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Pest & Crop Newsletter

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In This Issue

Your Input Needed: Resilient Agricultural Practices And Priorities

(Christian Krupke)

Increasing interest in practices like cover cropping and soil health includes challenges across a range of agronomic factors, including pest management.

To help assess what's important to our clientele and improve the focus of our research and extension programs, we're requesting your input on a short survey – it should take no more than 10 minutes to complete and it is anonymous. Thank you for your time!

https://purdue.ca1.qualtrics.com/jfe/form/SV_8uAHzaJ8Qlcwepg

Alfalfa Weevil Management Guidelines

(Christian Krupke)

Most of Indiana has surpassed the threshold for alfalfa weevil egg hatch and feeding is peaking in southern counties. This means it is time to scout any alfalfa, focusing on the growing tips. If larvae are present, feeding damage will be visible. See the table below for tip damage and treatment guidelines.

Many alfalfa fields will require treatment to manage the larvae. As discussed in this newsletter previously, pyrethroid insecticides are still largely effective, but not bulletproof – resistance has been reported from parts of the US where alfalfa is grown most intensively and weevils are more consistently exposed to insecticides over a larger area.

Refer to the following table and map below for alfalfa weevil development and action steps in your area.

Alfalfa Weevil Management Guidelines Southern Indiana

Heat Units	% Tip Feeding	Advisory
200		Begin sampling. South facing sandy soils should be monitored earlier.
300	25	Re-evaluate in 7-10 days using the appropriate HU or treat immediately with a residual insecticide if 3 or more larvae are noted per stem and % tip feeding is above 50%
400	50	Treat immediately with a residual insecticide.
500	75	Treat immediately.
600	75+	If cutting delayed more than 5 days, treat immediately.
750		If harvested or harvesting shortly, return to the field in 4-5 days after cutting and spray if 1) there is no regrowth and weevil larvae are present OR 2) feeding damage is apparent on 50% of the stubble and weevil larvae are present.

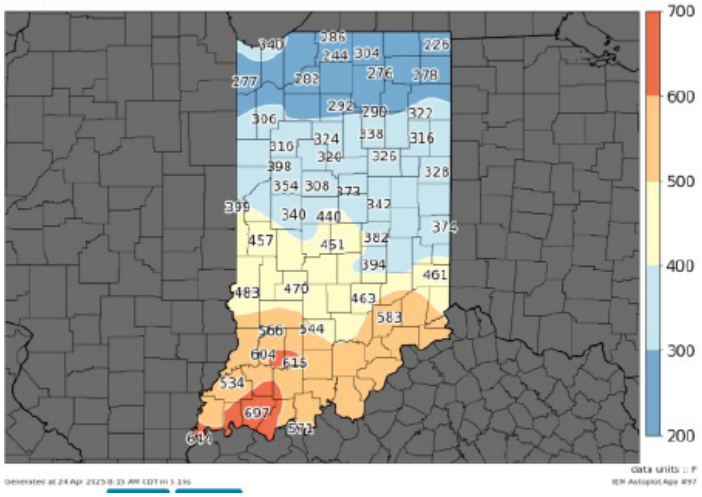
Alfalfa Weevil (Hypera postica)

Key Degree Day Levels:

• January 1: Start Date

• 300: Egg hatch

• 575: Peak larval feeding



Map generated by: Iowa Environmental Mesonet
https://mesonet.agron.iastate.edu/topics/pests/?state=IN&pest=alfalfa_weevil&sdate=2025-01-01&station=IN0177

Hanging Up the Proverbial Bug Net

(John Obermeyer)

After nearly 38 years as Purdue IPM Specialist, it is time for me to write

my last Pest&Crop article. While giving this thought, I considered getting on my “soapbox” one more time and preaching the woes of bad pest management. Consider, two summers of my undergraduate degree, followed by five years of crop consulting before I came to Purdue, were all rooted in field scouting. So, today’s continual use of “prophylactic” pest management, based on little to no “boots in the field,” to predict risk, doesn’t sit well with this IPM’er. Perhaps I did pontificate a little!

