



## IT'S TIME TO RETHINK WEED CONTROL

**University of Wisconsin researcher Vince Davis estimates herbicide-resistant weeds cost U.S. farmers two billion dollars each year.**

To help fight this loss, the soy checkoff has taken the lead in creating the Take Action program to help farmers implement production practices on their farms that can manage herbicide-resistant weeds. Universities and herbicide providers have joined the effort, and all are promoting a unified approach to weed management.

“Diversification is the most important thing farmers can do to manage these weeds,” says Davis. “This includes diversification of effective herbicide modes of action, diversified weed-management practices and also utilizing non-herbicide control options such as judicious tillage, cleaning equipment for weed seed and diversified crop rotations. Weeds develop resistance more quickly when production systems remain static.”

Take Action is an industry-wide partnership between university weed scientists, major herbicide providers and corn, cotton, sorghum, soy and wheat organizations to help farmers manage herbicide-resistant weeds. Check out the Take Action’s website, [www.TakeActionOnWeeds.com](http://www.TakeActionOnWeeds.com), for interactive guides and a wealth of other information on how to diversify weed management. ✓

Go to [www.TakeActionOnWeeds.com](http://www.TakeActionOnWeeds.com) to find guides that will help identify weeds and what actions will help control them.



## BERKS COUNTY FARMER WINS TOP HONORS IN 2014 PA SOYBEAN YIELD CONTEST

Berks County farmer Herman Manbeck was the state's top producer in the annual Pennsylvania Soybean Yield Contest, sponsored by the Pennsylvania Soybean Board. His winning yield was 94.49 bushels per acre. Manbeck also won the honor in the 2012 contest with a yield of 97.06 bushels per acre.

David Wolfskill, also of Berks County, placed second with 86.32 bu./acre, followed by Lancaster County soybean grower Rob Ranck with an 86.21 bu./acre yield.

According to contest coordinator and Penn State Senior Extension Agent Del Voight, 12 of the 24 participating growers exceeded 80 bushels per acre. The mean yield of the contest entrants in 2014 was 75.48 bu./acre, down from the 2013 average of 76.82 bu./acre. Most growers entering the contest planted before May 10 and harvested before October 10, 2014.

"Growers cited a lack of sunlight in the late summer and wet conditions in the spring of 2014 as the major issues with production," says Voight. "Many reported the incidence of white mold infestations, a common soybean disease during wet conditions."

The contest recognized not only the state-wide grand champion, but also the top growers in each of four regions of Pennsylvania, based on maturity maps. A summary of the crop production practices from the 2014 contest entrants is available under the Research Summaries tab at [www.pasoybean.org](http://www.pasoybean.org). ✓



Soybean Management Practices – 2014 Winners' Circle

Region	STATE WINNER South Central	Central	West	North
	Herman Manbeck Womelsdorf, PA	Matt Kehr Littlestown, PA	Frank Mutnanasky Uniontown, PA	Richard Snyder Montoursville, PA
Previous Crop	Corn	Corn	Corn	Corn
Row Width	15"	30"	15"	30"
Tillage Type	No Till	No Till	No Till	Min Till
Planter Type	Planter	Planter	Planter	Planter
Variety	P35T58R	SN385RR2	DS2411RR	P93M11
Seeding Date	5/9/2014	5/15/2014	5/24/2014	5/14/2014
Seeding Rate	190000	150000	138500	170000
Final Stand	139392	139392	95932	139392
Seed Treatment	Pioneer Premium		Cruiser Max	Pioneer Premium
Inoculation	No		Dry	Liquid
Fungicides	Approach	Priaxor	None	None
Insecticide	None	None	None	Yes
Herbicide	Round Up Power Max, Envive, Scythe	Durango, Sonic	Round Up Power Max, Max+Metolachlor, Cloack, Sharpen	Not Reported
Date of Harvest	10/6/2014	10/20/2014	11/5/2014	10/28/2014
Moisture	13.80%	12.80%	12.80%	11%
N Applied	No	Yes	No	No
Starter Applied	No	No	No	No
Foliar Fertilizer	Yes	Yes	No	Yes
Cover Crop	None	Wheat	Rye	None
Yield	94.49	85.8	71.62	45.18

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## COMMODITY CLASSIC AN EYE-OPENING EXPERIENCE FOR PA SOYBEAN YIELD CONTEST WINNERS

In addition to bragging rights, the reward for being a state or regional winner of the 2014 PA Soybean Yield Contest was a trip to the Commodity Classic, the largest farmer-led, farmer-focused convention and show in the country.

