

Pest&Crop newsletter

Purdue Cooperative Extension Service and USDA-NIFA Extension IPM Grant

This work is supported in part by Extension Implementation Grant 2017-70006-27140/ IND011460G4-1013877 from the USDA National Institute of Food and Agriculture

In This Issue

- [Corn Planting Considerations for 2022](#)
- [Alternative Spring Burndown/Postemergence Strategies When Herbicides Are In Short Supply](#)
- [New Purdue Crop Chat Podcast – Herbicide is in Short Supply and Prices are Skyrocketing](#)
- [Purdue's 2022 Crop Management Workshop](#)
- [Pest&Crop 2021 Survey](#)

Corn Planting Considerations for 2022

(Dan Quinn)

The key to maximizing corn yield is largely driven by minimizing the impact of potential yield-limiting factors during the growing season. The moment the corn seed is moved into the planter and placed into the ground in the spring, yield-limiting factors begin to go to work to limit potential corn yield. Being able to identify **your** specific yield-limiting factors and how to manage them is an important step in producing consistent and high corn yields. The goal of the planter is to optimize seed placement, depth, spacing, and seed-to-soil contact. Corn must achieve rapid, uniform emergence, with equidistant spacing in order to get off on the right foot to maximize yield later in the season. If corn does not get off to a good start, the crop is likely already a step behind, and maximum yield potential may already be out of reach early in the season.

What factors influence corn germination and emergence?

1. Soil Temperature – variable soil temperature at planting can cause variable corn emergence, especially when corn is planted in temperatures that hover around 50° Variable corn emergence can reduce corn yield upwards of 10%. Variable soil temperatures can be caused by variable seed depth, soil conditions, residue levels, and weather patterns.
2. Soil Moisture – like soil temperature, variable soil moisture at planting can also cause variable corn emergence. Variable soil moisture can be caused by variable seed depth, soil conditions, residue levels, and weather patterns.
3. Seed-to-soil Contact – good seed-to-soil contact is required for seeds to imbibe water and germinate. Poor seed-to-soil contact as a result of residue interference, planting too wet, and improper furrow closure can cause variable corn emergence and germination.
4. Seed Depth – the depth the seed is planted can directly determine the conditions in which the seed is planted into. Seeds planted too shallow may be planted into soil conditions that are too dry and/or too cold, whereas a seed planted too deep may be planted into soil conditions too wet. Planting seeds

at improper depths and into improper conditions can result in variable seed germination and emergence.

What planter equipment should a farmer invest in?

As harvest finishes this fall, and focus begins to shift to planting next spring, a popular question is often, which equipment upgrades should I add to my planter? Planter manufacturers continue to introduce new tools and technologies to improve spring planting performance, yet it can often become confusing when choosing which equipment to add, especially since this decision is often a significant investment for many. Choosing which upgrades or changes need to be made to your planter, starts by identifying specific planting or crop stand establishment issues **you** already have. There is no singular piece of equipment or technology that works for every farmer, in every field, and in every situation. For example, do **you** currently have difficulty with non-uniform seeding depth? Then, it is possible the row-unit down pressure system needs to be checked or upgraded. Or, do **you** have difficulty with poor furrow closure, poor seed-to-soil contact, or residue interference? Then, it is possible the row cleaner or closing wheel systems needs to be checked or upgraded. Lastly, it is also important every year to thoroughly examine, diagnose, and maintain the certain parts or problems the planter **currently** has. Improper maintenance and worn-out parts can cause planting issues as well, that frankly an upgrade in new technology may not help.



2022 corn planting is right around the corner!