John – “boots in the field.” (*Photo Credit: Stephanie Mclain*)

I have been incredibly blessed serving in this position and having the opportunity to be a part of TEAMS for the Diagnostic Training Center, Crop Management Workshops, Indiana Certified Crop Advisors, Indiana Association of Professional Crop Consultants, and innumerable county meetings, field days, etc. As a visual learner, I took pride in working with IPM specialists to enhance print/electronic newsletters and publications through photos and videos. To boot, there were many lively road trips to document these interesting pest/crop/weather happenings!

Best of all, has been working with so many of you! I am forever grateful to Indiana’s “pest managers” that faithfully trapped insects, assisted with finding research fields, alerted us to outbreaks, sent pictures, and attended our IPM events! Many sweet memories and your faces are flashing through my mind as I write this…thank you!!!

The following old quotation was given to me by my first entomology college professor. Amazingly, while beginning my room clean-out, I found it hanging on a file cabinet, faded and tattered, much like this aging pest manager.

The End

“When the moon shall have faded out from the sky, and the sun shall shine at noon day a dull cherry-red, and the seas shall be frozen over, and the ice-cap shall have crept downward to the equator from either pole, and no keels cut the waters, nor wheels turn in mills, when all cities shall have long been dead and crumbled into dust, and all life shall be on the very last verge of extinction on the globe; then on a bit of lichen, growing on the bald rocks beside the eternal snows of Panama, shall be seated a tiny insect, preening its antennae in the glow of the worn-out sun, representing the sole survival of animal life on this our earth, a melancholy bug.”

W.J. Holland

The Moth Book, A Guide to the Moths of North America, 1903

Grasshopper lichen on a rock. (*Photo Credit: John Obermeyer*)

Though a bit gloomy, “The End” is very telling of how adaptable insects are. For decades we have used a sundry of management strategies and tools to protect our crops, and there will continue to be many challenges in the future. Let’s put aside our addiction to electronic devices and overreliance on technologies instead get out to observe and think, because in “The End,” the insect will be there.

Happy scouting!!!

Residual Herbicides: Precipitation Requirements For Activation And The Likelihood To Receive It

(Tommy Butts), *(Austin Pearson)*, *(Maria Souza)* & *(Emmanuel Cooper)*

Planting season is getting fully underway across the state, and with that we should all be getting our residual herbicides applied. Residuals are critical to successful season-long weed control as we have less documented herbicide resistance to these chemistries compared to postemergence products, as well as generally we see more consistent control from these herbicides because we’re targeting weeds before they’re even out of the ground. However, for residual herbicides to be successful, they require precipitation to be activated. I frequently get asked how much rainfall is required to fully activate these herbicides, how long can the herbicide wait until we’d receive this rainfall, and if a shallow tillage event would help the situation. These answers can be highly variable across herbicides (Tables 1 and 2), as they are normally dependent on water solubility and soil adsorption of the active ingredients; however, there are some general estimates that can be made.

1. Generally, 0.5” of rainfall is required for many of our residual herbicides to be fully activated. Some herbicide formulations, such as encapsulations, will often require greater amounts of rainfall than non-encapsulated counterparts for activation.
2. Most labels indicate activating rainfall should occur within 7 to 10 days following the application. In most situations, this is not necessarily due to the herbicide breaking down within this timeframe, but rather it is expected that if no activation has occurred within 7 to 10 days, weeds have already emerged and will not be controlled from a residual herbicide.
3. Shallow (<2”) cultivation is often recommended on many labels between 7 to 14 days after application if an activating rainfall

did not occur; however, in few situations does this truly aid activation of the residual herbicide. Rather the shallow cultivation is typically recommended to control emerged weeds and hopefully buy more time for an activating rainfall for the residual herbicide.

In addition to understanding these activation concepts, it is also important to have an idea of our chances at getting these residual herbicides activated. Figures 1 and 2 present the likelihood of receiving 0.5" of rainfall within 7 days for each calendar day within the months of April, May, June, and July, based on 20 years of weather data (2004-2024) from the Throckmorton Purdue Agricultural Center (TPAC). Similarly, Figures 3 and 4 present the same information for the Southeast Purdue Agricultural Center (SEPAC). Overall, as the summer progresses, our likelihood of receiving an activating rainfall within a week of application decreases significantly. This may be an indication that earlier planting dates, at least within April, could aid our weed management by providing a greater likelihood of activating residual herbicides both in our preemergence application and in an overlapping residual pass.