The winners of the Pennsylvania Soybean Yield Contest traveled to Phoenix, Arizona in February, where they were among the nearly 8,000 attendees at the 2015 Commodity Classic.

For three days they attended world-class educational sessions with an impressive line-up of thought leaders on the cutting edge of agriculture. They saw state-of-the-art technology, heard about new management practices and ways to improve efficiency, and perhaps most important of all, had the chance to meet and share with fellow soybean growers from throughout the country.

### Here's what they said about the experience:



**Herman Manbeck, Womelsdorf, PA**  
*South Central Region and Overall State Yield Contest Winner*

"The Commodity Classic is a good show – I agreed with many of the speakers that it's not how much you can save, but how much you make from what you spend. At this show, you sit down at lunch, introduce yourself, and everyone can relate to what you're talking about. When you come to this show, if you have specific questions, there are a lot of qualified people here who will find the answer for you."



**Matt Kehr, Littlestown, PA**  
*Central Region Yield Contest Winner*

"I've taken in a lot of information at the show. I've learned the key to success is breaking down the little things you need to look at in your operation, things you might have forgotten about. I've met a lot of different farmers from across the country who are doing interesting things

on their operations. Some are doing strip tillage; others are making multiple passes with the sprayer, three to six times, while we are only going once through the field. I don't think we are doing everything we can do to hit our yield goal. There are some things I've picked up here that I can improve to get closer to or above that 100 bushel yield."



**Richard Snyder, Montoursville, PA**  
*Northern Region Yield Contest Winner*

"It helps to talk and listen to the premiere producers here and take their ideas back home to integrate in my production. One thing I have done is set my yield goals higher. I learned I need to pay close attention to the timing of herbicides and fertilizer. Every soybean grower should make it to at least one of these shows. The presentations, meetings, and trade show are all top notch. It is very eye-opening... there are many things you can learn and take back to your operation."



**Frank Mutnansky, Uniontown, PA**  
*Western Region Yield Contest Winner*

"One of the main advantages is networking with other growers. You can learn so much if you just sit down and listen. For example, I was talking to a guy from Oklahoma who farms 6,200 acres of corn/wheat. He is composting and I am about to start making compost, so I learned a lot from him. I especially enjoyed the early morning sessions with panel discussions. They were informative and motivational. Successful people attend these events: they seek out knowledge and aren't afraid to ask for help and listen."

### Plan to enter the 2015 PA Soybean Yield Contest

The state and regional winners of this year's Pennsylvania Soybean Yield Contest will win a trip to the 2016 Commodity Classic, which will be held from March 3-6, 2016, in New Orleans. Entry forms and information on the contest are available at [www.pasoybean.org](http://www.pasoybean.org).

The Commodity Classic is produced by the National Corn Growers Association, American Soybean Association, National Association of Wheat Growers and National Sorghum Producers. Starting in 2016, the Association of Equipment Manufacturers and many of its members will be joining the event.



# MANAGING WHITE MOLD

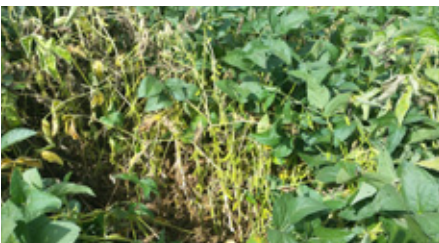
**More white mold (Sclerotinia stem rot) was reported in Pennsylvania soybean fields last year than in the past few years. White mold is a soil-borne disease that is favored by cool, cloudy, wet, humid weather at flowering. Fields are more susceptible to white mold with high plant populations and narrow rows, and the result can be major yield reductions.**

## What is white mold?

The fungus that causes white mold (fungus *Sclerotinia sclerotiorum*) thrives on the soil surface and lower stems when the environment is humid with a closed canopy that prevents air flow. The stem and lower leaves become infected, and then the disease moves up the plant resulting in yellowing and defoliation. As the disease progresses, white tufts of fungus become visible on the tissues of the lower canopy, and ultimately hard, black overwintering structures (sclerotia) form that can survive in residue and in the soil for up to 10 years.