Alternative Spring Burndown/Postemergence Strategies When Herbicides Are In Short Supply

(Bill Johnson) & (Marcelo Zimmer)

Note: This article represents the combined thinking of weed scientists

from Indiana, Kentucky, Michigan, Ohio and Pennsylvania

There is a lot of speculation about herbicide shortages for the 2022 growing season, and some products are apparently getting more expensive and/or scarce now. This will affect herbicide buying and weed management decisions for the 2022 season. The two main active ingredients that we're hearing about right now are glyphosate (Roundup, others) and glufosinate (Liberty, others), for which prices have increased substantially. There will likely be limited supplies of other pesticide active ingredients as well, but in the short term, a shortage of these two active ingredients poses some major challenges for corn and soybean production. The purpose of this article is to discuss ways to minimize the impact of herbicide shortages, primarily glyphosate, on corn and soybean production. As you search for alternatives to these two herbicides and others, the weed control guides and technical guides produced by University Extension and industry are an important tool for planning weed management programs and herbicide purchases. Links to the university publications are at the end of this article.

Some guiding principles based on our experience that may help with decisions, especially where glyphosate will not be in all applications:

1. Spring tillage is an option to replace herbicide burndown. Can cause long-term compaction problems if tilled when too wet. Waiting until weeds are large makes tillage less effective. Weeds that survive tillage will be difficult to control with POST herbicides.
2. Where it's only possible to use glyphosate once, it may be needed most in the burndown. Saflufenacil can be added for enhanced control of rye and ryegrass, and marestalk. ACCase herbicides (e.g. clethodim, quizalifop) can be then used for POST grass control in soybeans. Glufosinate, Enlist Duo, or XtendiMax/Engenia can be used for many broadleaf weeds, especially the glyphosate-resistant ones. Where residual herbicides are omitted, or do not provide enough control, we would expect POST treatments to struggle more in the absence of glyphosate with weeds such as lambsquarters (So use residuals). Glyphosate is still more than just a grass herbicide.
3. If glyphosate is omitted from burndown, grasses become a bigger issue than broadleaf weeds. Options for annual grasses: Gramoxone; rimsulfuron – if small, corn only; ACCase herbicides – clethodim (wait 7 days to plant corn), quizalifop (soybeans only) – need 60 degree days, apply alone if possible, weak on winter annuals under cold conditions. Where trying to reduce glyphosate rates, a rate of 0.38 lb ae/A will control most annual grasses.
4. Burndown programs typically contain two to three “burndown” herbicides in order to ensure control of a diversity of weeds under various environmental conditions. This is why glyphosate is not used alone in burndown programs, but mixed with 2,4-D, dicamba, or Sharpen. We suggest following this same strategy when glyphosate is omitted – try to have at least two herbicides with substantial burndown activity in the mix. Increasing rates of components of the burndown mix should be generally helpful, in accordance with label guidelines for soil type, weed size, time until planting, etc. There are also other herbicides that can improve control in some mixes although we don't consider them “burndown” herbicides on their own – chlorimuron, atrazine, metribuzin.
5. There are generally more options for burndown and POST applications in corn compared with soybeans, so it might make sense to save a limited supply of glyphosate and glufosinate for

use in soybeans.

6. Control of little barley and annual (Italian) ryegrass in a burndown requires glyphosate, ACCase herbicides are not good enough in spring. For annual bluegrass – ACCase can work – 60 degree day, no tank mixes. High rates of metribuzin can provide fair control of bluegrass.
7. For burndown of a legume cover prior to corn, clopyralid and dicamba are the most effective herbicides. For cereal rye, Gramoxone plus atrazine or metribuzin may be best option in the absence of glyphosate.
8. It's possible to chop and bale a cover, then use glyphosate POST to kill regrowth. The addition of an ACCase herbicide may help control regrowth in soybeans. POST corn herbicides will not kill the rye, including nicosulfuron, rimsulfuron, and Group 27 herbicides (Impact, Shieldex, Laudis etc).
9. Mixing ACCase herbicides with dicamba or 2,4-D (no glyphosate) can cause reduction in grass control due to antagonism. Apply separately to avoid this.
10. Increasing the number of applications can help with weed and herbicide management when certain products are short or glyphosate rates need to be reduced. For example, three applications instead of two: 1) Fall or early spring burndown when weeds are small; 2) residuals plus possibly additional low-rate burndown at planting; 3) POST.
11. Best opportunity to omit glyphosate or reduce the rate will be: 1) in fields treated the previous fall, or those with a low population of small weeds; and 2) where the POST program is comprehensive enough to control weeds that escape the burndown – Enlist, XtendiFlex, LL GT27 (their effectiveness also depends upon whether glyphosate is being used POST).
12. Take all necessary steps to maximize herbicide activity – optimize adjuvants and sprayer set up (nozzles, volume, pressure, speed) per label guidelines.
13. Check on availability of premix herbicides that may contain glyphosate or another herbicide that is unavailable as a single ingredient product. Examples that contain glyphosate – Sequence, Halex GT, Acuron GT, Extreme, Flexstar GT.