Based on the historical data, SEPAC and southern Indiana has a greater likelihood of receiving an activating rainfall with monthly averages above 64% for April, May, and June. In contrast, TPAC and central-northern Indiana never exceeded a 63% likelihood of activation even in April. Even more interestingly at TPAC, in the second half of May (blue bar and arrow, Fig. 1) and beginning half of June (yellow bar and arrow, Fig. 2), the likelihood of receiving 0.5" of rainfall within a week drops at or below 50%. This means that for an entire month (mid-May to mid-June), it is a coin toss on whether we can receive an activating rainfall for our residual herbicides.

With these reduced likelihoods for activation, it can be difficult to effectively use our residual herbicides. But here are a few recommendations to give us our best shot at activation.

1. April planting dates will increase our chances for an activating rainfall, particularly if we can make an overlapping residual application at the beginning of May.
2. If you have pivot irrigation, use that to your advantage to activate residual herbicides following an application.
3. Pay close attention to the weather forecasts. Although forecasts often shift and change on us, if we can try to target an application close to projected rainfall events, we may just get lucky.
4. Get selective in the order that you might apply your residuals. What I mean by this, since some herbicides require less moisture for activation, these herbicides may be candidates for your overlapping residual pass later in the growing season when the likelihood of receiving a greater rainfall event decreases. For example, since *S*-metolachlor requires more than 0.5" particularly on medium to fine soils, but pyroxasulfone only requires 0.5" at a maximum, it may be wise to apply *S*-metolachlor earlier in the season (greater chance at receiving a higher activating rainfall) and overlapping with pyroxasulfone.

Overall, residuals continue to be a powerful tool in our weed management toolbox. If we put the little things together mentioned above, we can hopefully maximize our use of this tool. And who knows? Maybe this will be the year that we all receive the perfect amount of rainfall at just the right time for success. We can hope, right? With that, please let us know if we can help, and good luck out there!

Table 1. List of commonly used soybean herbicides with the precipitation required for activation, days in which the precipitation needs to occur, and whether cultivation can be used for activation according to their respective labels.

Herbicide (active ingredient)	Herbicide (Trade name)	Precipitation Needed for Activation	Days Required for Activation	Is cultivation recommended?
chlorimuron	Classic	0.5″ – 1″ for wet soil and 1″ – 2″ for dry soil	Not specified.	Only if herbicide is not activated. Do not cultivate within 7 days of application.
cloransulam	FirstRate	0.5″	Not specified.	Shallow incorporation can be used preplant (1-3″).
dimethenamid	Outlook	0.5″ – 1″	Within 10 days.	Shallow (<2″) incorporation can be used.
flumetsulam	Python	0.5″ – 1″	Within 10 days.	Preplant incorporation at 2-3″. Shallow incorporation can be used if herbicide is not activated.
flumioxazin	Valor	> 0.25″	Not specified.	Not recommended.
fomesafen	Flexstar	> 0.25″	Not specified.	Not specified.
imazethapyr	Pursuit	Not specified.	Within 7 days.	Shallow (<2″) incorporation can be used if the herbicide is not activated.
metribuzin	Tricor	0.25″ – 0.5″	Within 10 days.	Not recommended.
pendimethalin	Prowl H2O	Not specified.	Not specified.	Recommended.
pyroxasulfone	Zidua	0.5″	Not specified.	Shallow (<2″) incorporation can be used.
saflufenacil	Sharpen	0.5″	Before weed seedling emergence.	Shallow incorporation (<2″) can be used.
sulfentrazone	Spartan	0.5″ – 1″	Within 10 days.	Shallow (<2″) incorporation can be used.
S-metolachlor	Dual Magnum	0.5″ – 1″	Within 10 days.	Shallow (<2″) incorporation can be used.

Table 2. List of commonly used corn herbicides with the precipitation required for activation, days in which the precipitation needs to occur, and whether cultivation can be used for activation according to their respective labels.