## Where did the fungus come from?

White mold is long-lived in the soil. Most likely, the fungus was moved into the field as one of the small sclerotia during tillage operations or on other equipment. The tough sclerotia may have been lying in wait for a long time – sometimes for years – before the weather was right to start growing and infecting again. Once you have the pathogen it doesn't go away, so choosing a resistant variety is one of the strategies you should employ for management. There are no 100% resistant varieties for white mold, but there are varieties that are better than others.



When the leaves and stems become infected with white mold, the disease moves up the plant resulting in yellowing and defoliation.



White mycelium on stem and pods is a sign of white mold infection.



### Now what?

Survey your fields during pod fill in late summer. If 20% or more of a field is affected by white mold, the variety you are growing is probably not the right one for your situation. Work with your seed reps to select a white mold-resistant variety for the future in that field. Not just the next time you grow soybeans—every time you grow soybeans in that location. This fungus can survive in residue and soil for 7 to 10 years.

### Tillage practices

Tillage may help the first year by burying the sclerotia, but the next time you till, you could bring them up again. Several studies have indicated lower levels of disease in no-till. Although more sclerotia are found near the soil surface in no-till systems, sclerotia may degrade faster in no-till soils compared to tilled soils.

### Apply a fungicide

When you plant beans in this field in the future, consider applying a fungicide at R1 to R2. There are some effective products available, but you need to get them on before the canopy closes to be sure you can penetrate down to the flowers on the lower stems. Once symptoms of white mold are evident, fungicides will have no effect on reducing the disease.

### Harvest these fields last

The sclerotia can, and probably will, end up in your combine, so you want to avoid moving them to clean fields. If you have someone come in to custom harvest, warn them that they will probably want to clean the combine as much as possible before moving on to someone else's farm. Apply this same thinking to all your operations in the field that involve soil movement. Anytime you sink

equipment into the soil (tillage, planting) there is potential to pick up some fungus and move it to a clean field. Do these operations in your white mold field last, or blow out and power wash your equipment between fields.

### White mold management strategies

- Avoid highly susceptible soybean varieties
- Plant sclerotia-free seed (treated with fungicide)
- Rotation of 2-3 years out of soybeans in affected fields to help reduce the level of fungus in the soil
- Consider wider row width of 30 to 15 inches in affected fields
- Strive for lower plant populations of 125,000-140,000
- No tillage (white mold will die quicker)
- Consider fungicide application beginning at appearance of first flower

## ON-FARM NETWORK FIELD STUDY: WHITE MOLD RESPONSE TO APROACH FUNGICIDE

### The On-Farm Network studied the response of White Mold to fungicide/insecticide application at three on-farm sites in Pennsylvania.

“Above average moisture offered ideal conditions for the infection of White Mold pathogens,” said Del Voigt, Senior Extension Educator.

Treatments evaluated were Approach (9 oz/acre) plus Asana (5 oz/acre) at R3 followed by Aproach (6 oz/acre) two weeks after the first application.

“It appears that there is a fungicidal effect by the application of a single or double application of Aproach fungicide at the 9 oz/acre rate,” says Voight. “Over 18 replications, there was a significant improvement in yield (11.75 bu/acre).”

County	Treatment #	Reps	Treated	% Incidence of White Mold	Untreated	% Incidence of White Mold	Bu/acre Difference
Lebanon	Two applications	3	77.4	10	60.8	20	16.6
Lebanon	Single Pass at R3	3	96.2	15	82	25	14.2
Franklin	Single Pass	12	82.6	-	78.3	-	4.3
<b>Average</b>		18	85.4	12.5	73.7	22.5	11.7

For more information on crop production practices, be sure to check out Penn States Field Crop News at <http://extension.psu.edu/plants/crops/news>

# SOYBEANS GAINING GROUND IN NORTHEAST PENNSYLVANIA

With proper management, northeast Pennsylvania soils and climate are capable of generating an economically viable soybean crop. Soybean crop growth in the Northern Tier has the potential to be an alternative crop for both grain and livestock producers. As the USDA Survey Map shows, the region is capable of rivaling areas of the Midwest for yield per acre. However, the survey also shows that relatively few acres in the region are devoted to soy production.

