

CHECKPOINT

NEWSLETTER FOR PENNSYLVANIA SOYBEAN PRODUCERS

MANAGING FLOOD-DAMAGED CROPS

Flood-damaged crops are at risk for quality and harvest losses, but by monitoring and managing carefully, growers may be able to salvage some of them, reduce losses and obtain resources to recover from the situation.

Record-breaking rainfall from Tropical Storm Lee resulted in devastating flooding throughout central and eastern Pennsylvania in early September. Many fields were inundated with floodwater, which in some cases completely submerged the crops. As the floodwater subsided, crop producers were left with many questions about how to manage crops affected by flooding.

“The fields that were flooded will contain a lot of debris and plants will have a lot of soil on them so we anticipate that soybean crops likely will experience increased harvest losses and increased machinery problems during harvest. Conditions will be dusty and dirty during harvest, and some soybeans may be impossible to harvest due to lodging and debris,” says Penn State Crop Specialist Greg Roth.

Based on previous experience with floods in Pennsylvania and other Northeastern states, here are some recommendations and observations that may help in making harvesting and marketing decisions.

Possible scenarios from flooding

1. Sprouting in the pod. Soybean seeds that have dried below 50% moisture and absorb water to rise back above 50% moisture can germinate. Aside from getting the water off of the field as quickly as possible, there is nothing a farmer can do to prevent the germination of seeds in a pod.

2. Shattering. Once these plants dry out again, shattering of the pods is a very real possibility. With the thought of shattering, most farmers will be tempted to harvest these soybeans as soon as the seeds have dried enough for harvest. Harvesting these soybeans early must be weighed against some of the other things that might occur in the field. On the one hand, flooding will probably increase lodging and shattering, which are reasons for harvesting the fields as soon as possible. On the other hand, dust and silt and possible lower yields are reasons for harvesting these fields last. County extension agents are available for help in making these decisions.

3. Saprophytic fungi. The moist, dead soybean plant material is a good host to saprophytic fungi. These could discolor some soybean seeds and cause clouds of black dust during harvest. Scout the fields to see if the fungus has gotten to the seeds. If the fungus is not on the seed, then you may want to harvest these as soon as possible to prevent any additional seed damage. If the seeds have been infected with a fungus, then deciding when to harvest becomes more difficult. These soybeans should be kept separate from soybeans harvested from dry or clean fields.

4. Lodging of plants. Lodging most likely will occur from the rapid movement of water into or out of the field. These plants will in all likelihood be covered in mud and silt, so some seeds will be lost to the ground. The remainder will be difficult to harvest with a grain table. Lodged plants in contact with the soil or covered

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“Soybeans harvested from flooded fields should be kept separate from soybeans harvested in other fields.”

MONITORING PROGRAM SEEKS TO STEM STINK BUG INFESTATIONS

The brown marmorated stink bug (BMSB) is a relative newcomer to the U.S. It was first found in the United States in Lehigh County in 1998, but since that time, has become an increasingly serious agricultural pest in Pennsylvania and surrounding states. They have already proved to be a formidable pest in the state's apple and peach crops, and are threatening soybean fields as well.

Brown marmorated stink bugs are notoriously hard to control. Unlike other stink bug species that are indigenous to Pennsylvania, they do not have a known natural enemy, allowing populations to grow unchecked. After overwintering in houses, barns and other structures, in the spring they move freely to fields and other vegetation to reproduce.

Although relatively little is known about the behavior of the BMSB, funding from the checkoff is helping researchers learn more about the biology and behavior of this pest and how best to control it in soybean fields.

This spring, the Pennsylvania Soybean Board provided funding to Penn State Extension to scout soybean fields for the brown marmorated stink bug. An average of 15-20 soybean fields were scouted on a weekly basis across the state's south-

eastern region in hopes of discovering BMSB populations in soybeans before they reach threshold levels.

Adult brown marmorated stink bugs started to appear in soybean fields during mid-July. In the preceding weeks, stink bugs were found throughout cornfields adjacent to soybean fields. As the corn matured and the kernels hardened, the stink bugs migrated from corn fields to neighboring soybean fields. The insects feed on the developing soybean pods with their sucking mouthparts, causing the beans to shrivel.

By mid-July, the field scout found the first field in Lancaster County where brown marmorated stink bug levels were above the threshold. In mid-August, fields in York and Dauphin Counties were found where BMSB levels were above the threshold. These populations

were mostly nymphs, which had just started hatching from eggs the adult BMSB laid on the leaves earlier in the season. BMSB populations were scarce across the fields that were scouted in Chester, Berks, and Lebanon Counties.

