

Title: The 2018 NYS Field Crops Weekly Pest Report and Evaluation

Project Leaders:

Ken Wise, Eastern NYS IPM Program Area Educator, Livestock and Field Crops, Cornell University, klw24@cornell.edu
Jaime Cummings, NYS IPM Coordinator, Livestock and Field Crops, Cornell University, NYSAES, jc2246@cornell.edu

Cooperators: Cornell Cooperative Field Crop Extension Educators, Crop Consultants, Growers and Faculty

Type of project: Public Education

Project location: New York State

Abstract

The NYS Field Crop Weekly Pest Report provides timely pest information to field crop extension educators and agricultural professionals. The report compiles weekly pest and crop observations collected by field crop extension personnel across NYS. In addition, the weekly report provides a vehicle to disseminate other relevant IPM information such as pest identification, scouting techniques and a calendar with suggestions for pest management activities. The pest report is distributed as a Cornell Cooperative Extension Blog <http://blogs.cornell.edu/ipmwpr/>. Subscribers (156) to this blog include: Extension Educators, crop consultants, growers, agribusiness associates, and Cornell University Faculty. We also place the blog link on the NYS IPM Facebook page (880 followers) and NYS IPM Field Crops Twitter account (500 followers). Twenty issues of the NYS Weekly Pest Report were published in 2018. Extension Educators and crop consultants utilize the Weekly Report as an overview of timely pest information and have found the report useful in alerting their local clientele regarding pest management issues. Results from an evaluation survey indicate that users extended articles from the report to approximately 5000 plus individuals by re-publication in newsletters or forwarding the report on their own listserv. Many crop consultants who responded indicated they used pest report information directly with growers.

Background and Justification

The NYS IPM Field Crops Pest Report (WPR) is designed to inform growers, extension educators, crop consultants and agricultural professionals on items of immediate pest management concern and provide a convenient news summary that can also be used in an outreach multiplier capacity with their clientele. The report is a compilation of recent pest observations, potential geographic areas or cropping scenarios affected and the amount and potential significance of observed or anticipated pest infestations. The pest report is short, concise and contains links to pest identification photographs and additional management information. Much of the pest alert information is obtained through a weekly conference call with field crop extension educators and faculty.

Extension educators and crop consultants are responsible for providing their clientele with timely information to help enhance crop and pest management decisions. The report provides educational information that can be used in programming, newsletters, list-serves and outreach efforts. Readers can select the pest information that best fits their county situation and clientele's needs.

The report, now in its 17th year of publication, was developed by the NYS Livestock and Field Crop IPM Program Team with the involvement of field crop extension educators and faculty across NYS. The pest report is distributed electronically through a Cornell Cooperative Extension Blog <http://blogs.cornell.edu/ipmwpr/>.

Objectives:

1. Provide current pest information to field crop extension educators, crop consultants, growers, agribusiness, and Cornell Faculty on a weekly basis
2. Evaluate the impacts of the weekly pest report

Procedures:

The NYS IPM Program Livestock and Field Crop (LFC) team worked with extension educators to identify timely pest and crop management issues. The LFC team collaborated with Extension educators, faculty and crop consultants from across NYS who shared their local pest and crop observations. The LFC team prepared the report based on anticipated pest occurrence and feedback on timely field observations. Many of these field observations were communicated by extension educators via a weekly field crop IPM conference call. The report used a concise newsletter format with targeted educational articles. The LFC team was responsible for developing, compiling and publishing the Weekly Pest Report. Regular features of the weekly report included a view from the field, weather outlook, timely updates on current pest issues such as Fusarium head blight, western bean cutworm, growing degree days and alfalfa weevil, seed corn maggot & black cutworm life stage predictions, livestock pest updates, articles highlighting critical, timely or emerging pest issues and a clipboard checklist highlighting suggested activities for the following week. Photographs and internet links to identification pictures and in-depth management practices were provided within articles when possible.

The information was formatted into the weekly report and shared with clientele via the NYS IPM Weekly Field Crops Pest Report Blog Site <http://blogs.cornell.edu/ipmwpr/>. The weekly report blog link was also posted on our facebook (<https://www.facebook.com/NYSIPM>) and twitter pages (<https://twitter.com/NYSFieldCropIPM>).