The biggest obstacle to the success and future of soy in the Northern Tier is knowledge and experience. Two on-site projects funded by the checkoff through the Pa. Soybean Board aims to provide producers in the area with information that will help them learn the basics of growing soybeans and gain confidence in the potential of soybeans on their operation. One of the most beneficial outcomes of the projects is education: both at field days hosted on-site and crop conferences. Producers joined in discussion with knowledgeable growers and Extension personnel and were able to take that knowledge back to their operation to improve or begin soy production.

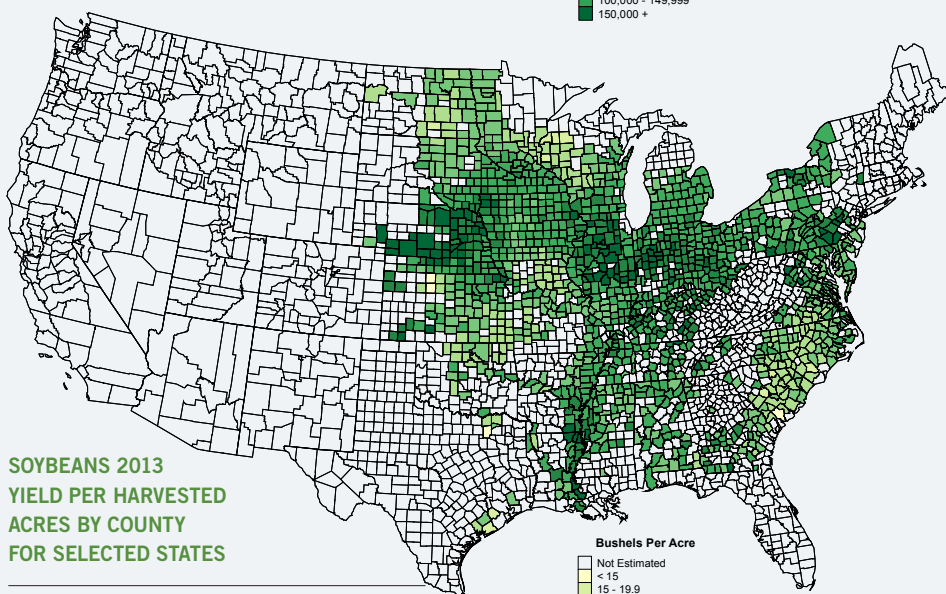
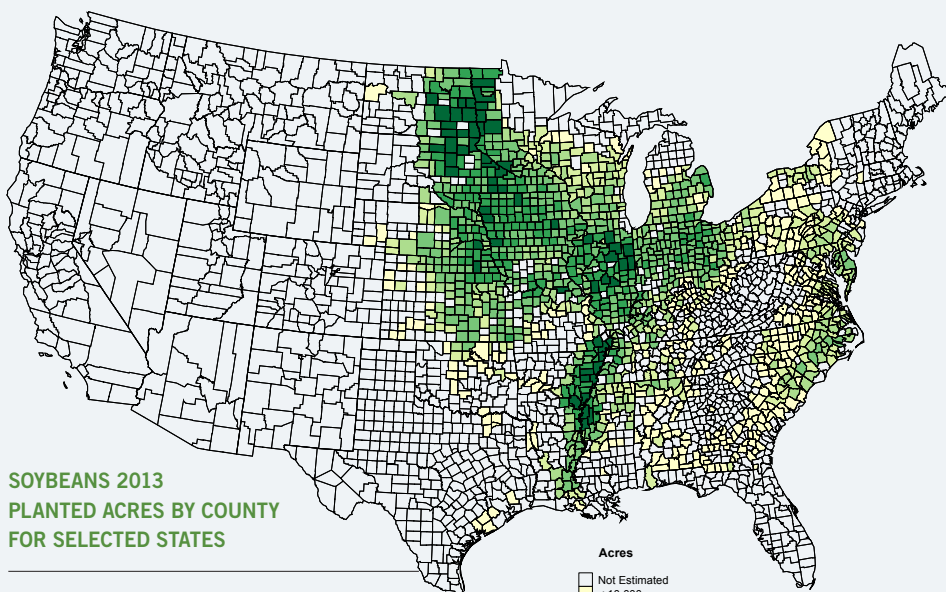
The projects and educational outreach were a joint effort of Penn State University, T.A. Seeds, Inc., and the Pennsylvania Center for Beef Excellence (CBE). The project will continue in 2015.

