN 46563

*Cooperating with U.S. Department of Agriculture*

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Marshall County Ag Newsletter

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**February**

**14– Michigan Spray Clinic PARP**

**15– Fulton Co. Winter Grower Lunch PARP**

**March**

**1– Marshall and St. Joseph Co. Producers Meeting PARP**

**2-3 Indiana Small Farm Conf.**

**31– Visit with Bob on his last day! 10am-2pm**

**April**

**1-2 Plymouth Home and Outdoor Show @ Zone Complex**

**7– Office Closed**

**Purdue Extension Marshall County Ag & Natural Resources www.facebook.com/marshallanr**

At the South entrance of the county building is a drop-box, labeled **payment box**. Label whatever you are putting in it for the Extension office and you can drop things off **AFTER HOURS!**

**DROP BOX AVAILABLE!!!**

Marshall County, Ag Newsletter

**Published by: Marshall County Extension Staff**

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46563

Looking for more ANR resources?

Local event information, PARP events, CCH events, webinar series offered by Purdue and digital resources can be found on our Facebook page and Marshall County extension website and through our Smore digital publication. Add, subscribe, and follow us to stay up to date!

**www.facebook.com/marshallanr**

**https://www.smore.com/u/purdueboilermaker**

**https://extension.purdue.edu/Marshall**

**https://www.smore.com/u/purdueboilermaker**

**Find our Website: https://extension.purdue.edu/Marshall**

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**Upcoming PARP Meetings**

**February 14– Michigan Spray Clinic**

Sprayer Accessories- Product Recirculation, boom lighting, nozzle selection; Integrated Solutions-maps, recordkeeping, rate information; Autonomy and Artificial Intelligence; 2023 Pesticide Regulatory Update. Register ryoder@purdue.edu or 574-935-8545

**February 15– Fulton Co. Winter Grower Lunch**  
Timely Fungicide Applications; Nitrogen Stabilizers and Timing Nitrogen Applications; Using Aerial Images for Crop Decisions; Foliar Fertilizer; Plant Health Products; 2023 Pesticide Regulatory Update. Register ryoder@purdue.edu or call 574-935-8545

**February 21– Pulaski Crops Update**

Weed Management; Irrigation, Fertigation, Chemigation; Regulatory Update. RSVP to Phil Woolery 574-946-3412 or   
pwoolery@purduue.edu

**February 23– Midwest Mint Growers Conf**

Asiatic Garden Beetle Update; Weed Science Updates; Irrigation Management; 2023 Pesticide Regulatory Update. RSVP to Phil Woolery pwoolery@purdue.edu 574-946-3412

**March 1**—**Marshall and St. Joe Producers Meeting**  
Producer reports on Cover crops,Reduced Tillage, Pesticide Use, Soil Health and Crop Yield; 2023 Pesticide Regulatory Update. Register for meal count by calling (574) 936-2024 ext. 4 or email@stjosephswcd.org

**March 2– Starke County Soil Annual Meeting**

Farming With Soil Health Principles; Insect Control in Field Crops; 2023 Pesticide Regulatory Update . RSVP to Phil Woolery pwoolery@purdue.edu 574-946-3412

**March 6– Michiana Irrigation Conference**

https://events.ant.msu.edu.mics2023/

Soybean Cyst Nematode; Managing Diseases in Irrigated Systems; Intense Irrigated Corn & Soybean Management; Anhydrous Ammonia Safety; Economics of Water Use; Irrigated Land Values; Maintaining Irrigation Equipment

**March 27– St. Joseph PARP**

Weed Control On Field Edges; Private Applicator Regulatory Update   
RSVP: 574-235-9605; everse@purdue.edu

***To view all upcoming PARP meetings in our area visit ppp.purdue.edu and click ‘PARP Events’***

per acre of–34–0 was used as pop-up, grain moisture averaged 0.6to no starter.corn,moisture from a 2×2 starter rate25./ac0.8lower than no. We did not examine higher rates of nitrogen–up in rotation corn.

