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Sent: Friday, September 17, 2021 11:43 AM
To: ndsu.sbare@ndsus.edu
Subject: American Crystal SBARE request for critical needs
Attachments: 2021 SBARE ACSC Needs & Concepts.pdf; SBARE Letter.pdf

Hello,

In response to SBARE's request to provide thoughts on critical needs and concepts for solutions, I have attached some general needs and thoughts concerning American Crystal Sugar Company's sugarbeet production. Please find the attached submission along with SBARE's letter of request.

Thank you for the opportunity to relay these production concerns and please reach out with any questions you may have.

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North Dakota State Board of Agricultural Research and Education,

I am Joe Hastings, General Agronomist with American Crystal Sugar Company. I am writing in response to your request to provide thoughts on critical needs and concepts for solutions in North Dakota agriculture. Thank you for this opportunity. I have identified four areas that come quickly to mind as needs for sugarbeet production in our growing region. I have them listed below.

Cercospora Leaf Spot (CLS) – Cercospora leaf spot is a very devastating foliar disease to sugarbeets as it infects and destroys sugarbeet leaf tissue. The leaf is the powerhouse of the plant absorbing sunlight to store and accumulate sugar in the root as well as increase root growth. If the leaf is compromised, it reduces yield and quality. Cercospora has become resistant to many of our available fungicides making control difficult and in response growers tank mix and rotate fungicides to try to optimize control.

It should be noted that fungicides are a protectant and are not a curative application. Ideally it would be great to have a model and tools to detect cercospora before visual symptoms of infection appear on sugarbeet leaves. Thereby providing proper timing fungicide applications to occur prior to infection and not let the disease become established.

Work is being done in Dr. Secor's (NDSU) lab to identify the environmental conditions for CLS spore germination which could then be applied to expand our current CLS model used for Daily Infection Values (DIV's). In relation to this is the detection of CLS DNA on sugarbeet leaves that are not showing visually infection symptoms through qPCR DNA detection. The base research has been done Dr. Bolton at the Fargo USDA and currently the need is in ramping this up to sampling and detection in production fields to initiate proper fungicide application timing. Dr. Secor has interest in creating and providing this resource in his lab.

Dr. Khan at NDSU also looks for solutions in his research to optimize cercospora control. This is in regard to fungicide program efficacy and application methods. There is a need in designing a program and identifying new fungicides and methods to continually improve cercospora control.

Insecticides - Losing chlorpyrifos is a big loss in insecticide control options in sugarbeet production, particularly for control sugarbeet root maggot. Currently the only other post liquid insecticides available as alternatives are Mustang Maxx & Asana. They are not as effective in controlling the sugarbeet root maggot fly as chlorpyrifos is. Dr. Boetel at NDSU does research evaluating the efficacy of different insecticides and is continually looking for new alternatives. The need here is to have an effective replacement for control since chlorpyrifos is no longer an option.



Weed Resistance – A number of weeds in our growing area are resistant to glyphosate. This includes waterhemp, common ragweed and kochia. Common lambsquarters is becoming tougher to control as well. Also, it has been observed that clopyralid (Stinger) is not effectively controlling some populations of common ragweed. There are not many POST herbicide options available for controlling weeds in sugarbeets. Dr. Peters at NDSU continues to look for herbicide options evaluating efficacy of products and injury to sugarbeets. His work on Ultra Blazer was invaluable in getting a section 18 label this summer to help in waterhemp control. Ultra Blazer can only be applied after the sugarbeet has reached the 6-leaf stage, having a product available that could be applied earlier would be beneficial. Therefore, there is a need to identify additional POST herbicide options for weed control in sugarbeets.

NDAWN Weather Data for Sugarbeet Applications – The NDAWN weather system is used extensively in sugarbeet production. The data that is gathered from the weather stations is applied to applications and models used in making sugarbeet production decisions. Two examples of this are the Cercospora Daily Infection Value model and the Sugarbeet Root Maggot Degree Day model. Both are used to optimize proper timing of applying fungicides and insecticides for control of each of these pests. There is a need to develop a mobile friendly website with this data & models similar to the new NDAWN “Current Weather” mobile friendly site. It would keep current as additional weather stations are added to the network and could house additional/future applications to help in pest monitoring. Developing this mobile friendly site would negate the need to use an “App” which can be costly to both develop and maintain.

Thank you again for the opportunity to address some of our sugarbeet needs to the North Dakota State Board of Agricultural Research and Education. If you should have any questions, please feel free to reach out to me.

Sincerely,

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