Planning for soybean production in northeast Pennsylvania involves a wide range of agronomic considerations, says David T. Messersmith, PSU Extension Educator. "Site selection is critical. The soils varied per site, but all were conducive to soybean growth."

By speaking with the producers to determine field selection and base fertility, possible varieties were narrowed down. After selecting a variety, the best growing practices were examined. This involves plant density, row spacing, fertilization needs, insect and disease susceptibilities.

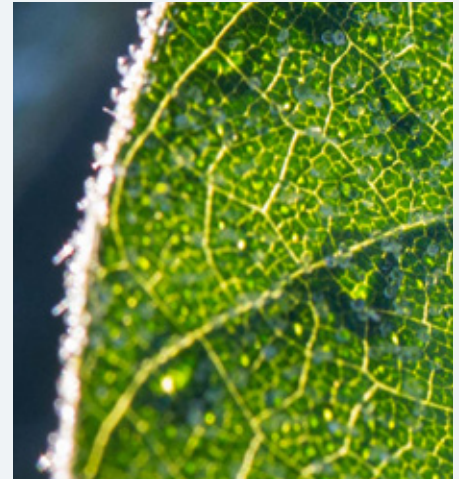
"We made producers aware of these characteristics to give them all the tools needed to grow an economically advantageous crop," says Messersmith.

Given the relatively cool, wet springs that occur in northeast Pennsylvania, Messersmith says a base treatment of an insecticide/fungicide is highly recommended to allow for a successful, even germination. In fields with little to



## Test Plot Production Practices in Northeast PA

<b>Location</b>	Scott Township, PA (Lackawanna County)	Milford, PA (Pike County)
<b>Variety</b>	TS1719R2 treated with CruiserMaxx Plus	Pioneer 93Y-84
<b>Seed count per acre</b>	160,000	140,000
<b>Type of planter</b>	No Till Grain Drill (7.5" rows)	No Till Grain Drill
<b>Depth of seeds planted</b>	2"	1 ¼" - 1 ½"
<b>Fertilizer</b>	No	0055 Sulfur 3 gal./acre on the seed
<b>Spray</b>	Glyphosate	Glititate, Dull
<b>Yield</b>	31 bu/acre	60 bu/acre



no history of soy production, a rhizobia inoculant is recommended for effective colonization of nitrogen fixing bacteria. And, since soybean germination requires a minimum soil temperature of 55 degrees Fahrenheit, cold rains can delay planting in the area. After planting, Messersmith suggests walking the field in order to observe germination and early growth to ensure that a replant is not needed.

Messersmith noted that there are some barriers to expanding soybean production in northeast Pennsylvania. One is the lack of grain harvesting, storing and marketing infrastructure. The region has traditionally been a forage-based agricultural system

with very little grain production. While this trend is starting to change, growers who want to enter soybean production must first arrange for combining, grain handling and trucking.

There are a handful of combines in the region that are being used, but more are needed to ensure timely, efficient harvest. The lack of grain handling and storage facilities mean that beans are generally trucked directly from the field to mills more than 100 miles away in central and southeastern Pennsylvania.

"We believe that these infrastructures and services will begin to be offered locally as soybean acreage increases," says Messersmith. ✓

## Soybean Planting Budget

Based on PA Custom Rates for Mountain Region

Activity	No-Till	Minimum Till
Sprayer Herbicide	\$13.90	\$-
Glyphosate Material	\$10.00	\$-
Spread Dry Fertilizer	\$10.60	\$10.60
Chisel	\$-	\$19.50
Disk & Harrow	\$ -	\$18.40
Planting	\$22.00	\$21.60
Sprayer Herbicide	\$13.90	\$13.90
Glyphosate Material	\$10.00	\$10.00
Combine	\$34.60	\$34.60
<b>Total</b>	<b>\$115.00</b>	<b>\$128.60</b>

*Costs involved in soybean production based on custom rates and actual plantings at each test location in the Northern Region. (2014)*



## SENTINEL PLOT PROGRAM ON THE LOOK-OUT FOR PESTS

**For the fourth year consecutive year, a sentinel program sponsored by the Pennsylvania Soybean Board will track insect and disease pest populations in soybean fields around Pennsylvania and share this information with growers.**

Scouting will begin upon emergence, with reports being made weekly from June through the growing season in the Penn State Field Crop News, available online at <http://extension.psu.edu/field-crop-news>.