Burndown programs that deemphasize use of glyphosate – pros and cons.

Can be used in corn and soybeans

Gramoxone + 2,4-D + metribuzin/atrazine (atrazine – corn only)
Strengths: best non-glyphosate option for rye burndown; adequate for general spring weeds including marestalk <6” tall; can be applied before either corn or soybeans (depending on rate); has activity on grasses
Weakness: perennial weeds; large marestalk; annual ryegrass; special training required to apply
Comments: Metribuzin rate for corn varies by soil type and is limited to a maximum of 5.33 oz of 75DF.

Sharpen + glyphosate (low rate 0.38 – 0.56 lb ae/A) + 2,4-D
Strengths: adequate cereal rye and other cover crop burndown; marestalk control; can be applied before either corn or soybeans (depending on rate)
Weakness: large weeds; overall weed control is fair due to low glyphosate rate
Comment: Rates higher than 1 oz require wait of 15 to 30 days to plant soybeans. Must wait 2 weeks to plant soybeans if 1 oz is mixed with flumioxazin or sulfentrazone product.

Sharpen + 2,4-D + metribuzin/atrazine (atrazine – corn only)
Strengths: good foliar and residual marestalk control; good initial

Palmer/waterhemp control; burndown and residual in one pass
Weakness: does not control grasses (atrazine control grass up to an inch when applied with oil); must wait 2 weeks to plant soybeans if mixed with flumioxazin or sulfentrazone product. Metribuzin rate for corn varies by soil type and is limited to a maximum of 5.33 oz of 75DF.

Basis Blend/other rimsulfuron products + 2,4-D + metribuzin/atrazine
Comments: some grass control; limited burndown activity on several key species; better used in corn due to long wait to plant soybeans (15 to 60 days)

Harmony Extra/similar products + 2,4-D + metribuzin
Comments: average (70-80%) control on many key broadleaves; no grass control; additional residuals and POST products necessary for in crop weed control; can be used in corn or soybean

Corn only

Acuron/Lexar/generic equivalents/Resicore + atrazine

Strengths: winter and summer annuals; burndown and residual in one-pass; can add more atrazine or 2,4-D

Weakness: poor control of cereal rye and ryegrass; corn only

Soybeans only

2,4-D + metribuzin + clethodim

Strengths: some grass suppression including cereal rye and ryegrass;

Weakness: 2,4-D antagonizes clethodim activity; cool weather limits clethodim activity; use rate of clethodim is not high enough if used before corn planting

Metribuzin + 2,4-D + chlorimuron product

Comments: good fit in fields that were treated prior fall; Some chlorimuron products contain metribuzin – suggest supplementing with additional metribuzin so total is the equivalent of 6 to 12 oz 75DF. Does not control grasses. Canopy/Cloak Ex contains tribenuron, which improves control of chickweed.

Resources (some may be temporarily unavailable until the 2022 edition is being sold)

[“Weed Control Guide for Ohio, Indiana, and Illinois”](#)

[“Mid-Atlantic Weed Control Guide”](#)

[“MSU Weed Control Guide for Field Crops”](#)

[“2022 Weed Control Recommendations for Kentucky Field Crops”](#)

New Purdue Crop Chat Podcast – Herbicide is in Short Supply and Prices are Skyrocketing

(Bill Johnson), (Shaun Casteel) & (Dan Quinn)

Herbicides, particularly those that contain glyphosate, are already in short supply due to supply chain issues plaguing the U.S. Dr. Bill Johnson, Purdue Professor of Weed Science, join Extension Soybean Specialist Shaun Casteel and Corn Specialist Dan Quinn to discuss the price hikes and availability of herbicides for this spring.