At the completion of the growing season, subscribers to the WPR blog were invited to complete a survey to evaluate usefulness and the potential impact of the 2018 NYS Field Crop Weekly Pest Report. The evaluation survey was conducted using a google forms on-line survey. An email was sent to subscribers of the blog and on the in-house Cornell Field Crops Staff listserv and the General Cornell Field Crops listserv. We did not send notice by twitter or Facebook because many of those followers are not from NY.

Results and Discussion:

This was the 17th season of the Weekly Field Crop Pest Report. Twenty issues were released this season between May 11 – September 27, 2018. The WPR newsletter template contains several standard sections: a view from the field summarizing pest observations made and shared for that week, a weather forecast for the next week's weather (contributed by the Northeast Climate Center at Cornell), 1 or more timely articles on pests of importance and a weekly checklist of suggested IPM activities for the following week.

The weekly pest report helped field crop producers and others stay informed on current status of statewide pest issues and provided a forum for detailed discussions on a variety of topics

including: updates on the Fusarium head blight prediction model and fungicide use decision making (small grains), corn fungicide use considerations, soybean disease identification and management, western bean cutworm updates on risk to field corn and dry bean, weed management recommendations and decision making, vertebrate damage to field crops, sharing of timely resources and field monitoring reminders.

The 2018 reports contained a total of 87 individual articles which addressed different pests that included a wide variety of field crop insects, plant diseases, weeds, and vertebrate pests of concern this past season.

Weekly Report Evaluation:

To obtain feedback on the effectiveness of the weekly pest report our users were invited to respond to an online survey questionnaire. Evaluation questions ranged from “How useful was the pest report?” to “What did you like the most about it?” The survey questionnaire can be viewed at: [NYS IPM Weekly Field Crops Pest Report Impact Survey](#). Twenty-one individuals completed the online survey. Survey responses were very positive indicating satisfaction with the Report’s content, format, timeliness, and usefulness as a source of valuable subject matter information for use in additional outreach situations. The following tables and figures summarize responses to survey questions:

Table 1: Responses to “We are interested in your assessment of the usefulness of the following topic items that regularly appeared in the Field Crops IPM Weekly Pest Report.”

N=21	Very Useful	Somewhat Useful	Not sure	Not Useful	Not at all useful
The NYS 2017 Weekly Field Crops Pest Report was:	38%	58%	4%	0%	0%
View from the field	81%	14%	5%	0%	0%
Weather Outlook	24%	43%	24%	9%	0%
Weekly Featured article(s)	48%	48%	4%	0%	0%
Pest Images / Photographs	62%	33%	5%	0%	0%
Western Bean Cutworm Update	43%	43%	14%	0%	0%
Growing Degree Days	43%	33%	24%	0%	0%
Clipboard Checklist	18%	48%	24%	5%	5%

Table 2: Responses to by participants on the impacts of the pest report.

N=21	Yes	No
Have you used or shared articles from the NYS Weekly Field Crops Pest Report in your newsletters/email list server or social media?	29%	71%

Results from the evaluation survey indicate users extended articles from the report to approximately 3800 individuals by re-publication in newsletters or emails. Many extension educators and crop consultants who responded indicated they used pest report information directly with growers. These included: field meetings with growers, one on one contact with growers, as forwarded emails to growers and agribusiness personnel, enhanced personal knowledge of what pest problems are occurring in NYS, and providing a direct internet link from to pest report article topics to related website resources.

**Table 3: How do you access or receive the NYS IPM weekly field crops pest report:
N=21**

Email Field Crops list-serve	91%
NYS IPM Field Crops Pest Report Blog site notice	20%
NYS IPM Field Crops Twitter	20%
NYS IPM Facebook page	0%

**Table 4: Demographics on those that use the pest report:
N=21**

Farmer/Producer	14%
Extension Educator	43%
Professional Crop/Farmer Consultant	19%
Government Agricultural Professional	5%
Non-Profit Agricultural Organization	5%
Other	14%

Table 5: Assessing future needs of field crop and livestock cliental: “What online resources would be useful to you?”