**Yieldtofertilizer:** In continuous corn,fertilizer at–./acyield incompared to no starter. The yieldtofertilizer at the responsive locations ranged from.4.4/ac and.3bu/ac. Most ofresponses weatlocations that were farmed no–till. Fifty pounds of nitrogen per acre as 2×2 starter was compared with 25 lbs. N/ac in 19 trials in long-term continuous corn to determine whether the higher starter fertilizer rate would be more beneficial in that cropping system. Yield responded to starter fertilizer in only 7theand of those, yield increases were greater for thestarter rate in 4 trials by an average of.2/ac. Pop–up fertilizer (3 gal–34–0/ac5 gal 6–24–6/ac) increasedyieldof20 trials. Atthe yield increase was/ac. However, pop–up fertilizer decreased yield at 2 of 20 trials by.3 and 5.4 bu/ac, respectively. A combination of in–furrow plus 2×2 starter fertilizer (total of 25 lbs.) was evaluated in 19 trials, but only outyielded a standard (25 lbs. N) 2×2 starter fertilizer treatment in one oftrials by 6.8 bu/ac. Of 18 trials withcorn,fertilizerfrom 20 to 45./acyield inbyaverage of 6.5 bu/ac and ranged from 2.7 to 11.7 bu/ac. Responses occurred in–till fields,of 5stripfields, and–plowed.

**Take-aways from our research**: Starter 2×2 fertilizer in corn does not consistently increase grain yield but frequently reduces grain moisture at harvest by as much as 1.5 percentage points. Across our 55 field scale trials, there were no clear relationships between the likelihood of yield response to starter fertilizer and factors like previous crop, soil type, soil drainage, tillage system, planting date, or region of the state. However, while yield increases due to starter 2×2 fertilizer occurred less than half of the time in our trials, the potential for increased yield due to starter 2×2 fertilizer as high as 10 – 15 bu/ac makes its use attractive to consider. If you already have starter 2×2 fertilizer attachments on your planter and if you focus on traditional starter fertilizer sources (e.g., 28-0-0, 10-34-0), we believe that the use of starter 2×2 fertilizer, at 25 to 40 lbs N/ac, is a low-cost form of “crop insurance” against unpredictable soil and weather conditions at and after planting during the important stand establishment period. As indicated earlier, the higher frequency of drier grain at harvest due to starter fertilizer, and the annual cost savings that represents, adds to the attractiveness of making starter 2×2 fertilizer part of your corn production strategies.

***View Full article: https://extension.entm.purdue.edu/newsletters/pestandcrop/article/corn-response-to-starter-fertilizer-in-indiana-2/***

**BP-90-W**

**How Deep Should Corn Be Planted?**

BY:QUINN

During the heat of planting, one thing that often can be forgotten is thoroughly checking and understanding two items, 1) what seed depth am I planting at? and 2) is my seeding depth consistent, especially across all of my individual row units? We may often be inclined to use the “set it and forget it” approach to seed depth, yet this may not always be the best idea. In order to get corn started off on the right foot, it is important to achieve both rapid and consistent emergence following planting. One aspect of achieving rapid and consistent plant emergence is by choosing the correct seeding depth and ensuring there is adequate and uniform moisture at the chosen seeding depth. The most common seeding depths recommended for corn range between 1.5 and 2 inches deep, and these planting depths can work very well within most conditions, however, certain soil moisture conditions at planting may warrant further examination/change in seeding depth.

A corn seed imbibes soil moisture within the first 24 – 48 hours after planting, therefore maintaining both adequate and uniform moisture at seeding depth (not too wet and not too dry) within the first 48 hours is important. If the soil remains too dry, then the seed may be delayed in emergence until precipitation occurs. Furthermore, if the soil remains saturated after planting, the seed may rot and die. If the soil conditions are dry at planting, then a seeding depth of 2 inches may be too shallow and not place the seed in adequate/uniform soil moisture conditions. Therefore, if the moisture at a 3-inch depth is more adequate and uniform, and no additional rainfall is expected in the next week, then it may be worthwhile planting the seed at a 3-inch depth instead of a 2-inch depth. It is important to remember that corn can physically emerge at seeding depths lower than 2-inches, therefore, planting deeper can help ensure more consistent plant emergence when soil moisture conditions are dry. However, if soil moisture conditions are adequate it is likely ideal to not go much deeper than 2 – 2.25 inches. If planted too deep and soil moisture conditions are adequate, emergence can become delayed, thus further exposing the corn seed to various stresses (e.g., disease, insects, etc.). Furthermore, if corn is planted too shallow <1.5 inches, you can run the risk of poor root development, stand establishment, and lodging.

