

## Herbicides for Roundup Ready 2 Xtend Soybeans Approved

Pennsylvania Soybean Board

HARRISBURG, Pa. — Pennsylvania soybean farmers have a new weapon in their fight against the spread of marestail and other glyphosate resistant weeds. The Pennsylvania Department of Agriculture has approved the use of the new Xtendimax with VaporGrip Technology, Engenia and FeXapan plus VaporGrip Technology formulations of dicamba to help control glyphosate and PPO-resistant weeds in Xtend soybeans in 2017.

“We see this as an opportunity for marestail control in burndown programs,” says Dwight Lingenfelter, Penn State Weed Science Specialist. However, he cautions, there are very strict and specific measures farmers need to take. Illegal off-label applications in a number of states last year led to reports of crop injury, some severe.

Xtend soybeans were developed by Monsanto to allow pre or post applications of dicamba (the active ingredient in Clarity) on soybeans. These varieties are also stacked with the Roundup Ready trait. Roundup Ready 2 Xtend soybeans (dicamba-tolerant) were deregulated and approved in 2015 and received export approval in 2016. In November 2016, the EPA registered the dicamba product Xtendimax (DGA salt) with VaporGrip Technology for weed control in Xtend soybeans. BASF’s Engenia (BAPMA salt) received federal approval in December, and DuPont received federal approval for FeXapan (DGA salt) plus VaporGrip in February. In February, the Pennsylvania

Department of Agriculture approved Xtendimax, Engenia and FeXapan for Xtend soybeans in Pennsylvania.

Lingenfelter says Penn State’s Weed Science group sees potential benefit of these products as a burndown because it’s generally applied in April or May before susceptible vegetation and air temperatures become problematic. In-crop, the weeds must be controlled before they exceed 4 inches in height. However, post-emergence application is a particular concern for Pennsylvania growers due to the potential for non-target injury.

“Off-target spray drift to other crops is a significant concern,” says Lingenfelter. “In order to reduce drift and the other negative impacts to non-target areas, these labels and associated websites (see below) list what herbicides can be tank-mixed with these products. Other guidelines include prescribed nozzle types, boom heights, sprayer speed and wind speed limits. Also, depending on the landscape setting, field buffers must be included if susceptible crops are present and downwind at the time of application. The application cannot occur if wind is blowing in the direction of specific crops such as tomatoes, vine crops, grapes, and others. The applicator is responsible for any drift of these products to off-target sites, so if you can’t follow all of the guidelines, do not use it.”

Tank contamination can also play a role in off-target movement, so tank cleanout is critical. The spray solution

should not be allowed to remain in the tank overnight, and a triple rinse, filled to at least 10-20% of spray tank capacity and using a commercial sprayer cleaner containing strong detergents, is needed to clean all system parts.

The Xtendimax and Engenia labels for use on Xtend soybeans are conditional, 2-year supplemental labels. “They can be prolonged if there are few or minimal problems in the first two years, but if significant problems arise, they can be revoked,” says Lingenfelter. “That’s why it’s critical for applicators who use these products to carefully follow all labeling instructions. We are encouraging slow targeted adoption and look forward to learning from the experiences of other states and regions that need this technology more.”

Lingenfelter reminds farmers to always read and follow pesticide label directions. It is a violation of Federal and state law to use any pesticide product in a manner inconsistent with its labeling. Guidelines for using Xtendimax, Engenia and FeXapan can change periodically as new information is acquired. Refer to their labels and websites for additional information and updates online by Monsanto at [www.xtendimaxapplicationrequirements.com](http://www.xtendimaxapplicationrequirements.com), by BASF at [www.engeniatankmix.com](http://www.engeniatankmix.com), and by DuPont at [www.fexapanapplicationrequirements.dupont.com](http://www.fexapanapplicationrequirements.dupont.com)

### LEARN MORE

Glyphosate-resistant marestail and invasive pigweeds have become a significant pest management problem for no-till soybean producers in Pennsylvania.

Dwight Lingenfelter and other weeds specialists from Penn State have been presenting educational seminars at conferences, grower days, and other events throughout the state.

The Pennsylvania Soybean Board has approved a checkoff-funded project to help support their efforts in educating producers on best management practices for prevention and management of herbicide resistant weeds, including proactive monitoring programs, use of herbicide programs that include multiple modes of action and adoption of integrated weed management strategies.