N=21	Very Useful	Somewhat Useful	Not sure	Not Useful	Not at all useful
Short on-line demonstration videos (You Tube) on specific pest issues	38%	38%	19%	0%	5%
Downloadable IPM brochures	38%	38%	19%	5%	0%
Downloadable IPM management pocket guides	33%	52%	15%	0%	0%
Pest images and identification information	81%	14%	5%	0%	0%
IPM Phone Apps	24%	44%	24%	0%	8%
Use Twitter to disseminate IPM information	19%	10%	21%	19%	30%
Use Facebook to disseminate IPM information	10%	30%	30%	24%	6%

Table 6: Assessing future needs of field crop and livestock cliental:

N=21	Yes	No	Maybe
Do you see value in a statewide survey for Soybean Cyst Nematode?	57%	0%	43%

Would you like to see more NY weather-based forecasting tools available for predicting pest and disease outbreaks?	95%	5%	0%
Would you see value in creating a seed treatment table similar to the Handy Bt Trait Table for corn and soybean to help guide farmers with seed treatment package decisions	95%	0%	5%

Table 7: Assessing future needs of field crop and livestock cliental: Rank each pest relative the usefulness of a weather based pest predictive model.

N=21	Very Useful	Somewhat Useful	Not sure	Not Useful	Not at all useful
White mold	57%	29%	14%	0%	0%
Seed corn maggot	29%	33%	33%	5%	0%
Northern corn leaf blight	57%	14%	24%	5%	0%
Gray leaf spot	38%	29%	29%	4%	0%
Black cutworm	43%	38%	14%	5%	0%
Western bean cutworm	57%	29%	14%	0%	0%
Corn rootworm	38%	33%	24%	5%	0%
Alfalfa weevil	43%	38%	19%	0%	0%

Several 2018 pest issues were particularly significant and worthy of highlighting:

Highlight 1: Western bean cutworm (WBC) poses risk to corn (field, sweet) and dry bean production. This insect, a native of western US high plains states, was unique to that area until the late 1990's. Since then its range has expanded eastward and was first detected in NY, PA and Quebec in 2009, CT in 2010 and MA, ME and VT in 2011. The NYS trapping network has revealed western bean cutworms are widely distributed across the state and populations are increasing, posing a potential risk to dry beans and the over 3.5 million acres of corn grown in NY, PA, and VT. We keep clientele informed weekly by having an update in each issue of the pest report.

In 2018 the NYS trapping network has shown the largest WBC trap catches in field corn than any other year. The higher WBC counts occurred in northern and western NY counties. But trap counts in other parts of the state increased dramatically in 2018. We had a total of 33,560 moths caught in field corn trapping efforts. We had an average of 460 moths were caught per trap with a range of 1 to 2964 moths/trap. In northern NY many fields were over the economic threshold for WBC and were sprayed with an insecticide. In addition to potential yield losses, WBC injury to corn may pre-dispose ears to infection by fungi including those that can produce mycotoxins.

Highlight 2: White mold continues to be an issue for NY soybean growers statewide. It is easily the most yield limiting and undermanaged disease of economic importance on NY farms. Despite the mid-season dry weather, white mold appeared in many fields and caused significant yield losses. We were invited to rate an on-farm white mold variety trial managed by WNYCMA in Genesee County this year. Those ratings revealed that although there are differences in white mold tolerance available, the seed companies have a big challenge ahead of them to develop new soybean varieties with improved resistance to this devastating disease (Fig. 1).