It's important to note that the populations discovered were concentrated on the perimeters of fields. "Understanding this will allow growers to apply special control tactics that will save money and still be very effective," says Kevin Martin, who scouted the fields. "In many cases where brown marmorated stink bug populations are above the threshold level, a perimeter spray may be all that's needed. However, growers may need to repeat the application as stink bugs continue to enter soybean fields throughout the summer."

Martin says that laboratory tests and field work indicate that products that contain the active ingredient Bifenthrin (brand name Brigade) are a good option for stink bug control. The maximum application rate for Brigade in soybeans is 6.4 ounces per acre. When using Brigade, it is important not to apply the insecticide within 18 days of harvest. ✓



2012 PROFESSIONAL CROP PRODUCERS CONFERENCE

February 22-23, 2012
Lancaster Host Resort, Lancaster, PA

This two-day conference, sponsored in part by the Pennsylvania Soybean Board and administered by Penn State Cooperative Extension, is designed to address emerging issues that face agronomic crop producers in the state. The conference focuses on production, no-till, marketing, risk management, regulatory and environmental issues related to crop production.

A key focus this year will be on new equipment and precision ag technologies to maximize production efficiency.

The program consists of seminars, breakout sessions and numerous producer roundtable sessions with opportunities to share experiences with emerging technologies or other crop management tactics. A host of industry and university representatives will be attending as well, providing a great opportunity for networking.

In addition to gaining practical agronomic knowledge, CCA, nutrient management, and pesticide applicator license credits can be obtained. ✓

www.professionalcropproducersconference.org



Farmers attending the Field Day inspect soybean plants which show evidence of brown marmorated stink bugs.

MANAGING FLOOD-DAMAGED CROPS

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with mud, silt and debris will probably result in increased deterioration of the seed and poor seed quality. The farmer cannot prevent these soybeans from lodging. Harvesting will be very slow and harvest losses are very likely in this situation.

5. Silt and mud. Flooding brings water and soil. As the water recedes, the soil is left on the plant material. The silt can delay drying out of the plants and will create some very dusty soybeans at harvest. Moreover, it will cause extra wear and tear on the combines. If the soybeans are standing and the farmer can wait, it would be ideal to harvest these soybeans last in order to keep the combine relatively clean for fields of soybeans that were not flooded.

6. Grain quality. Monitor each field for grain quality prior to harvest. Flooded fields will probably have reduced seed quality affecting marketability. Depending on the extent of damage, this may result in heavy dockage or unacceptability at elevators.

7. Soybeans not mature. Late-planted soybeans that had not reached physiological maturity (R7) and were flooded for more than 24 hours, will most likely not survive, resulting in premature death of the plants. In these cases, you can expect reduced seed quality (green and off-color seed, shriveled and smaller seed). The extent of seed quality damage will be dependent on the plant reproductive stage when flooding occurred. Fields with considerable green foliage (R5 to early R6) would be of greatest concern for reduced seed quality. Monitor each field to determine if harvest is a feasible option.

Suggested management strategies

1. Heavily damaged fields. For soybean fields that sustained extensive flood damage and will likely result in considerable harvest yield losses or very poor seed quality, pursuing crop insurance claims may be the best option. Contact the crop insurance adjuster to document the loss before taking action to remedy the situation. Consider contacting the local FSA office to report losses as well.

2. Separation. Soybeans harvested from flooded fields should be kept separate from soybeans harvested in other fields. Mixing soybeans from flooded fields with soybeans from dry fields could reduce the quality of the overall load of soybeans.

3. Harvest order. Harvesting flooded soybeans could take longer, especially if plants have lodged, are muddy or dusty from silt and/or fungi. If multiple fields of soybeans are ready to harvest at the same time, consider harvesting the better, dry fields first. Harvest yield losses were not reduced in these fields and they can be harvested faster than the flooded fields.

4. Scout the fields. To determine the extent of flood damage and harvest order, fields impacted by flooding will need to be scouted. Deciding which fields to harvest first will depend on the situation for each farmer. County extension agents are available for help in making these decisions. ✓



FLOOD AID RESOURCES

- Producers whose farms have been impacted by flood damage can contact their local county Extension office or the Pennsylvania Department of Agriculture at 717-787-4737 for more information.
- A major disaster declaration has been issued for Pennsylvania in the wake of Tropical Storm Lee, making low interest emergency loans available to producers who sustained flood damage.

