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SWEEP-NET ALFALFA NOW FOR POTATO LEAFHOPPERS Fae Holin, MFA Communication Specialist

By the first part of June, southerly winds had dropped migratory potato leafhoppers, which can potentially reduce alfalfa yield and quality, onto Upper Midwestern fields. "Where are they now?" is the question state entomologists and a company agronomist recently answered. Potato leafhopper isn't a problem every year, and it doesn't always infest entire fields. But if this mobile pest isn't monitored and managed, it can stunt new seedings and hurt alfalfa yield and quality, particularly in second and third cuttings.

The second week of June, leafhoppers were found to be over recommended thresholds in southern South Dakota and gradually accumulating in southern Minnesota and southwestern Wisconsin. There are few signs of the pest in lowa fields. Nevertheless, all area growers and their agronomists are urged to dust off their sweep nets and start scouting alfalfa now, say the experts quoted in this article.

"On established stands, do a bit of spot checking," suggests Bryan Jensen, University of Wisconsin entomologist. You may want to sweep net in earnest and find whether the pest is near or at threshold.

"Spend more time with new alfalfa seedings, because there is a lot of money invested in those fields, and new seedings are a bit more susceptible than established stands," he adds. Spring-planted alfalfa also isn't cut on a regular 30-day schedule, which gives leafhoppers more time to establish themselves. Jensen posted a <u>June 7 item</u> on Wisconsin's Integrated Pest and Crop Management website, warning he'd found leafhoppers in alfalfa at the Arlington Agricultural Research Station.

"Sometimes," says Lisa Behnken, University of Minnesota (U of M) Extension educator based in Rochester, "cover crops like oats will hide the problems of leafhoppers that had gotten established underneath a newly established stand of alfalfa. It isn't until you take those oats off that you realize, 'Oh, my alfalfa is really yellow and has a lot of leafhopper burn.' "

"A new-seeding alfalfa field is pretty good eating right now for a potato leafhopper when the field next to it just got cut," adds Jeff Jackson, alfalfa and forage specialist at Croplan by Winfield United. "Leafhoppers always migrate away from a cut field until it gets 4-6" of regrowth, and they can move back in again and start feeding on that regrowth. So new-seeded



Potato leafhoppers use their piercing-sucking mouthparts to remove alfalfa plant juices while injecting a toxin that causes a yellow hopper burn on leaf tips. The pest can stunt growth, particularly in new seedings, and reduce forage yield and quality.



alfalfa fields are taking it pretty hard because the first cutting of oats crop is gone, and they need a place to go."

Jackson, based in Brookings, SD, has been sweep netting his way across client fields and company plots in the southern part of the state and into its central area. He's using Twitter (follow him at <u>@jcjackson9697</u>) and Instagram (jacksj82) to get out "Alfalfa Alerts" and videos showing over-threshold leafhopper numbers in alfalfa, the need for scouting, and how to sweep net.

Bruce Potter, U of M Extension IPM specialist, says leafhoppers in Minnesota are moving from alfalfa, as it's cut, to soybeans and back to alfalfa as it regrows. He also recently found leafhoppers, although not at threshold, after sweeping mature alfalfa at the Southwest Research and Outreach Center at Lamberton. Other fields may not be as fortunate, he says.

In lowa, field agronomists have been scouting for leafhoppers but not finding enough numbers to cause damage, says Erin Hodgson, Iowa State University Extension entomologist. Potato leafhoppers travel by jet streams from the South, "but when and where they drop into Iowa is not well understood," she says. "So every season is a little bit different. That's where scouting, especially that first cutting just to see what had dropped into fields, is important." She also recommends scouting in winter- and drought-stressed field areas, where plants are already vulnerable.

Scouting isn't "driving 55 miles per hour down the road in a Chevy pickup," Jackson points out. "You've got to get your boots on the ground and sweep net to find the pest ahead of time. Yellow leaves are too late; there's no recovery by that time." Jackson uses a 10-sweep method over at least five random areas in a field. Behnken also recommends the 10-sweep system but suggests dropping a net's contents in a ziplock bag. Putting the bag in a fridge or freezer will "cool down" the insects and make it easier to count them, she says. Jensen usually takes 20 sweeps over at least five random areas. "From my line of

thinking, it takes about 10 more seconds to take an additional 10 sweeps, and I think your accuracy increases a little doing that."