To further examine the impact of seeding depth on corn emergence and yield, a research trial was established at the Throckmorton Purdue Agricultural Center in Lafayette, IN. The research trial examined corn seedling emergence timing and yield differences across four different seeding depths and two different hybrids. The trial was designed as a randomized complete block design with three replications. Plots measured 30 feet wide (12, 30-inch corn rows) by 400 feet long and the center six rows were harvested with a commercial combine with a calibrated yield monitor. Trial results are presented below:

*Continue from page 13….*

**Research Trial Summary:**

This research trial was planted on May 13, 2022, and received a total 1.75 inches of rainfall within the first two days following planting, which may have pushed the seed deeper and successfully supplied adequate moisture following planting. However, the month of June was very dry, with a total precipitation amount of only 0.6 inches of rainfall, which may have contributed to some lost yield potential. Across all seeding rates examined, the corn hybrid Becks 6241Q (112-d) out yielded the other hybrid in this study, Becks 5909AM (109-d), by an average of 10 bushels per acre (bu/ac) (214 bu/ac vs. 204 bu/ac) (Table 1). In addition, across both hybrids examined, the seeding depth of 1-inch resulted in the fastest emergence (average 42% emerged 7 days after planting), whereas the 3-inch depth resulted in the slowest emergence (average 1% emerged 7 days after planting) (Table 1 and Figure 1). Despite the difference in emergence timing, final emergence percentage and final plant stand was not different between the two hybrids, or the four seeding depths examined (Table 1 and Figure 1). What was interesting about this study is that the two different corn hybrids actually varied in their yield responses to seeding depth. The hybrid Becks 6241Q, had the highest yield at the 1 and 2-inch seeding depths, whereas the hybrid Becks 5909AM, had the highest yield at the 2 and 2.5-inch planting depths (Table 1). Furthermore, corn hybrid Becks 6241Q, exhibited a higher tolerance to more shallow planting depths in comparison to the hybrid Becks 5909AM (Table 1). At the 1-inch planting depth, the yield of Becks hybrid 6241Q was not statistically different than the yield at the 2-inch planting depth, suggesting no yield was lost at this shallow planting depth. However, for Beck hybrid 5909AM, yield was reduced by 6 bu/ac at the 1-inch planting depth in comparison to the 2.5-inch planting depth, suggesting yield was lost at a shallower depth with this specific hybrid. Overall, this research trial results suggests different hybrids may respond differently to various planting depths, and if you are using multiple hybrids on your farm, this may be something to pay attention to. However, more data will be required to make this conclusion. Overall, this research highlights the importance of choosing the correct planting depth, and shows that a deeper planting depth (e.g., 3 inches) is not always needed if soil moisture is adequate after planting. In addition, across both hybrids, a 2-inch planting depth resulted in the highest and most consistent yield, which is consistent with previous recommendations when adequate soil moisture is present at planting.

**Resource Tools: US Drought Monitor– Midwest**

Midwest Drought Summary(1/19/22)—The Midwest saw a mix of drought improvement and expansion last week. Heavy precipitation (150 to over 300% of normal) in Ohio and Indiana led to improvements in moderate (D1) drought and abnormal dryness (D0) where streamflows and soil moisture show signs of recovery. Missouri, though, saw an expansion of severe (D2) drought based on increasing precipitation deficits (6 to 12 inches over the last 6 months) and declining streamflows. Continued below-normal precipitation led to an expansion of D0 in Illinois and far southeast Wisconsin as streamflows have begun to decline.

Check out the website for up to date drought information all year.

*https://droughtmonitor.unl.edu/*

Registration for the Indiana Organic Grain Farmer Meeting is now OPEN! Join us on February 22, 2023 at the Beck Center in West Lafayette, IN for the only organic grain event of its kind in Indiana with plenty of education, discussion, and networking.  
  
Early bird pricing of $60/person is available through January 16, 2023. Click below to find out more!  
  
Special thanks to NC-SARE for their support of this event.

To Register visit: *https://extension.purdue.edu/anr/\_teams/dffs/organic\_ag/programs/org-grain-farmer-meeting.html*

Registration is now open for the Indiana Small Farm Conference to be held, in person, at the Hendricks County Fairgrounds on March 2nd3rd.We have a full schedule of educational opportunities including keynote speakers Hunter Smith from**WonderTree Farm**Thursday March 2ndSarah Frey from**Frey Farms**Friday March 3rd.In addition, we will have great networking opportunities, demonstrations, the Small Farm trade show you can view the schedule. Find an overview of the educational offerings and schedule here https://extension.purdue.edu/anr/\_teams/dffs/small\_farm\_conference/sfc-2023.html You can register for the conference://tinyurl.com/2023IndianaSFC $145 for the two days or $75.00 for a single day. look forward to connecting with you in March in Hendricks County!