Last year, 13 Penn State Extension educators throughout Pennsylvania participated in this effort, tracking populations in 23 fields in 16 counties.

"Scouting is key to soybean pest management; growers need to know the pest populations in their fields to effectively manage them," says Dr. John Tooker, Associate Professor of Entomology and Extension Specialist at Penn State. "In 2014, a narrow range of insects was discovered and only a few diseases, but importantly, none of the pest populations exceeded economic thresholds, thus none of the fields scouted required pesticide treatments. This is an important message for growers to hear: pest populations are not pervasive and always threatening soybean yield. It's important to scout because in many locations and in most years, pest populations do not develop and thus pesticide use should provide no advantage." ✓



## TILLAGE PLAYS A BIG ROLE IN MANAGING HERBICIDE-RESISTANT WEEDS

**Deep-till or no-till – which method is better for managing weeds? According to Purdue University Associate Professor Bryan Young, Ph.D., there are pros and cons to both tillage methods for the purposes of weed control.**

Traditional deep-till methods bury weed seeds, making it harder for them to germinate, but they also prolong the seed's viability. On the other hand, no-till methods leave seeds in the upper inch of soil where they are likely to germinate the following year, but those seeds are also more likely to be removed by predation.

In a "Focus on Soybean" webcast, Young discussed the differences between managing weed emergence in deep-till and no-till environments.

- Deep-till** — Most would assume this practice is preferred because if the weed seeds are buried deep, many can't germinate. However, when seeds are buried deeper, seed predation is more difficult, and the seeds' longevity increases. This creates the possibility that those seeds could germinate in future years. "In a deep-tilled environment, you may be removing about 80 percent of the weed seeds from the germination zone, which alleviates some of the pressure for the following year, but might increase the weed seed longevity in the soil in the following years," says Young.
- No-till** — No-till isn't for everyone, but it can work for farmers who have effective herbicide modes of action in place to deal with weeds in the near future. In these environments, weed seeds remain in the upper inch of soil, where they can germinate more easily. However, predation is higher because the weed seeds are at the surface where birds, insects and mice can eat or remove them. With no-till practices, farmers know that they will have to manage those weeds the following year. If they are prepared to do so and have effective herbicide modes of action as viable options, that may be the best tactic rather than prolonging the seed's life with deep-till.

The soy checkoff provides farmers with resources they need to develop a diversified weed-management plan, including tillage, herbicides and other practices, to help lower the risk of developing herbicide-resistant weeds. Visit [www.TakeActionOnWeeds.com](http://www.TakeActionOnWeeds.com) to learn more.

"Focus on Soybean" webcasts are sponsored by the soy checkoff through a partnership with the Plant Management Network. All U.S. soybean farmers have access to this full presentation for free until June 30, while a shorter executive-summary version of the presentation is always available. ✓

## SAVE THE DATE! AG PROGRESS DAYS

**WHEN: August 18-20, 2015**  
**WHERE: Russell Larson  
Research & Education Center  
2710 West Pine Grove Road,  
Pennsylvania Furnace, PA 16865**

Technology, information and fun! You won't want to miss Ag Progress Days. You'll find Pennsylvania Soybean Board representatives at the Ag Choice building.

This year, you can taste and see high oleic soybeans. High oleic soybeans will be featured in the Agronomic Research Tour where demonstration plots will feature conventional and high oleic beans. Penn State agronomists will discuss their potential in the state. Get a free ticket and board the bus at the corn crib at the top of Main Street. A limited number of tickets are available per tour, so stop by early to reserve your seat.

After your tour, be sure to stop by the Penn State Ag Student Council tent food stand to enjoy some Pa.-grown mushrooms deep fried in high oleic soybean oil.



Penn State students prepare fried mushrooms at the Penn State Ag Student Council tent during Ag Progress Days. Always a crowd favorite, this year, the mushrooms will be fried in high oleic soybean oil, which is becoming the new trans fat-free oil of choice for the food industry.

*Photo courtesy of Penn State News.*