Herbicide (active ingredient)	Herbicide (Trade name)	Precipitation Needed for Activation	Days Required for Activation	Is cultivation recommended?
acetochlor	Harness	0.25″ to 0.75″	Within 7 days.	Shallow (1″ to 2″) incorporation within 14 days.
acetochlor (encapsulated)	Warrant	0.5″ to 0.75″	Not specified.	Not recommended.
atrazine	Aatrex	Not specified.	Within 10 days.	Shallow (not specified) incorporation within 14 days.
flufenacet	Flufenacet 4SC	Not specified.	7 to 10 days.	Shallow (<2″) incorporation can be used.
halosulfuron	Permit	0.25″ to 0.5″	7 to 14 days.	Not recommended.
isoxaflutole	Balance Flexx	Not specified.	Within 14 days.	Shallow (<2″) incorporation can be used.
mesotrione	Callisto	0.25″	7 to 10 days.	Rotary hoeing is suggested to activate product 7 to 10 days after application if no rainfall is received.
simazine	Princep	Not specified.	Not specified.	Shallow cultivation suggested especially under relatively dry conditions and if weeds emerge.
rimsulfuron + others	Steadfast Q/Realm Q	0.5″	5 to 7 days.	Cultivation recommended 7 to 14 days after application to control emerged weeds.
saflufenacil (encapsulated) + pyroxasulfone	Surtain	0.5″	Before weed seedling emergence.	Shallow (1″ to 2″) incorporation can be used.
thiencarbazone-methyl + tembotrione	Capreno	Not specified.	7 to 14 days.	Not recommended.

From South to North: Tracking Indiana's Planting Progress

(Jeferson Pimentel), (Dan Quinn) & *(Betsy Bower)*

After patiently waiting all winter for a warm and sunny break, we're thrilled to finally have the chance to get back in the field! The 2025 planting season has already begun for several growers in Indiana, and it's an exciting time ahead for crops, including our favorite plant: corn.

Farmers have begun planting throughout Indiana, from the southernmost areas of the state, to central, and all the way up to northwest Indiana. This has largely been dictated by recent rainfall events and total precipitation amounts throughout the state, with some areas receiving less rainfall than others. The USDA-NASS report for April 21, 2025, showed that for the last week (ending on April 20), an average of 3.7 total days were suitable for field work, which is up from 1.5 days for the previous week.

The USDA-NASS also reported planted corn acres at 2% planted (Figure 1), which is 3 percentage points behind the 5-year average and 1 percentage point behind soybean planting progress. In Indiana, the optimum planting "window" for maximum corn yield potential occurs between April 20 and May 10 of each year. For the southern counties in the state, this "window" may be shifted one week earlier, and for the

northern counties in the state, this “window” may be shifted one week later. Overall, when examining the previous year’s planting progress for Indiana from USDA NASS crop reports, planting progress typically begins to increase around the 20th of April, with the majority of planting finishing toward the end of May. Previous research has shown that corn yield potential begins to decrease approximately 0.3% per day once planting is delayed beyond May 1st and approximately 1% per day if corn planting is delayed until the end of May. These decreases in corn yield potential are often contributed to a shortened growing season, elevated pest pressure, and increased potential for high heat and dry conditions during pollination. However, it is important to understand that delayed planting may only impact potential yield and not actual yield in a specific year. Just because corn was planted late, doesn’t mean high yields won’t be achieved.

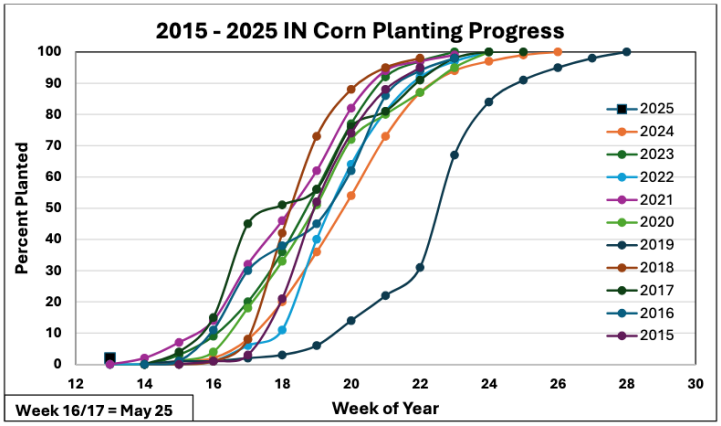


Figure 1. 2015-2025 Indiana corn planting progress by week (USDA-NASS).