They also discuss what an alternate plan might look like if glyphosate and glufosinate-based herbicides are unavailable.

Hear the full podcast now on your preferred podcast platform, and it's available at the Purdue Crop Chat page on [HoosierAgToday.com](#).

Purdue's 2022 Crop Management Workshop

(John Obermeyer)

When: Thursday, January 27, 2022

Where/How: Livestreamed from the Beck Ag Center

Virtual – livestream link will be emailed to registrants

In-Person – seating capacity determined by room and/or Covid-19 restrictions at the Beck Ag Center, West Lafayette, IN

Time: All times listed are Eastern Time

Virtual – 8:00 am to 12:35 pm

In-Person – 8:00 am to 2:40 pm (includes additional presentations, handouts, refreshments and lunch)

Registration, click the following link:

<http://www.purdue.edu/conferences/Crop>

Virtual – \$50.00 (unique/active email address required)

In-Person – \$80.00

Topics and Schedule:

8:15-8:45 State Chemist Highlights, Joe Becovitz, OISC

8:45-9:15 High-Efficiency Fertilizer Practices, Jim Camberato, AGRY

9:15-9:45 Weed Management in the Herbicide Shortage Era, Bill Johnson, BTNY

9:55-10:25 Tar Spot Impact and Management in Indiana, Darcy Telenko, BTNY

10:25-10:55 Weird Weather, Wily Worms: Insect PM Past or Prologue?, Christian Krupke, ENTM

10:55-11:25 Achieving High Yielding Corn: Why Kernel Weight Matters, Dan Quinn, AGRY

11:35-12:05, Can We Jump-Start Soybeans?, Shaun Casteel, AGRY

12:05-12:35 Chains and Straps for Securing and Transporting the Load, Fred Whitford, BTNY

12:35

Virtual – Wrap Up

In-Person – Lunch

1:00-1:50 40 Years of Corny Experience in 40 Minutes, Bob Nielsen, AGRY

1:50-2:40 Climate Services for Agricultural Decision Making, Beth Hall, AGRY

2:40

In-Person – Wrap Up

Credits Awarded:

- Indiana commercial pesticide applicators (CCHs)

Virtual: (Cat 1 = 4, Cat 14 = 2, and RT = 4)

In-Person: (Cat 1 = 5, Cat 14 = 2, and RT = 4)

- Certified Crop Advisors (CEUs)

Virtual: (NM 1.0, PM 2.5, CM 0.5)

In-Person: (NM 1.0, SW 1.0, PM 2.5, CM 1.5)

- No PARP (private applicator) or other state's credits awarded

Pest&Crop 2021 Survey

(John Obermeyer)

Dear Pest&Crop Readers:

Though this is one of the strangest, most challenging years, the

It is the policy of the Purdue University that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran. Purdue is an Affirmative Action Institution. This material may be available in alternative formats. 1-888-EXT-INFO Disclaimer: Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may have similar uses. Any person using products listed in this publication assumes full responsibility for their use in accordance with current directions of the manufacturer.

Pest&Crop authors haven't stopped providing updated information. The following is a link to a simple, short online survey. Please consider doing this right now, as we need your evaluation of this newsletter. Too, we need to show our funding agencies whether or not this information from Purdue specialists throughout the season is meaningful to you and the industry. Thanks in advance for your support!

https://purdue.ca1.qualtrics.com/jfe/form/SV_40l3qMFO23Xp1oW

Pest&Crop newsletter © Purdue University - extension.entm.purdue.edu/newsletters/pestandcrop
Editor: Tammy Luck | Department of Entomology, Purdue University, 901 W. State St., West Lafayette, IN 47907