General conference questions or questions about sponsorship can be sent to**afthompson@purdue.edu** Small Farm Conference web page and any issues with conference registration should be sent to**edustore@purdue.edu**

**Michigan Spray Clinic**

**February 14, 2023 8:30 AM—12:15 PM ET**

Greenmark– Three Rivers 16700 Heimbach Road Three Rivers, Michigan 49093

**Event Details:** Register by calling 574-935-8545 or email ryoder@purdue.edu  
PARP Credits available. Topics covered: Sprayer Accessories- Product Recirculation, boom lighting, nozzle selection; Integrated Solutions-maps, recordkeeping, rate information; Autonomy and Artificial Intelligence; 2023 Pesticide Regulatory Update

**Marshall and St. Joseph   
Counties Producers Meeting**

**March 1, 2023 9:00 AM—3:00 PM ET**

Christos Banquet Center: 830 Lincoln Highway East Plymouth, IN 46563

**Event Details:** Register for meal count by calling (574) 936-2024 ext. 4 or email@stjosephswcd.org

PARP credits will be available. Topics covered: Producer reports on Cover crops,Reduced Tillage, Pesticide Use, Soil Health and Crop Yield; 2023 Pesticide Regulatory Update

**{Excerpt} Corn Response To Starter Fertilizer In Indiana**

BY:CAMBERATONIELSEN

**Our field scale trials**: We began evaluating corn responses to starter fertilizer in field scale trials beginning in 2014. Since then, we have conducted 55 trials around the state at Purdue Ag. Centers and with on-farm collaborators. The nature of the starter fertilizer treatments varied over the years. Nineteen trials evaluated in-furrow (3 gal/ac of 10-34-0 or 5 gal/ac of 6-24-6), traditional 2×2 (28-0-0 or 19-17-0) and in-furrow plus 2×2 placements compared to no starter fertilizer. Twenty trials included 2 rates of 2×2 starter fertilizer (25 and 50 lbs. N per acre). The remainder of the trials focused on comparing single rates of 2×2 starter fertilizer (either 28-0-0 or 19-17-0) ranging from 25 to 40 lbs. N per acre with no starter fertilizer.

Sidedress nitrogen rates were adjusted plot by plot in every trial to ensure that every plot received the same total amount of nitrogen fertilizer for the season. These totals were selected based on previous research we had conducted that established optimum N rates for different areas of Indiana. The corn hybrids used in these replicated field trials varied location to location and year to year, but all were widely grown hybrids well-adapted to Indiana. Seeding rates varied slightly among the trials from about 30,000 to 34,000 seeds per acre, except at the Southwest Purdue Ag. Center where 27,000 seeds per acre was planted because of its drought-prone sandier soils.  
  
**Starterincreases earlyrate:** Starter fertilizer almost always results inof the crop. This is evident when an applicatorplugsandrow isthan the other rows.with nofertilizershorter, have less biomass, and are often lighter green than those receiving the intended rate of starter. Thisearly growthto starter fertilizeristheare literally atadvancedstage compared to plants grown without starter.

**Earlier silking and drier grain at harvest**: The consequence of faster leaf development isoccurs earlier, which translates to earlier grain maturity. The earlierallows the grain to dryduring a relatively warmer and longer time periodgrain moisture is less at harvest.fertilizergeneral reduced grain moisture at harvest by 0.6 to 1.4 percentage points in% of our trials.grain atwith starter fertilizer,occurs even whennot respond to starter fertilizer.ofwhere yield was NOT affected by starter fertilizer, grain moisture was still lower than[No Starter]by an average of 1 percentage point. In continuous corn a×2rate of 25./ac 1.1 points drier grain at harvestno starter fertilizer, while twice thislowered moisture.4. When 3 gallons

Continue page 15…….

**Yoder is Moving On  
By: Robert Yoder**

I can remember my first day as a Purdue Extension Educator wondering what I got myself into. I started out as a youth educator in Noble County and my first day I visited 4-H camp and found myself doing the chicken dance. I was wondering how am I going to use my Purdue University Master Degree in Ruminant Nutrition in that current position.

After two years serving Noble County, I was able to move to southern Indiana and become a Purdue Extension ANR Educator. The move was to Washington, IN in Daviess County. That part of Indiana is so old, the town’s original name was Liverpool when initially inhabited in 1801. After the war of 1812, the small towns name was changed to Washington to cut all ties to the English.