Information can be found at

www.fsa.usda.gov

or by calling a local FSA office.



PA Secretary of Agriculture George Greig and state FSA Executive Director Bill Wehry examine damage to a soybean crop on a northeastern PA farm following flooding caused by Tropical Storm Lee.

RELATED INFORMATION:

Penn State:
Managing Flood Damaged Crops
(Greg Roth, et al. 2006)
http://cornandsoybeans.psu.edu/flood_damaged_crops.cfm

Management of Pre-Harvest Flood Damaged Corn and Soybeans
(Tom Murphy, et al. 2005)
<http://crops.confex.com/crops/2005am/techprogram/P4612.HTM>

University of KY Cooperative Extension Service: Flooded Soybeans Near Harvest
(Chad Lee and Jim Herbek, 2006)
http://www.uky.edu/Ag/GrainCrops/pdf_files/FloodedSoybean_atHarvest2006.pdf

SOYBEAN GROWERS GET CLOSE-UP VIEW OF RESEARCH DURING FIELD DAY

The Pennsylvania Soybean Board extended an invitation to the state's soybean growers to take a firsthand look at the research being conducted on their behalf, and nearly 200 growers took them up on the invitation.

The annual Soybean Grower's Field Day, held in August at Penn State's Southeast Ag Research and Extension Center (SEAREC), is designed to show off the latest in soybean research and to update growers on a variety of soybean-related issues. Penn State plant pathologists, weed specialists, and other soybean researchers updated producers on the latest research and production recommendations. It was a time for growers to talk with the experts, take a tour of the research plots, and compare notes with other soybean producers over lunch.

Concepts designed to improve yields, reduce inputs, and improve the quality and profitability of soybeans are refined and tested in a field setting before being introduced into practice by Pennsylvania growers at the Penn State Research Farms in Landisville (Lancaster County) and Rock Springs (Centre County).

After lunch, keynote speaker Dr.

Richard Taylor, a noted agronomist at the University of Delaware, reported on the status of the soybean crop in neighboring Delaware. He said July's heat brought some problems with spider mites on farms he visited in his home state and he suggested Pennsylvania producers can spray the edges of their fields next year to discourage the insects from entering. Such spraying, he said, would also work to contain problems with the brown marmorated stink bug.

The research showcased at the Growers Field Day was funded in large part by the soybean checkoff. The Pennsylvania Soybean Board is tasked with deciding how best to spend checkoff dollars collected from growers across the state, and a large portion of those funds goes to scientific research designed to make soybean production more profitable for growers.

The soybean checkoff is supported entirely by soybean farmers with individual contributions of 0.5 percent of the market price per bushel sold each season. The efforts of the checkoff in Pennsylvania are directed by eight volunteer farmer-leaders on the Pennsylvania Soybean Board.

Molybdenum as a seed treatment

In low pH fields, information from southern states suggests a yield advantage from the use of molybdenum as a seed treatment, but little information exists on the response to molybdenum on Pennsylvania soils. This field trial, in its second year, is designed to study the degree of impact of moly in Pennsylvania soils, and if the addition of this seed treatment will yield measurable return on investment for growers.

Del Voight, Lebanon County Extension educator, presented an overview of the moly trial being conducted at the Landisville research farm, as well as the more extensive trials being conducted by farmers in their own fields throughout the state as part of the Pennsylvania Soybean Board-funded On Farm Network. Initial results in 2010 indicated that there was a 2 bu./acre advantage of using the molybdenum treated seed.

"Further studies will assess the factors that allow for this improvement in yield," says Voight, who spearheads the research being conducted through the farmer/partners of the On-Farm Network, and also organized the Grower Field Day.



Soybean growers from throughout Pennsylvania spent a day touring the fields at Penn State's research farm to learn about the latest university studies being conducted to improve soybean production.



The results of university-conducted variety trials give farmers a valuable tool to help them evaluate and choose the best variety to plant on their farms.



Standing next to a moly-treated field, Del Voight, Lebanon County Extension educator, explains the findings of the moly trial.



"Horseweed produces lots of very small seeds. It doesn't take much to bury them, so they can germinate pretty easily," Program Development Specialist Dwight Lingenfelter said as he explained the research project designed to find effective measures to control horseweed, and invited farmers to take a close look at the control plots and those treated with Ignite.