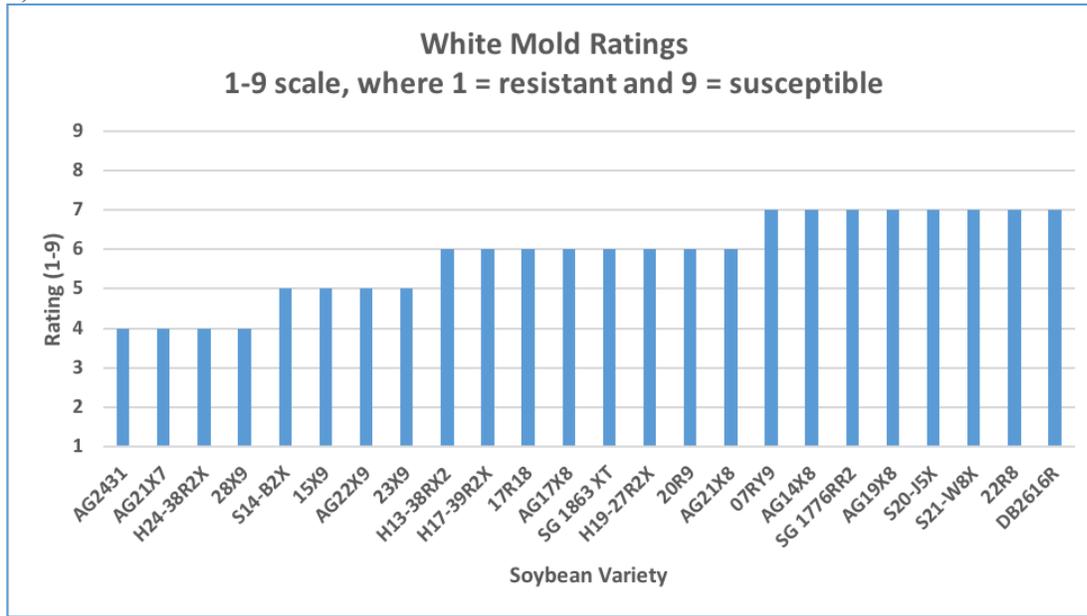


Figure 1. Ratings for a soybean variety trial evaluating resistance to white mold in Genesee County in 2018.

Highlight 3: Fusarium wilt of soybeans caught some growers by surprise in a number of counties in 2018. This is a fairly new and inconsistent soilborne disease, first diagnosed in NY in 2012, which shows up in years where drought is a concern. We got many calls and samples submitted for diagnosis from CCE educators, consultants and agribusiness associates from across NY this summer that ended up being confirmed as Fusarium wilt (Fig. 2). We produced an article in which we outlined how to diagnose and manage this challenging soilborne disease.



Figure 2. The distribution of Fusarium wilt confirmed across NY and field symptoms from a field in western NY in 2018. (Photo by Mike Stanyard, CCE)

Highlight 4: Sudden death syndrome (SDS) of soybean was a noteworthy disease of 2018. Since its initial confirmation in NY in 2012, occurrence of SDS has been expanding throughout

the state (Fig. 3). The soilborne nature of this disease makes it a challenge for management. We worked hard to help CCE educators, consultants and growers learn to correctly diagnose this disease in many fields in 2018 and produced two articles on SDS identification and management. With the expansion of SDS, we also urge CCE educators, consultants and growers to be vigilant with testing for the soybean cyst nematode (SCN), which was confirmed in one county for the first time in 2016 (Fig 3). SDS and SCN often go hand-in-hand, and it's important to monitor both because SCN is considered the number one yield limiting pest of soybeans nationally and globally. It's important that NY soybean growers stay ahead of this pest, and that starts with regular soil testing to understand the full distribution and population densities within fields.

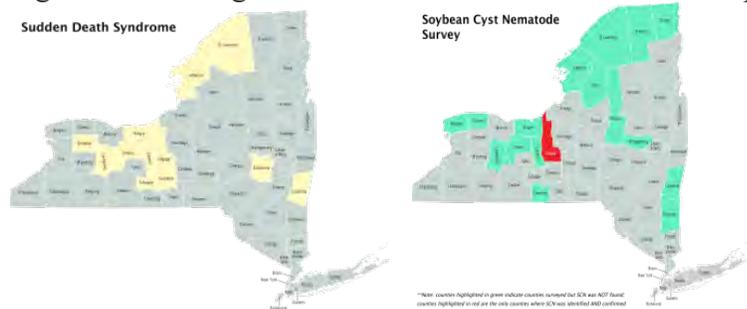


Figure 3. Distribution maps of sudden death syndrome and soybean cyst nematode in NY.

Highlight 5: Despite the dry conditions in many parts of the state, Downy Mildew of soybeans was a ubiquitous problem in 2018 for many growers. Though it is normally a common and widespread disease of only cosmetic importance, this was the worse year for this disease in recent decades, and we received many inquiries on management options (Fig. 4). We produced an article on downy mildew and emphasized that this is not a disease that is labeled for management with most foliar fungicides, due to it being an oomycete. Our quick response on this matter likely saved some off-label and ineffective sprays.



Figure 4. Distribution of downy mildew across NY and foliar symptoms of this disease. (Photo by Ken Wise, NYS IPM)

Highlight 6: Anthracnose top dieback of corn was a disease of concern that received a lot of inquiries late in the 2018 growing season, though it was likely overly-misdiagnosed in many instances across the state. Top dieback symptoms were seen in many fields, especially in areas most affected by hot and dry conditions. In fields where Anthracnose leaf blight was prevalent, and conditions were conducive, Anthracnose top dieback was an issue in some fields. However, in many fields, where entire fields uniformly and synchronously experienced top dieback, the cause was an abiotic stress called tassel heat stress (Fig. 5). We produced an article on diagnosing Anthracnose top dieback and how to differentiate it from other potential stresses.



