PURDUE UNIVERSITY | Extension ENTOMOLOGY

Pest&Crop newsletter

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2019 Popcorn Agri-Chemical Handbook

The 2019 Popcorn Agri-Chemical Handbook is available to ensure everyone in the popcorn industry is informed about products registered for use on popcorn or in popcorn storage facilities. The handbook lists agri-chemicals registered and regulatory status or special use restrictions.

The handbook provides appendix information on residue tolerances as found in the Global MRL Database, which includes popcorn (corn, pop) and denotes established levels by the U.S., Codex and 126 markets.

The handbook notes the Mode or Mechanism of Action (MOA) numerical classification of each listed chemical when used on a product label. The classification schemes are published by the Insecticide Resistance Action Committee, the Herbicide Resistance Action Committee and the Fungicide Resistance Action Committee. The handbook also highlights the Signal Word "Danger" when used on a product label as required by the EPA's Label Review Manual.

The Popcorn Board urges you to provide the above links or print and distribute the updated version of this critical information to growers. Contact Genny Bertalmio, +1.312.821.0217 or gbertalmio@popcorn.org, for further information.

The Popcorn Board accepts voluntary contributions to ensure continued funding of its efforts to provide this important information to the popcorn industry. Checks should be mailed to The Popcorn Board, 8333 Solutions Center, Chicago, IL 60677-8003.

Author: Genny Bertalmio

Spring Herbicide Applications on Winter Wheat

The winter is finally winding down and we are bound to have warmer days and spring in the near future. As we look towards the warmer weather there a few field activities that are going to start quickly, including winter wheat greenup herbicide applications and winter annual weed burndown applications in no-till fields. There are few things to keep in mind as these activities are added to the calendar. Many wheat producers, especially in the southern regions of Indiana will soon be or already are topdressing their wheat. Those looking into topdressing need to also be scouting for weeds and determining if a herbicide application is necessary on any existing winter annual weeds. The following information will outline winter annual weeds to look out for, weed scouting tips, crop stage restrictions, and herbicide recommendations.

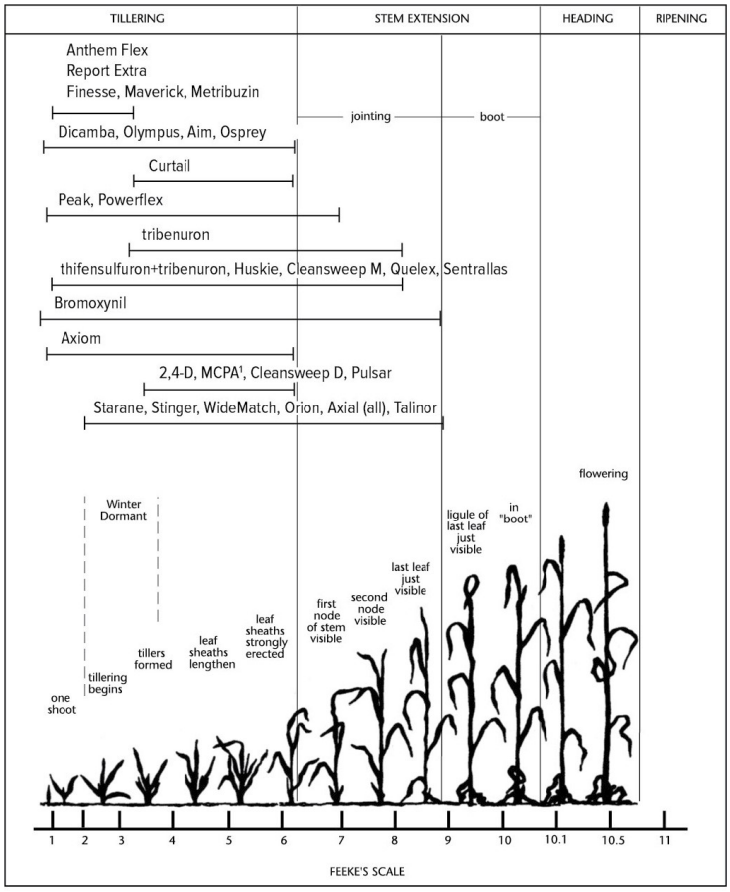
Some common broadleaf weeds to scout for in your winter wheat are dandelion, purple deadnettle, henbit, chickweed, Canada thistle, and wild garlic. These winter annual species that emerge in the fall can remain relatively inconspicuous through the winter and become competitive and troublesome during the spring if not controlled early in the spring. Summer annual weeds such as ragweed will be of less concern in the early spring and will be outcompeted by the wheat crop if managed properly. Grass weeds to be aware of and scouting for are: annual bluegrass, annual ryegrass, cheat, and downy brome.