I worked in Daviess County for 14 years, that is where my children attended school and graduated from Barr-Reeve High School. I coordinated a crop diagnostic training at Southwest Purdue Ag Center and was a generalist as an ANR Educator answering both crop and livestock questions. I started the Purdue Master Gardener Program in the county. I also worked with the Amish and Old Order Mennonite Communities in the county. It was an enjoyable period in my career and it etched my children with southern Indiana roots. My son lives in Bloomington with his wife, who attended the same school. She in fact claims she picked him out in the 5th grade due to his dimples a gift from my wife. Though enjoyable in southern IN, I did want to relocate closer to our roots. We, like my son and his wife, meet in High School, being NorthWood, capital N for Nappanee and W for Wakarusa. We have two challenged children and with my other son and daughter completing high school thought it best to move towards our extend family.

I was selected by the Marshall County Extension Board to become the Marshall County ANR Educator in March of 2004.

I started on April 1 and was pleasantly surprised with a sunny day and a high close to 70 degrees. I knew that was not a typical April day from growing up here and managing my dad’s farm operation in the mid-80s. Can remember that life, I worked 80-hour weeks. I have enjoyed my 18 years as the Marshall County ANR Educator. I helped coordinate a crop diagnostic training at Pinney Purdue Ag Center along with an annual field day and most years a vegetable growers field day. I have worked with many Marshall County organizations and community groups and have focused more on crops and horticulture while working in Marshall County.

But my greatest joy as an educator remains answering individual questions and finding answers to their concerns. Being a servant leader was always my goal. I believe government should serve people, not the reverse.

It is time to move on now and focus on Family and God. My wife has health issues and my 33-year-old challenged son lives with us. I wish farmers well as they face the annual challenge of cash flowing their operations. You are the real heart and soul of our county growing our food while facing changing weather, input costs, and market prices, labor uncertainty and educating the general public about modern ag. May God’s blessing be with you.

Sincerely,

Bob Yoder

**Bob will be in the office on his last day being March 31st, from 10 am to 2 pm ET. If you are in town, feel free to stop by the Purdue Extension Office 112 W Jefferson St Room 304. He will be glad to visit and share light refreshments.**

**Please Note Applicator Changes for 2023 Growing Season**

Due to the Federal law passed March 6 of 2017, the Office of Indiana State Chemist OISC) was given the task of updating Indiana Statues to reflect the law or lose supervision authority of Indiana private and commercial applicators. While these changes were being drafted, the Pesticide Review Board made the decision to update penalties for violations. The new statute went into effect December 1, 2022, though OISC plans to be lenient this first growing season as industry works to comply with the new rules.

Key Points of applicator law changes.

**All applicators and handlers of Restricted Use Pesticides must be certified as a private applicator or commercial applicator plus category**

Certified applicators can only supervise the application of General Use Pesticides for commercial applications the supervised worker must be registered technicians (RT)

The certified applicator supervising GUP applications must be employed by the business that is doing the application

RT can be certified by take the core exam, attend an all-day training for the core exam, or attend a ½ day training for RTs on what they need to know.

Need to have copies of pesticide labels with you as it is being applied can be paper or e-label on your phone or other device

Must follow label directions on rate, site, application requirements, education requirements, and personal protective and application equipment

No more paper exams; by appointment testing is done through Metro Institute testing centers http://Indiana.metrosignup.com/

Training manuals and optional exam prep training: https://ppp.purdue.edu/

Application records must include start and stop times of each application

*Cont.*

Violations now fall under three definitions

$250 penalty is for violations that don’t reach the level of the $500 or $1,000 penalties.

$500 penalty will be enforced when mini bulks kept out of secondary containment for more than 30 days, after written notice is not followed for record requirements or not suppling OISC with requested information pertaining to an investigation, misuses RUP with no adverse effect, Misuses of GUP with adverse effect, and drift of GUP with adverse effect

$1,000 penalty will be enforced when applicator refuses to keep records or comply with OISC information request for an investigation, intentionally make false reports or records, misuses RUP with adverse effects, and drift of RUP with adverse effects.

Adverse Effect is visible plant damage or death to off target plants or pesticide residues in excess of established food or feed tolerances established by EPA; or pesticide residues in excess of environmental standards or benchmarks established by a federal or state agency.

Penalties at the $250 or $500 level can be reduced with cooperation and mitigating the financial damage done to the off-target site and plants.

OISC is Offering a Paper Exam   
Applicator Option

The Office of Indiana State Chemist does have a February 17 paper test date for Plain Communities that have religious objections to the use of technology. Though only one is schedule at this time, these will be scheduled in the future to meant the demand of applicators that have religious objects to taking the exam on a computer. Contact the OISC for additional information or scheduling the paper option being offered on February 17. By calling (765) 494-1588 or (765) 494-1492.