**Check with your county Extension educator for more information or online for Palmer amaranth and waterhemp at <http://extension.psu.edu/pests/weeds/palmer-amaranth>.**

## Aim for Higher-Yielding Double-Cropped Soybeans

Pennsylvania Soybean Board

HARRISBURG, Pa. — After harvesting small grains, such as wheat, many U.S. soybean farmers opt to plant soybeans into the just-emptied field. In collaboration with researchers in Virginia and other states in the region, the Pennsylvania Soybean Board is funding research to help accelerate double crop soybean growth and yield by providing insight and data to support management recommendations for double crop soybean production.

The main disadvantage of double-cropping soybeans is the potential for lower soybean yields, primarily due to late planting. According to Virginia Tech soybean researcher David Holshouser, Ph.D., farmers can increase double-cropped soybean yields by focusing on production practices that enhance the advantages and minimize the disadvantages. Double-cropping is popular because it provides many advantages, including more cash flow, improved soil quality, less soil erosion, more intensive use of land, equipment, labor and capital, and greater overall production of food and feed.

Holshouser stresses that farmers can improve double-cropped soybean yields by focusing on the variables that have the greatest impact. He recommends several strategies soybean farmers can implement to manage the following four variables to increase double-crop yields:

### Small grain residues

- Cut the grain high or use a stripper header and uniformly spread the residue and set the planter to cut through and penetrate the soil to a proper seeding depth.
- Remember that maintaining residue conserves soil moisture and builds soil fertility, but soil-seed contact is critical to germination.



Photo by Holly Slegowski, PSB

### Late planting

- Plant soybeans the same day of small grain harvest.
- Use a late-maturing soybean variety that will mature before frost.
- Plant in narrow rows with a higher seeding rate.

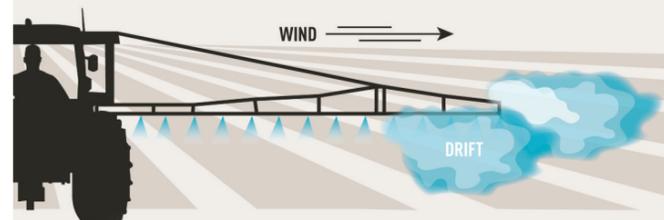
### Pests

- Start with a clean, weed-free field, add residual herbicides to pre and/or post burndown applications and rotate modes of action.
- Use spray insecticides based on economic thresholds.
- Sample for nematodes.
- Select pest-resistant soybean varieties.

### Economics

- Pay attention to soil types and productivity differences to determine the best fields for double-cropping.
- Compare soybean prices with small-grain prices to decide whether to plant full-season or double-cropped soybeans.
- Evaluate variable costs and fixed costs.

## REDUCING SPRAY DRIFT



Spray drift is the movement of herbicides and other crop inputs away from intended target sites through the air. Several factors play a role in reducing spray drift, but farmers should pay particular attention to these four:

- 1 NOZZLE SELECTION** – The nozzle’s intended use determines the type of nozzle needed.
  - Examine current and future application requirements for your fields
  - Prepare several sets of nozzles for different application needs
  - Consult herbicide labels and nozzle catalogs to help calibrate sprayer systems for individual field needs.
- 2 DROPLET SIZE** – When boom or nozzle pressure is increased, a higher percentage of droplets are small. The smaller the droplet, the greater the chances of off-target drift.
- 3 APPLICATION SPEEDS** – Maintain reasonable speed. Higher speeds often result in smaller droplets, which are more likely to remain suspended in the air and can move long distances.
- 4 ADDITIONAL OPTIONS** – Carefully select drift-reduction nozzles and additives to control drift.

For more information, visit [www.TakeActionOnWeeds.com](http://www.TakeActionOnWeeds.com)



Brought to you by the soycheckoff.

### Checkoff Funded Research

From variety trials to On-Farm Network testing and more, providing farmers with cutting-edge research they can use to better manage their crops is one of the most important ways the Pennsylvania Soybean Board (PSB) serves the state’s farmers. See the Research Summaries section of our website at [www.pasoybean.org](http://www.pasoybean.org).

