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Cercospora Leafspot Management Notes

As a continuation from the previous Ag Note, Cercospora Leafspot (CLS) management will involve added measures for reducing CLS presence amidst increasing occurrence of fungicide resistance. Here are measures to follow as was discussed at this past winter's Your Way to Grow Meetings at your respective district, our recommendations for best overall resistance management strategy are followed by our suggested CLS Spray Program:

1. **Tank mixes** – All fungicide applications should contain more than one chemistry or mode of action (only exception would be EBDC's). Utilizing all available fungicide chemistry wisely is vitally important to current fungicide options today and tomorrow. Overall, any tank mix should be sprayed out as soon as possible, with agitation, do not allow mix to sit overnight, spray tank out completely, and rinse sprayer with clean water daily.
2. **Aerial Application** - If there are tank mixes you prefer not to use in your sprayer, consider aerial application
3. **Jar Test** – If in doubt about a tank mix, run a jar test to see if combination is compatible
4. **Full Rates** – For these tank mixes, utilize full application rates of each tank mix partner following label recommendations.
5. **Glyphosate tank mixes** – Please decouple glyphosate applications tank mixed with fungicide applications as water volume requirements vary between glyphosate and CLS fungicide applications.
6. **Water volume** – CLS fungicides require excellent coverage as nearly all are contact/coverage oriented products. 15 to 20 gallons of water per acre should be utilized.
7. **Pressure** – For maximum coverage, higher pressure application will provide improved leaf coverage. Utilize 90 – 100 psi application pressure.
8. **Spray nozzles/tips** – Obtain and use proper nozzles for fungicide application optimizing coverage on leaves, top and bottom, as best possible
9. **Tins (TPTH)** – Tin (TPTH) to be used in only two applications per cropping season and only as a tank mix with other chemistry. Tins are vital to CLS management and concerns of overuse may incite further resistance concern.

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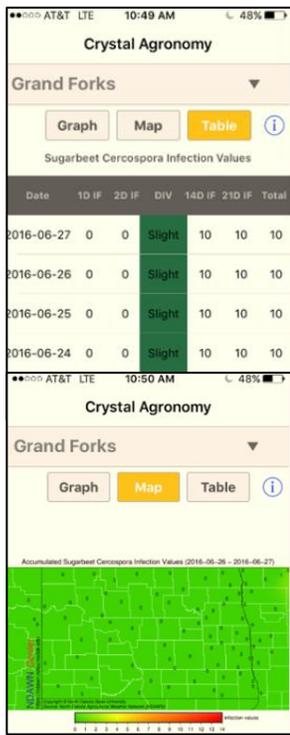
- Fertility
- Variety Selection
- Stand Establishment
- Weed Control
- Disease & Insect Control
- Harvest

Your Way
TO GROW



American Crystal Agronomy App

As a reminder, for keeping a close eye on Cercospora Leafspot development, the American Crystal Agronomy App is available and free, found at “the App Store” or “Google Play”.



10. **Triazoles** – Triazoles are vital to CLS management and concerns of overuse may incite further resistance concern, just as TPTH. Alternate Triazoles if used twice in a spray season. Pay attention to Preharvest intervals (PHI’s) for Triazoles, they range from 7 to 14 to 21 days.
11. **Minerva Duo** – Is a combination of a Triazole + TPTH in a premix formulation. Do not tank mix Minerva Duo with glyphosate.
12. **EBDC’s (Mancozeb/Manzate)** – EBDC chemistry have been included in our fungicide management plan as a tank mix partner. Manebs are not as effective on CLS as Mancozeb’s.
13. **Headline/Priaxor (Strobilurin)** – Amidst increasing resistance to this chemistry/mode of action, Headline/Priaxor remain in our recommendation for harvest frost deterrence and plant health benefits and only in concert with a tank mix of Tin (TPTH) at full rate. Your Agriculturist has resistance information pertaining to your region on Headline/Priaxor recommendations.
14. **Topsin (Benzimidazole)** – To only be used with tank mix (e.g. Tins - TPTH) and only once per season.
15. **Infection values** – The current Cercospora Model works well, pay attention to Daily Infection Values (DIV’s) and weather forecasts for fungicide application timing. Utilize the Crystal Agronomy App or monitor Cercospora Leafspot DIV’s (Daily Infection Values) at: <https://ndawn.ndsu.nodak.edu/sugarbeet-cercospora.html>
16. **Spray intervals** – The time interval between applications should not exceed 12 days, plan best as possible around adverse weather conditions (rain, wind, hail). For EBDC’s, follow a 7-8 day spray interval, stretching these spray intervals equates to thin protection
17. **No chemistries back to back** – Pay attention to chemistry and classes of fungicides avoiding the use of site specific fungicides such as triazoles and Strobilurin’s back-to-back, the only exception back to back would be EBDC’s.
18. **Scouting fields** – Scout fields early and well looking for CLS presence and scouting during the year for evaluating how your spray program is working...making adjustments where needed. NDSU will have research plots for observation with possible adjustments for spray program in-season.
19. **Starting Spray Program** – Start early and stay on track once CLS is found in your area, based on observations in bullet #18. Will need to customize spray program around Preharvest and Pre Harvest Intervals.
20. **Variety Ratings** – Know your variety ratings, CLS control should improve with better CLS variety rating. Higher CLS variety ratings do not always allow fewer fungicide applications.
21. **Sprayers** – Spray Air sprayers provide a benefit for fungicide applications, coverage is key here.
22. **Contact Your Agriculturist** – For further details in regards to your growing region, please contact your Agriculturist.