"When scouting alfalfa, keep in mind sweep net counts will decrease as wind speeds increase," Potter points out. "Rain- and dew-soaked alfalfa can also reduce the effectiveness of your sweep net sampling efforts. Research has been conducted on how wind speed affects insect sweeps. It is easy to make a management decision when potato leafhopper populations are very high or very low. Sequential sampling guidelines are available for those trying to make an accurate decision with the minimal number of sweeps when leafhopper populations are moderate." For more information, visit <u>Alfalfa IPM: Sampling alfalfa insects</u>.

The first line of defense against the pest, Hodgson says, is to plant potato leafhopper-resistant or tolerant alfalfa varieties (glandular-haired alfalfa). Secondly, timely harvests disrupt adult feeding and take the food source away from stationary nymphs, which then die. "This is a pest that can be mitigated or suppressed by timely cutting. That's where scouting comes into play." Even so, the third control option, insecticide, is sometimes needed, "but on a year-by-year, field-by-field basis," Hodgson advises.

Some growers have opted for calendar-based insecticide applications, Hodgson, Jensen, and Behnken say. "They cut the field, wait so many days, and automatically use insecticide," Behnken adds. "I highly encourage people to know what's out there in the field. Why make an application



A June 13 video on what can be found in a sweep net in central South Dakota revealed not only potato leafhoppers, but also alfalfa plant bugs; pea aphids; grasshopper nymphs; and lady bug, grasshopper, and alfalfa weevil larvae. Found on Instagram <u>here</u>, the video was made by Jeff Jackson, Croplan by Winfield United.

ALFALFA INSECT RESOURCES

Click on the titles below for potato leafhopper and other alfalfa insect information:

Potato Leafhopper, Iowa State University Extension

<u>Managing Potato Leafhoppers in Alfalfa</u>, Iowa State University Extension

Potato Leafhopper Damage to Alfalfa, University of Wisconsin Extension

Leafhopper scouting, identification & thresholds, University of Wisconsin Extension

<u>Alfalfa IPM: Sampling alfalfa insects</u>, University of Minnesota Extension

<u>Alfalfa insects: What to look for, how and when</u>, Bruce Potter, University of Minnesota Extension

How to Use a Sweep Net Video, Bruce Potter, University of Minnesota Extension

Potato Leafhoppers in Alfalfa: 2017 Scouting Recommendations, South Dakota State University Extension (offers threshold information)

<u>Sweeping for Alfalfa Pests Video</u>, Jeff Jackson, Croplan by Winfield United

<u>Sweep-Netting Alfalfa in Central SD Video</u>, Jeff Jackson, Croplan by Winfield United

you don't need? It economically doesn't make sense and environmentally doesn't make sense."

Even if leafhopper populations are high, Jensen doesn't recommend what he calls "automatic stubble sprays." "On established stands, you're almost starting with an insect desert out there; you have no green material, and the adults will fly away and look for another food source. The nymphs, because there is no food source there, will likely die, so the automatic stubble spray may be all for naught."

"They should stop that," Potter bluntly says of scheduled applications. "Last summer we had some issues where we couldn't kill pea aphids in some west-central Minnesota alfalfa fields, and we think we may have set this up with too much insurance spraying of alfalfa weevils and leafhoppers." The pea aphids may have grown resistant to the insecticides, he explained. "You can definitely make things worse by spraying when you don't have to." Potter provides additional advice on alfalfa pests, scouting, and insecticide application in the most recent Southwest Minnesota IPM newsletter, which can be found here.

Even after responsibly spraying insecticide, says Hodgson, "keep checking fields during the rest of the growing season. You could have additional populations moving in and reinfesting. Don't spray and walk away."

As second and third cuttings approach, Jackson reminds growers to wait for a minimum of 4-6" of regrowth before scouting alfalfa for leafhoppers, and don't forget to check neighboring fields. "When there's a cut field nearby, those leafhoppers need somewhere to go, so check the fields that are uncut or those new seedings that are trying to get established."

"Leafhoppers are so doggone small," adds Jensen, "you can't look into a field and really tell if you have a significant population. A sweep net is really the only way you can do that."

For potato leafhopper threshold information, refer to the resource listing on the previous page and consider that leafhopper-resistant alfalfas can handle higher thresholds of the pest than non-resistant varieties. "Research ... has shown that the threshold for spraying highly resistant (HR, >50% resistance) alfalfa varieties can be raised to three times that of susceptible varieties (e.g., the spraying threshold of one insect per inch of alfalfa height in 10 sweeps for susceptible varieties can be raised to three insects per inch of alfalfa height in 10 sweeps for HR resistant varieties)," according to University of Wisconsin Emeritus Forage Specialist Dan Undersander in a <u>pest management conference proceedings paper</u>.