## Best Management Practices for Marestalk Control

Dwight Lingenfelter, Penn State Weed Specialist



Photo by Dwight Lingenfelter, Penn State

STATE COLLEGE, Pa. — There has been a lot of discussion about horseweed/marestalk management in soybeans in recent years. Historically glyphosate resistant horseweed was limited to southeastern Pennsylvania down into the Delmarva and west in Ohio, but now it is much more common in central Pennsylvania and has appeared in western and northern Pennsylvania as well.

Marestalk competes with soybeans throughout the growing season and reduces crop yield. This weed is mostly a problem in no-till and is more of a problem in soybean than corn. It is also a common sight along the margins of some fields where herbicide programs are usually more hit or miss. Marestalk matures in late summer or early fall, and produces up to 200,000 seeds per plant, which are readily dispersed by wind.

Ohio and Indiana farmers are also battling marestalk and it's not uncommon for them to have both glyphosate and Group 2 or ALS-inhibitor resistant biotypes. There are some pockets in Pennsylvania that have Group 2 resistant marestalk as well. The use of residual herbicides to control escapes has become more common in some areas, particularly in Ohio and Indiana where 6 to 8 weeks of residual control may be necessary to manage spring emerging horseweed.

Here in the Mid-Atlantic, the need for residual herbicides for marestalk control is less clear as most of our marestalk emerges in the fall and early spring prior to burndown herbicide applications. However, be on the lookout as you scout fields this spring and early summer. Residual soybean herbicides can help manage not only late emerging marestalk, but also all those other summer annual broadleaves that are problematic.

### Here are the general guidelines for horseweed/marestalk management:

1. Start clean and control marestalk prior to soybean emergence.
2. Size matters when controlling marestalk. Control horseweed when it is small (under 6 inches tall), while it is still in the rosette stage and prior to bolting.
3. Use 2,4-D and/or Shapen, Verdict, Optill (saflufenacil) in the burndown program to control emerged plants. Saflufenacil use on coarse soils with 2% or less organic matter is more restrictive.
4. Applications in April should include a residual herbicide to control later emerging plants.
5. Plant a LibertyLink soybean variety if possible and use an in-crop, post herbicide if necessary. Bayer introduced Credenz soybean this year, which is a new trademarked soybean that is available either as LibertyLink or with glyphosate tolerance.
6. In our trial last year at Landisville, a two-pass program of glyphosate only provided 67% control. A two-pass program that included FirstRate with glyphosate POST provided 84% control.

There are recommendations/restrictions for tank-mixing saflufenacil with other Group 14 or PPO herbicides due to the concern for soybean injury. According to the BASF labels, you must wait at least 14 days if you mix 1 fl. oz. of Sharpen (or 5 fl. oz. Verdict) with other Group 14 herbicides (More than 1 fl. oz. Sharpen requires 30 days).

### Soil-applied Group 14 herbicide include the following:

- Flumioxazin products - Valor, Valor XLT, Envive, Trivence, Afforia, Fierce, Surveil, Gangster, Rowel, Rowel FX (and other labeled formulations).
- Sulfentrazone products - Authority products, Sonic, BroadAxe XC.
- Fomesafen products - Prefix, Reflex, Warrant Ultra - Syngenta does have a Section 2(ee) label for Prefix tank-mixed with 1 fl. oz. Sharpen as a preplant application in soybean. We are not sure what Syngenta's definition of preplant is, but this product is being promoted locally for application 2 to 3 days before soybean emergence.
- Other residual non-Group 14 broadleaf herbicides such as metribuzin, Canopy, FirstRate, etc. can be tank-mixed with saflufenacil and applied PRE.

## Think you know herbicide-resistant weeds?

### TAKE THIS QUIZ!

1. Herbicide-resistant weeds cost U.S. farmers \$2 billion a year.\*

True False

2. What are some cultural or herbicide best management practices that can be used to slow the development of herbicide resistance?\*

- (A) Applying multiple MOAs (B) Scouting  
(C) Crop rotation (D) Residual herbicides  
(E) All of the above

3. For in-season weed control, when is the best time to control weeds?\*

- (A) 8 weeks after soybean emergence (B) 4 weeks after soybean emergence  
(C) 2 weeks after soybean emergence (D) None of the above