Determining the severity of weed infestations in your wheat fields is key in determining the necessity of a herbicide application. As with all agronomic crops, you should scout your entire field to determine what weed management practices need to be implemented and determine any areas of severe weed infestations. Wheat fields that contain uniform infestations of at least one broadleaf weed and/or three grass weeds per square foot should be taken into consideration for a herbicide application to avoid yield loss and harvest interference problems. Some fields that have less uniform infestations, but rather pockets of severe infestation should be managed to reduce weed seed production and future infestations.

When determining your herbicide program for spring applications, the stage of the wheat crop should be considered. The majority of wheat herbicides are labeled for application at certain wheat growth stages and some commonly used herbicides have very short windows in which they can be applied. The popular broadleaf weed herbicides 2,4-D and MCPA are efficient and economical, but can only be applied for a short period of time between tillering and prior to jointing in the early spring. Wheat growth stages and herbicide timing restriction are outlined in Figure 1.

If weed infestations are severe enough to require a herbicide application, the use of liquid nitrogen fertilizer solution as a carrier is a popular option for applying herbicides and topdressing the wheat crop in a single pass over the field. Caution should be taken when using a liquid fertilizer as a herbicide carrier as moderate to severe crop injury can result, especially in saturated conditions. Many post applied wheat herbicide labels allow for liquid nitrogen carriers, but require different rates and types of surfactants than if the herbicide was applied with water as the carrier. Table 1 includes precautions to be taken when applying wheat herbicides using liquid fertilizer as a carrier; further details and directions can be acquired from the herbicide label.

Another consideration growers should take into account when planning early spring herbicide applications is the plant back restrictions to double crop soybeans. A large percentage of the herbicides listed in Table 1, especially those with activity on Ryegrass and Brome, have soybean plant back restrictions greater than the typical three month time period between spring applications and double crop soybean planting. The soybean plant back restrictions greatly reduce the number of options available to wheat producers who double crop soybeans after wheat. Refer to Table 1 for more specific plant back timing restrictions.



[1] Labels of some 2,4-D products allow application after jointing but before early boot. (See text for more information.)

Figure 1. Wheat growth stages and herbicide timing restriction are outlined.

Authors: Marcelo Zimmer and Bill Johnson

Welcome Marcelo Zimmer

Marcelo Zimmer

I would like to take this opportunity to introduce Marcelo Zimmer to our crop production and protection clientele. Marcelo will be assuming the Weed Science academic extension professional position previously held by Joe Ikley (2017-2018), Travis Legleiter (2012-2016), Glenn Nice (2002-2011), and Dan Childs (1990-2001). Marcelo will assist my weed science activities by providing technical expertise on weed and herbicide management issues for agronomic crops. He is originally from a small farm in southern Brazil and came to my weed science lab as an exchange student for about a year during the pursuit of his B.S. degree. In 2014, he earned his B.S. degree in Agronomy from the Federal University of Pelotas (Brazil) with a minor in Crop Protection/Weed Science. I was impressed with his ability and interest in weed science while he was an exchange student in my lab, so I was able to recruit Marcelo to come back to Purdue to work on a M.S. degree. In 2015, he joined my Purdue Weed Science Lab as a M.S. student, where he researched the management of glyphosate-resistant horseweed utilizing a new herbicide from Dow AgroSciences (Elevore). He finished the M.S. degree in 2017 and decided to stay with our weed science program to pursue a Ph.D. His research is investigating the different glyphosate-resistance mechanisms in giant ragweed. So, he is pursuing a Ph.D. degree while helping me with my extension duties.

He can be reached at zimmer6@purdue.edu or (765) 496-2121

Author: Bill Johnson

Yield Response of Corn to Plant Population in Indiana

Results from 97 field scale trials around Indiana since 2008 suggest that maximum yield response to plant populations for 30-inch row corn grown under minimal to moderate stress conditions occurs at about 32,150 PLANTS per acre (ppa), equal to seeding rates of about 33,840 SEEDS per acre (spa). Economic optimum populations are several thousand lower than the agronomic optimum. Corn grown under extremely challenging conditions (e.g., severe drought stress) may perform best at PLANT populations no higher than 22,800 ppa and perhaps as low as 21,000 ppa under truly severe growing conditions (e.g., actual drought, non-irrigated center pivot corners, non-irrigated sandy fields with minimal rainfall).