2025 U.S. Farmers’ Prospective Plantings

(Jeferson Pimentel)

Big news: Corn acres are making a comeback! According to the USDA, U.S. farmers plan to plant 95.3 million acres of corn this year, up 5% from 2024 (Table 1).

In 2025, the area dedicated to corn for all purposes is estimated to reach an impressive 95.3 million acres, showing an increase of 5 percent, which is around 4.73 million acres more than last year. Compared to the previous year, we anticipate that the planted acreage will remain steady or grow in 40 out of the 48 states we’re considering!

In 2025, soybean growers are planning to plant about 83.5 million acres, a small decrease of 4% compared to last year. It looks like we might see reductions of 300,000 acres or more in states like Illinois, Iowa, Minnesota, Nebraska, North Dakota, and South Dakota. On a brighter note, we’re expecting record-high soybean acreage in New York and Ohio!

Table 1. U.S. Corn Intended Plant Area (thousands of acres; USDA-NASS)

	2024	**2025**	Difference (%)
Arkansas	500	**710**	42.0%
Colorado	1460	**1460**	0.0%
Illinois	10800	**11100**	2.8%
Indiana	5200	**5400**	3.8%
Iowa	12900	**13500**	4.7%
Kansas	6300	**6400**	1.6%
Kentucky	1370	**1600**	16.8%
Michigan	2250	**2300**	2.2%
Minnesota	8200	**8600**	4.9%
Mississippi	490	**690**	40.8%
Missouri	3450	**3800**	10.1%
Nebraska	10050	**10600**	5.5%
North Carolina	890	**910**	2.2%
Ohio	3400	**3250**	-4.4%
Pennsylvania	990	**970**	-2.0%
South Dakota	5900	**6300**	6.8%
Tennessee	700	**900**	28.6%
Texas	2150	**2450**	14.0%
Wisconsin	3750	**3950**	5.3%
U.S. Total	90594	**95326**	5.2%

Inside The Belt: What The 2025 Battle-For-The-Belt Trials Aim To Uncover

(Dan Quinn)

The first seed for the Purdue Corn Team was planted on April 16. This is the first planting date treatment for the 2025 Indiana Battle-for-the-Belt project. This project is led by faculty at The Ohio State University and works to examine which crop, corn or soybean, should be planted first in the spring. Dr. Quinn and Dr. Shaun Casteel have participated in this project since 2024 and this research trial encompasses different planting date, variety, and management strategies. Preliminary data from 2024 indicates that soybeans responded most favorably to the earlier planting dates, with highest yields achieved with the mid-April planting. In contrast, corn yields peaked with early May planting, which outperformed the mid-April planting treatment. These findings align with a broader trend observed in Indiana over the past 5 to 10 years, where soybean planting has increasingly occurred before corn.

First research trial treatment being planted by the Purdue Corn Agronomy Team at the Agronomy Center for Research and Education in West Lafayette, IN.

The Prime Planting “Window” And Soil Moisture Tips

(Jeferson Pimentel), (Dan Quinn) & (Betsy Bower)

In Indiana, the prime planting window for corn is from April 20 to May 10. In northern counties, this starts a week later, while southern counties can begin a week earlier.

Corn planting generally occurs from late April to late May or early June, with about half planted after mid-May over the past two decades.

• Watch Your Seeding Depth
During planting, growers often overlook seeding depth, especially in busy seasons, defaulting to previous years’ settings. While a depth of 1.5 to 2 inches usually works, varying conditions like soil moisture require attention and may require seeding depth adjustments to be made.

• Moisture
Consistent moisture at the seeding depth ensures rapid, even germination. Check soil moisture on planting day — if it’s lacking, consider planting deeper for better moisture availability.

