



Strategic Farming: Let's talk crops! session talks pest forecasting

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St. Paul, MN. (2/11/26)— On February 11, Anthony Hanson, a UMN Extension educator that specializes in integrated pest management and Jochum Wiersma, UMN Extension small grains agronomist joined UMN Extension crops educator Ryan Miller to talk about how winter weather impacts survival of pests that overwinter in Minnesota and the numerous degree day models available to assist with crop, pest and disease management. The 2026 *Strategic Farming: Let's talk crops!* webinar series runs through March.

Very dry and very cold air can cause death of pests that spend their winters in Minnesota through desiccation or the formation of ice crystals, respectively. Similar to motor vehicles, which require antifreeze for their engines to work properly in cold weather, insects also require their own antifreeze-type compounds. By excreting water before the temperature drops below freezing, the concentration of sugars and other chemicals increases. This concentration of solutes produces a natural antifreeze that can lower the temperature at which pests freeze and die, with some pests able to lower their freezing point to -30 °F.

According to Jochum Wiersma, “the Minnesota side of the Red River Valley has been a part of the NDAWN (North Dakota Ag Weather Network) since the 1990’s because the American Crystal Sugar sugarbeet cooperative needed a way to monitor *Cercospora* leaf blight risk.” In 2026, the Minnesota Department of Agriculture plans to expand the Minnesota Ag Weather Network (MAWN) so that there is one weather station as part of the larger MAWN/NDAWN network of stations sited every 20 or so miles. The placement of these weather stations and the website hosting all of the historical and current weather condition data helps university-based entomologists, agronomists and plant pathologists to develop a series of tools to forecast crop development, pest emergence and disease pressure throughout the growing season.

Hanson, who models pest winter survival each year, reminded attendees that soybean aphids, “because they overwinter on buckthorn buds are routinely exposed to the air and can survive down to almost -30 °F.” Comparing and contrasting the two recent winters where Minnesota experienced a Polar Vortex, Hanson shared that while he estimated 95% soybean aphid winter mortality in the northern half of Minnesota 2019, when temperatures got as low as -35 to -40 °F; with the coldest snap this winter at the end of January reaching -20 to -25 °F throughout most of the soybean growing region winter mortality so far this winter is estimated to be ~5%.

The benefit to attending Strategic Farming webinars live is that presenters answer audience questions. For those that missed this session, it is now available to watch at: z.umn.edu/StrategicFarmingRecordings. For more information and to register to attend other weekly sessions through the end of March, visit z.umn.edu/strategic-farming.

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