Figure 5. Tassel heat stress was commonly misdiagnosed as Anthracnose top dieback in many corn field in 2018. (Image courtesy of USDA ARS)

Highlight 7: Growers had some reprieve from Fusarium Head Blight of wheat and malting barley in 2018. Hot and dry conditions during crop flowering were unfavorable for disease and mycotoxin development, especially in spring grains. Low levels of vomitoxin were detected in some grain loads, though mostly below rejection thresholds. Those same weather conditions meant that foliar diseases were fairly low in many wheat and barley fields, but the cereal leaf beetle was problematic in some wheat fields in Cayuga County (Fig 6). We propose a pilot study to evaluate the effectiveness of releasing cereal leaf beetles that are naturally infested with a native parasitoid into fields in this region to determine if we can induce natural, native biocontrol of this pest in an area where it is currently undermanaged.



Figure 6. Cereal leaf beetle larva causing damage on a wheat leaf. (Photo by Ken Wise, NYS IPM)

Highlight 8: Insect Pest Issues in 2018:

- Alfalfa weevil is an issue in many fields after first cutting. When it stays cool where alfalfa can grow but delays weevil development can cause issues after the 1st cutting in alfalfa.
- Soybean aphids were over thresholds in several parts of the state in 2018. Threshold levels for soybean aphids have not occurred in several years due to the many natural enemies.
- The 1st half of the summer was dry which favors potato leafhoppers. In many areas of the state we had high levels of potato leafhoppers in alfalfa.
- Corn earworm is normally not an issue in field corn. However, in 2018, we had many reports of corn earworm damage in field corn. It is speculated that some populations of corn earworm are resistant to certain Bt traits in corn hybrids.
- Pea aphids were at very high levels this last season in alfalfa. While they were at high levels natural enemies normally keep them in check and insecticides are almost never needed.

We are reaching many growers with critical pest information and alerts weekly in NYS both through extension educators and crop consultants. Many crop consultants are using the pest

report information directly with growers. A small percent of growers are starting to use the report directly for in-season pest information. We anticipate an increase in producer use of the WPR as it is being introduced and actively promoted at grower meetings. It is clear that this publication is having an impact with field crop and livestock producers in NYS. The weekly report has been an effective means to share timely Livestock and Field Crop IPM information with clientele including extension personnel, consultants, growers, and others in the agriculture community. We have been pleased with the positive feedback from clientele responding to our end of season survey. For respondent comments see appendix 1.

Key Words: alfalfa, field corn, small grains, soybeans, wheat, insect pests, leaf diseases, pod diseases, root diseases, stalk diseases, stem diseases, weeds, biological control, chemical control, cultural control, demonstration/implementation (TAg), economic analysis, monitoring, research & education, IPM, integrated pest management,

Appendix 1: Responses to questions in the impact survey

Did the NYS IPM Weekly Field Crop Pest Report help with an issue you needed help with?

- yes, useful articles
- Yes and No: Yes, because in some areas useful, others there were already problems!
- Info on WBC this season
- Not so much help with an issue, but I use it weekly to assist/guide my scouting and what issues to be on the lookout for
- I didn't really look at it much to be honest. It's really annoying Cornell has all these websites and links to other homepages just to get the info you're looking for.
- tip die back anthracnose
- Yes, it gave me timely alerts to go look at fields
- Yes (3)

What did you like most about the NYS IPM Weekly Field Crops Pest Report?

- timely information
- Information on topic
- Timely alerts from the field.
- Weather report, view from the field.
- field updates what to look for in the field
- Clipboard checklist is really useful, as are photos
- Gets to the point
- Being able to hear the current issues, pest, disease, industry conversation.
- view from the field and in depth articles
- It gives me timely alerts so that I can check fields.
- Keeping tabs on progress of the crop and any major issues.
- view from the field
- delivered via email
- Pest levels statewide. Gives a heads up of what to look for

What else would you like to see in the NYS IPM Weekly Field Crops Pest Report?

- Weather Forecasting Tools for predicating our own forecasts

- I provide the link to the Report rather than using its individual articles. 1800 on our email list.
- tutorials on proper identification of pests, diseases, weed etc.. we are losing these expertise in the field with more and more folks retiring.
- crop budgets, new technologies, newly DEC approved pesticides
- Nothing