4. Marestalk matures in late summer or early fall and produces up to how many seeds per plant?\*

- (A) 200 (B) 2,000 (C) 200,000 (D) 2,000,000

5. The single most important factor leading to the development of herbicide resistance is overreliance on a single herbicide.\*

True False

6. For weeds like Palmer amaranth and waterhemp, when should you apply postemergence herbicides?\*

- (A) Before weeds grow 3 inches tall  
(B) When weeds are between 4 and 8 inches tall  
(C) Neither A or B

7. Which of the following could indicate herbicide-resistant weeds?\*

- (A) Weeds that are normally controlled by the herbicide at the applied rate survive  
(B) Surviving weeds mixed with controlled individuals of the same species  
(C) A spreading patch of non-controlled weeds of a particular weed species  
(D) All of the above

8. When should you begin scouting for weeds?\*

- (A) 14-20 days after initial postemergence application  
(B) 20-26 days after initial postemergence application  
(C) 7-14 days after initial postemergence application  
(D) Scouting isn't necessary

9. Planting high-yielding, competitive crop varieties can enhance your weed control.\*

True False

10. There are fewer than 100 weeds with herbicide resistance in the U.S. today.\*

True False

### ANSWERS:

1. True. Wisconsin and Northern Illinois BASF technical service representative, Vince Davis, says herbicide-resistant weeds cost U.S. farmers \$2 billion a year. And considering how fast resistance is spreading through the soybean-producing region of the United States, that figure is likely still climbing.
2. (E) All of the above. Implementing a diverse set of weed-management tactics is the single most important lesson to learn in managing resistance. Only by implementing diverse weed-management practices will herbicides continue to be a valuable agricultural resource.
3. (B) For in-season weed control, the most critical time to control weeds is 4 weeks after soybean emergence. It's best to apply herbicides to weeds that are still young because they will absorb chemicals more readily than their mature relatives.
4. (C) One marestalk plant can produce up to 200,000 seeds, which are readily dispersed by wind.
5. True. Although a number of factors determine the frequency of resistance in weed populations, reported incidents strongly suggest that the single most important factor leading to herbicide resistance is overreliance on a single herbicide (or group of herbicides with the same site of action) without using other weed-management options.
6. (A) For weeds like Palmer amaranth and waterhemp, apply the full rate of postemergence herbicides before weeds grow 3 inches tall. Be sure to rotate modes of action.
7. (D) All of the above. Observing any of these situations could indicate the presence of herbicide-resistant weeds, but the only way to know for sure is to have the weed(s) tested for resistance.
8. (C) For all weeds, scout fields within 7-14 days after the initial postemergence herbicide application to determine its effectiveness. Remove any surviving weeds from the field before they reach the reproductive growth stage.
9. True. Choosing competitive crop varieties can help suppress weed emergence and seed production.
10. False. There are 143 weeds with herbicide resistance in the U.S. today; 13 of those weeds are resistant to glyphosate.

\*Source: *Take Action on Weeds* [www.takeaction.org](http://www.takeaction.org)



Photo by United Soybean Board

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## Soybean Yield Contest Winners Attend Commodity Classic

SAN ANTONIO, Texas — The winners of the Pennsylvania Soybean Yield Contest were among nearly 9,000 attendees who traveled to San Antonio for the 2017 Commodity Classic, America's largest farmer-led, farmer-focused convention and trade show. The Classic, held March 1-4, is the joint convention and trade show for the soybean, corn, wheat and sorghum industry. Attendees enjoyed educational sessions with leading agronomy and marketing experts, a trade show with the latest technology and equipment and the chance to meet and talk with fellow farmers from throughout the country.

A trip to the Commodity Classic is the prize for state and regional winners of the Pennsylvania Soybean Yield Contest, sponsored by the Pennsylvania Soybean Board to benchmark growers' best crop management practices. Information on the 2017 contest, and results of the 2016 contest, are available at [www.pasoybean.org](http://www.pasoybean.org).

Pennsylvania Soybean Yield Contest winners Rick Telesz and Tim Stewart, United Soybean Board Chair John Motter, United Soybean Board CEO John Becherer, Pennsylvania Soybean Board Chair Bill Beam, Yield Contest winners Glenn Krall and Matt Ahern. (Yield contest winner Leslie Bowman, not pictured.)



Photo by Holly Slegowski, PSB