Click here to view the complete article.

Authors: Bob Nielsen, Jim Camberato, and Jason Lee

Nitrogen Management Guidelines for Corn in Indiana

13-Year Summary of Corn Response to Nitrogen Fertilizer

This report summarizes corn yield response to fertilizer nitrogen (N) rate in field scale trials conducted around the state of Indiana since 2006. These results are applicable to N management programs that use efficient methods and timings of N fertilizer application.

The Agronomic Optimum N Rate (AONR) represents the total amount of fertilizer N (including starter N) required to maximize yield, but not necessarily profit. The AONR varied among regions of the state from about 210 to 263 lbs N/ac, depending partly on soil organiz matter and soil drainage characteristics.

At five Purdue Ag. Centers where we conducted paired trials of corn following soybean (corn/soy) and corn following corn (corn/corn) from 2007 to 2010, the average AONR for corn/corn was 44 lbs greater than for corn/soy while average corn/corn yields were 18 bu/ac less than the corn/soy yields.

Economic Optimum N Rates (EONR) are defined as those that maximize dollar return from nitrogen fertilizer investment. Because the yield benefits from additional N decrease as N rates approach the AONR, the EONR will almost always be less than the AONR. The EONR in our trials varied throughout the state from about 170 to about 210 lbs N/ac. Region-specific EONR, calculated for various combinations of N fertilizer

cost and grain price, are listed in the accompanying tables.

Click here to view the complete article.

Authors: Jim Camberato and Bob Nielsen

Introducing Dr. Beth Hall as New Indiana State Climatologist

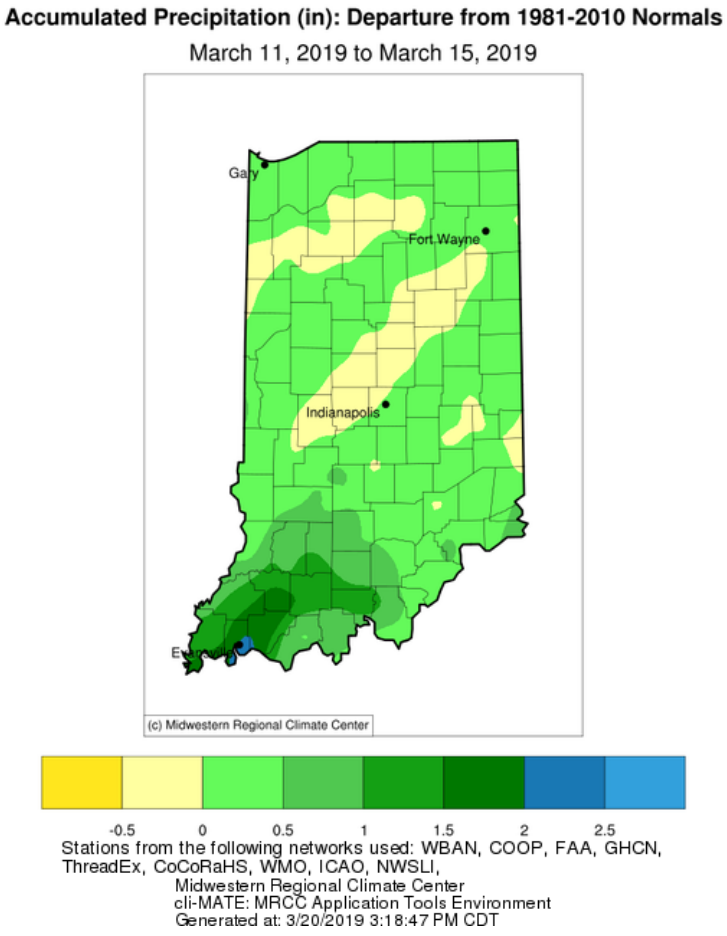
Beth Hall our new Indiana State Climatologist