• Tips for Dry Weeks
In dry weeks, checking moisture in each field is crucial. A 2-inch depth might not provide enough moisture for uniform germination and emergence. Planting deeper can help with consistency and ensure seeds are placed in the soil with adequate moisture.

If you have irrigation, lightly water the top 6 inches of soil after planting. If needed, water should be applied to maintain ideal conditions during early nodal root growth.

• Soil Temperature
It is important to remember that corn typically needs 115 growing degree days to emerge, and if the soil temperature is at 50°F and continues to average only 50°F for a length of time, corn can take upwards of 35 days to emerge. Whereas, if corn is planted into a soil with a daily average temperature of 65°F, emergence can occur in 7 days or less. The overall goal is to achieve rapid emergence of corn plants to shorten the period an emerging plant is exposed to certain stresses, limit the potential for uneven emergence, and also achieve more stress-tolerant plants.

Field Scout Intern Training – Event Info + Registration

(Corey Gerber)

The information presented at this training will provide participants with basic terminology and general knowledge of corn and soybean growth and development, along with pest identification. Please go here to get the event and registration information.

Regional Climate Centers And The Field Of Climate Services

(Beth Hall)

What do you think of when you hear the word climate? I would guess answers would range from ‘average weather conditions’ to ‘hot, muggy summers’ to ‘climate change’ to ‘environmental policies and politics’. What a range! Fields of climate can vary from paleoclimate studies (e.g., ice cores and tree rings), to applied climate science (e.g., architectural design and vector-borne diseases like West Nile Virus and Malaria), to climate modeling (e.g., lots of physical equations and computers), to climate change (e.g., ‘but the polar bears, Daddy!’), to climate services (e.g., data translated into information). Among all this diversity, the common thread is the consideration and correlations of what has occurred in our atmosphere historically to better understand and prepare for current and future decisions.

Since the late 1800s, our country has had an organized effort to collect observational data (e.g., temperature and precipitation) at hundreds of locations so we can monitor and research patterns, trends, variability, and extremes. Public funding supports this national data stewardship, and anyone can access the raw data and national products (e.g., maps and charts) through the National Weather Service and the National Centers for Environmental Information. In the early 1980s, it was recognized that archiving and delivering the raw data was rarely useful or usable to the everyday person. Therefore, six regional climate centers (RCCs) were established that could prioritize regional needs such as coastal issues, agriculture, and urban environments to develop resources and services that translate much of the observational data into information stakeholders can use to make critical decisions. The Midwestern Regional Climate Center (MRCC) is one of these RCCs and is located at Purdue University. It prioritizes many of its online tools and services to better serve the agricultural and water resources communities, though serves all sectors and stakeholders within the 9-state region and beyond.

In mid-April, the annual federal funding contract expired for the 2024-2025 period and funding lapsed for several days. As a result, online and other climate services were suspended at 4 of the 6 RCCs. This caused a reaction like when the power goes out at home, and one quickly realizes all the uses of electricity and what impacts not having it causes. State climate office around the country no longer had access to critical maps to understand if current temperature and precipitation was above or below normal. Those providing recommendations to the national U.S. Drought Monitor could no longer examine data to know how the last 30-, 60-, 90-, or even 120-days of precipitation compared to normal. The agricultural community lost access to products utilizing growing degree-day information and other information important for planting and chemical application decisions. Departments of transportation at all levels of government were no longer able to monitor how this winter’s snow season has been progressing to assess material and personnel capacity.

Fortunately, by April 21st, funding for the next 12 months was approved for the RCCs and the websites hummed back to life. As a leader of one of those RCCs impacted, I am so very grateful for the outpouring of support and response that helped advocate for the continued existence of the RCCs. Climate services is an operational field the depends on readily available access to historical and near-real-time data so that current conditions can be put into perspective. We are proud to serve our region by delivering a wide range of decision-support tools, monitoring tools, and general information free to the public. I encourage you to visit the MRCC’s website when you have a chance and learn more about how climate services can help you, your community, region, and nation.

MRCC

Midwestern Regional Climate Center

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