Fungicide Use Information

Fungicide Class/Group	Fungicide	Rate/Acre	REI- (Reentry Interval) Hours	PHI- (Preharvest Interval) Days	Water Volume (Gallons Per Acre)
Triazole	Inspire XT	7.0 oz.	12	21	15 gpa
Triazole	Proline	5.7 oz.	12	7	10 gpa or more
Triazole	Minerva/Eminent VP	13.0 oz.	12	14	5 gpa or more
Triazole + TPTH	Minerva Duo	16.0 oz.	48	14	20 gpa
TPTH	Super Tin/Agri Tin (dry)	5.0 oz.	48	7	15 gpa or more
TPTH	Super Tin/Agri Tin (liquid)	8.0 oz.	48	7	15 gpa or more
Strobilurin	Headline SC	9.0 oz.	12	7	Sufficient for Coverage
Strobilurin	Priaxor	6.7 oz.	12	7	Sufficient for Coverage
Benzimidazole	Topsin M 70W/T-Methyl 70 WSB (dry)	0.5 lbs.	24	21	Sufficient for Coverage
Benzimidazole	Topsin 4.5 FL/T-Methyl 4.5 F (liquid)	10.0 oz.	24	21	Sufficient for Coverage
EBDC	Several available	Ranges by Product	24	14	20 gpa
Copper	Several available	Ranges by Product	48	0	20 gpa

This chart is no substitute for the product label. Always refer to the label for details

Mixing order - for any pesticides, especially as we head into CLS spray season, **WALES** (or **DALES** mixing order if dispersible granule formulations are used):

WALES tank mixing order is as follows:

Wettable powders and water dispersible granules

Agitate tank mix thoroughly

Liquid flowables and suspensions

Emulsifiable concentrate formulations

Surfactants/Solutions



For prompt answers to your questions and comments, call and leave a message and Tom Astrup or one of his staff will respond as soon as possible.

**Shareholders:
1-800-633-8941**

2017 ACSC Cercospora Leaf Spot (CLS) Spray Program

Early to Mid-July (6-Spray Program)

- Application 1 – Triazole*** + EBDC
- Application 2 - EBDC
- Application 3 – Triazole*** + EBDC
- Application 4 – TPTH* + Benzimidazole**
- Application 5 - EBDC
- Application 6 - Headline + TPTH* or Priaxor + TPTH* (apply Aug 25 through 1st week of September)

Mid July (5-Spray Program)

- Application 1 – Triazole*** + EBDC
- Application 2 - TPTH* + Benzimidazole**
- Application 3 – Triazole*** + EBDC (apps 3 & 4 can be alternated)
- Application 4 – EBDC
- Application 5 - Headline + TPTH* or Priaxor + TPTH* (apply Aug 25 through 1st week of September)

Mid to Late July (4-Spray Program)

- Application 1 – Triazole*** + EBDC
- Application 2 - TPTH* + Benzimidazole**
- Application 3 – Triazole*** + EBDC
- Application 4 – Headline + TPTH* or Priaxor + TPTH* (apply Aug 25 through 1st week of September)

Late July to Early August (3-Spray Program)

- Application 1 – TPTH* + Benzimidazole**
- Application 2 - Triazole*** + EBDC
- Application 3 – Headline + TPTH* or Priaxor + TPTH* (apply Aug 25 through 1st week of September)

Early to Mid-August (2-Spray Program)

- Application 1 – Triazole*** + EBDC or Triazole*** + TPTH*
- Application 2 – Headline + TPTH* or Priaxor + TPTH* (apply Aug 25 through 1st week of September)

Late August (1-Spray Program)

- Headline + TPTH* or Priaxor + TPTH* (apply Aug 25 through 1st week of Sept.)
or
- Headline + Triazole*** or Priaxor + Triazole*** (apply Aug 25 through 1st week of Sept.)
or
- Triazole*** + EBDC
or
- Triazole*** + TPTH*

* TPTH should NOT be used more than twice per year & used only at Full Rate

** Benzimidazole should be used only once per season and NEVER alone.

*** Triazoles not to exceed 50% of total applications in a season

-- 12 day intervals on all products except EBDC alone is 7-8 days --

----- In tank mixing order, dry formulations go in first followed by liquids -----

--- Always start with plenty of water and good agitation from start to finish ---



CONTACT YOUR AGRICULTURIST

Contact your American Crystal Agriculturist for the most up-to-date information on issues affecting sugarbeet crops in your area.