Dr. Beth Hall became the new Indiana State Climatologist on 1 March 2019. With over 25 years of experience in climate services, she is looking forward to coming back to the state where she began her education in atmospheric science to better serve the climate needs of stakeholders across the state. She began her career majoring in physical geography at Indiana University with an emphasis in meteorology. Always interested in severe storms research and the weather, Indiana provided some of her favorite weather phenomena such as nocturnal thunderstorms, tornadoes, and significant snowfall events. She then moved to Reno, NV to work on her Master's degree and ended up staying over 11 years to pursue her interests in climate services and research relating climate trends, patterns, and variability to wildfire activity across the western U.S. After completing her PhD and serving as an associate research scientist at the Desert Research Institute in Nevada, she decided to pursue a more academic path that led her to the University of New Hampshire to be both lecturer and the New Hampshire State Climatologist. A tenure-track position at Towson University drew her to Maryland in 2008 where Dr. Hall developed a minor in meteorology and an interdisciplinary program with journalism for those interested in pursuing a career in broadcast meteorology. In 2012, she became Director of the Midwestern Regional Climate Center–one of six federally funded climate centers across the US — at the University of Illinois. There, she led efforts to engage with stakeholders directly to identify their climate needs across the 9-state Midwestern region. This led to the ongoing development of value-added climate services (*e.g.,* maps, resources, reports, value-added climate data tools) and research for a broad range of end users. Her research interests include applied climatology and improving climate services and outreach to a broad range of stakeholders. With climate impacting nearly every aspect of our lives, Dr. Hall is interested in investigating historical climate trends and spatial variability that will provide new knowledge to non-meteorological fields and developing operational climate resources from which stakeholders can benefit.

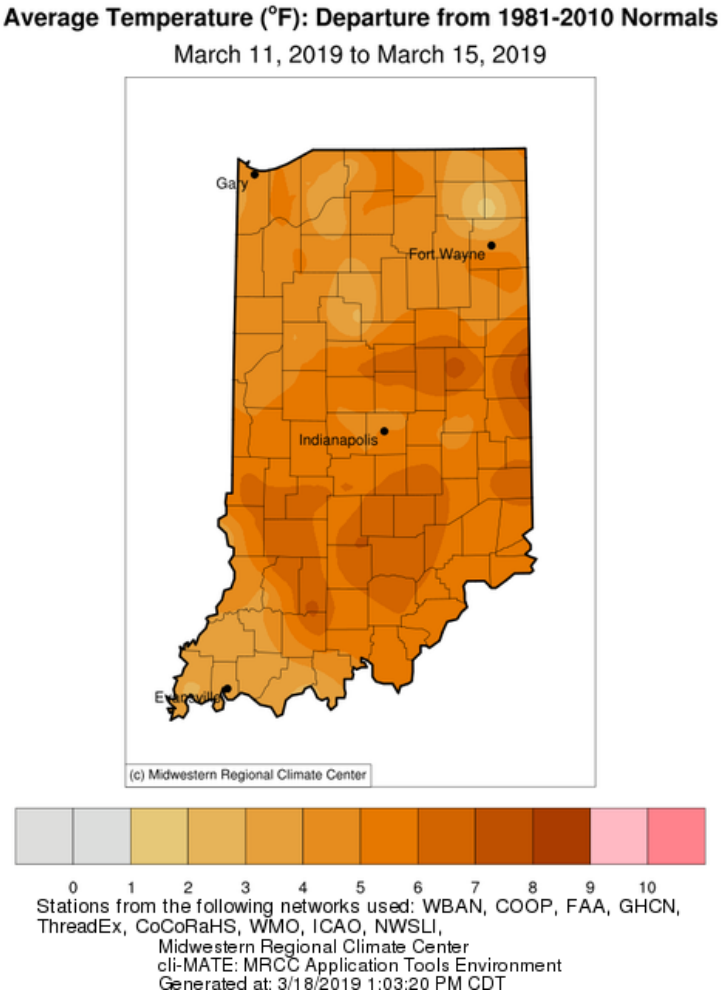
Author: Ron Turco

Weather Update, March 20, 2019

Last week, spring-like temperatures teased most of the Hoosier State with temperatures 5°F-8°F above normal (see Figure). While this encouraged more folks to get outside and enjoy the warmer weather, the week ended with a return to colder, windier conditions. Storms brought excess rainfall to the southwestern part of the state with near-normal precipitation elsewhere. By the end of this week, there are strong indications that temperatures will start to warm again with precipitation forecasts neither too wet nor too dry. Next week's outlooks have increased confidence in above-normal precipitation, but without extreme amounts for large-scale flooding. Growing degree-days (base 50°F) have yet to significantly accumulate and there are still significant risks for several more freeze events based upon climatology. For more information on climate outlooks, visit the National Oceanic and Atmospheric Administration's Climate Prediction Center (https://www.cpc.ncep.noaa.gov/).



Author: Beth Hall



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