Horseweed control

One invasive weed that's been an increasing problem for soybean growers, especially in no-till fields, is horseweed (also known as marestalk). Horseweed doesn't mature until late summer, so unlike many other winter annuals that mature in late spring, horseweed competes directly with soybean growth during the growing season and interferes with harvest.

During the field tour, Dwight Lingenfelter, program development specialist at Penn State, talked about the research being conducted to tackle this weed, which is especially problematic in no-till fields and is resistant to glyphosate (Roundup) herbicide.

The research project is investigating various mixes of Ignite herbicide on LibertyLink soybeans as a way to tackle horseweed. While Ignite can be a good alternative to Roundup, it has to be applied at higher rates to get better coverage. The project is looking at different herbicide mixes with Ignite, as well as the optimal application timings and rates.

Soybean variety trials

Choosing the right mix of soybean genetics and defensive traits can make a big difference to soybean growers, bottom line, says Mark Antle, research support technologist at Penn State. That's why variety trials have been a central focus of checkoff funding for the past 20 years.

Antle spoke about the soybean variety trials being conducted by Penn State. Seven different trials, split between Penn State's research farms in Landisville and Rock Springs, are currently being studied with a total of 75 different varieties of soybeans. This is the 20th year for the trial, which is funded in part by the soybean checkoff.

These carefully designed public trials – which are repeated for several years – let growers compare and rank varieties from many companies by seeing how different soybean varieties match up against one another in terms of yield, height, resistance to lodging and other factors. ✓



Delaware agronomist Dr. Richard Taylor suggested spraying the edges of fields to combat the brown marmorated stink bug.

Go to cornandsoybeans.psu.edu to find the latest data on varieties in Pennsylvania.



The Pennsylvania Soybean Board administers the national soybean checkoff program, approved by Congress in 1990. Under its terms, farmers “check off” 50 cents on every \$100 at the first point of sale of their beans. Half goes to the state, with the remainder to the United Soybean Board. The money is used to fund or support soybean research, market development and education.

The Pennsylvania Soybean Board promotes the growth and development of Pennsylvania’s soybean industry. The board membership is composed of eight soybean producers from across the state.

- Daryl Alger, Chairman, Lebanon, PA
- Paul Kieffer, Vice-Chairman, Dornsife, PA
- Bill Beam, Secretary/Treasurer, Elverson, PA
- John Yocum, Catawissa, PA
- Jim Musser, Mount Joy, PA
- Brian Kreider, Lebanon, PA
- Mike Gerhart, Ephrata, PA
- Steve Hykes, Greencastle, PA
- Del Voight, Ex-Officio Member, Lebanon County Senior Extension Educator

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2012 PENN STATE CROP CONFERENCES

Sponsored in part by the Pennsylvania Soybean Board, regional Crop Conferences address key crop management issues. CCA, nutrient management and pesticide credits are available. Cost: \$10 includes class materials, lunch, and refreshments. ✓

JANUARY 16

Central PA Crops Conference
 Sugar Valley Charter School,
 Logantown, PA

JANUARY 19

Lancaster Crops Day
 Farm and Home Center,
 Lancaster, PA

JANUARY 19

Appalachian Crops Conference
 Oakhurst Tea Room,
 Somerset, PA

JANUARY 24

Southeast PA Crops
 Conference
 Rodeway Inn, Allentown, PA

JANUARY 25

Southeast PA Crops
 Conference
 Franconia Heritage Restaurant
 & Conference Center,
 Franconia, PA

JANUARY 25

Capital Area Crops Conference
 Lebanon Valley Expo Center
 and Fair Grounds,
 Lebanon, PA

JANUARY 26

Southeast PA Crops
 Conference
 Inn at Reading, Reading, PA

JANUARY 27

Central PA Crops Conference
 Ramada Inn, Altoona, PA

JANUARY 31

Western PA No-Till Conference
 Radisson West Middlesex,
 West Middlesex, PA

FEBRUARY 1

Upper Dauphin Crops School
 Berrysburg Community Center,
 Berrysburg, PA

FEBRUARY 2

South-Central PA Crops
 Conference
 York County 4-H Center,
 York, PA

FEBRUARY 14

Northern Tier Crops
 Conference
 Troy Firehall, Troy, PA

FEBRUARY 15

Western PA Crops Conference
 The Atrium, Prospect, PA

FEBRUARY 16

Central Region Crops
 Conference
 Warriors Mark, PA

FEBRUARY 29

Southwest Crops Conference
 Location to be determined.

Contact your county Extension office for more information.

