

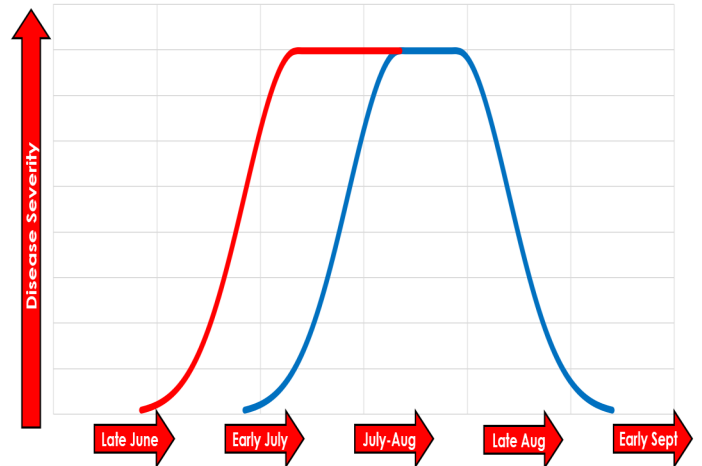


# Cercospora Management for 2020...

**I Heard A Rumor That We Need To Be Starting Our Cercospora Leaf Spot Program Earlier This Year - Is There Any Truth To This?**

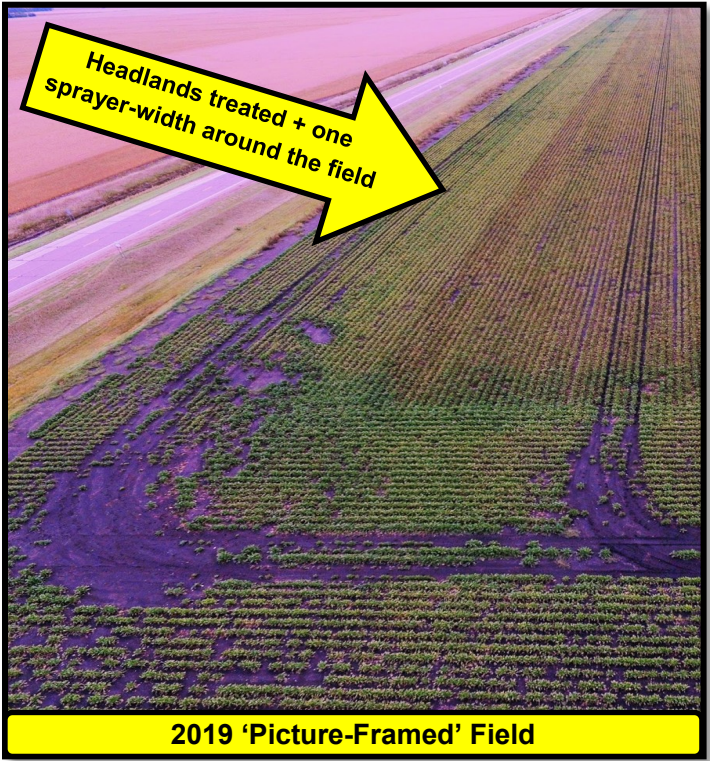
This is absolutely true and one of the most valuable observations witnessed in the 2019 MDFC Research Trials and within many commercial fields. Regardless of the situation, early Cercospora Leaf Spot (CLS) applications made a HUGE difference in the level of disease severity experienced throughout the entire season.

One of the recommended CLS control tactics for the 2019 crop was to 'Picture-Frame' each field with fungicide in mid-to-late June - well before the onset of CLS. The idea behind this unique practice was to create a 'chemical barrier' of sorts to help delay the movement and eventual development of disease in a specific field. The picture below is a perfect depiction of this practice. Take note of the difference in disease severity between



what was treated early (and then again during the 'first' and all subsequent CLS applications) and what was applied when we would normally start treating our fields for CLS. Similar results were also noted within the inoculated CLS research trials. Our internal data has shown that the difference in grower return between beets with these varying levels of disease severity can easily be up to \$375 per acre (in favor of the early application - not too bad for a \$15 per acre investment).

These simple, yet consistent observations beg the question, "Under the current amount of inoculum pressure, are we starting our fungicide program too late?" The simple answer is: Yes. Taking a look at the chart above, we have always approached the start of the CLS program with an 'application trigger' being the first, confirmed CLS lesion recovered from a commercial field. This usually occurs sometime in early July and is represented by the blue line. Fungicide applications then coincide with the onset of CLS and eventual increasing disease pressure. But in reality, what we believe is happening is that the latent onset and development is much more like the red line - occurring in mid-late June. If we wait to apply fungicides like we have in the past, we are giving CLS a two-week head start on disease establishment, immediately putting us behind the eight ball, and causing us to play 'catch-up' for the remainder of the growing season.



## Should I Be Paying Attention to the CLS Rating of the Varieties I Planted This Year?

Absolutely – Varieties approved for sale at Minn-Dak can greatly differ in their susceptibility to CLS. Listed to the right are the CLS ratings for the five most popular varieties planted at Minn-Dak for the 2020 season. Remember, the lower the number, the more resistant the variety is to CLS.

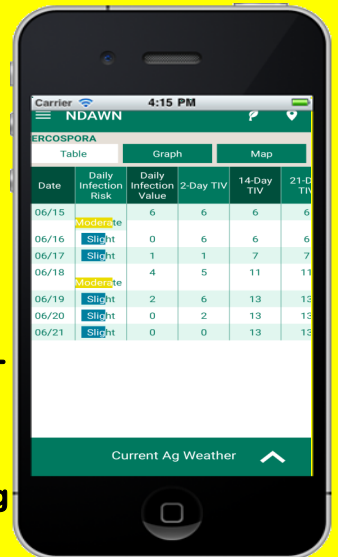
MDFC Variety	CLS Rating
Betaseed 7748	3.62
Betaseed 7741	3.77
SES/VdH 762	3.85
ACH 771	4.16
Betaseed 7755	4.23



Not All Varieties Are Created Equal - Make Sure You Know The Difference Between Them...

## Keep A Close Eye On CLS Development By Utilizing DIVs In The MDFC Mobile App

Users can select weather, growing degree day, sugarbeet root maggot and CLS data from the three NDAWN stations within the Minn-Dak growing area - Campbell and Sabin, MN, and Wahpeton, ND. The app also features real-time weather conditions from each station for decision making and recordkeeping during spraying season.



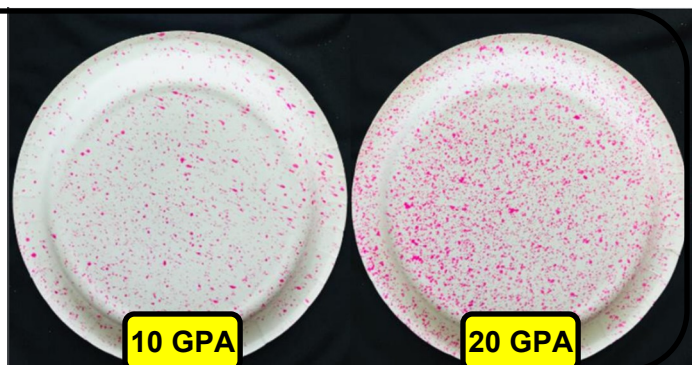
Specifically for CLS, the Daily Infection Values (DIVs) can be displayed in both table and graphical formats as well as providing a map with 'infection zones' by station.

## Water Is The Cheapest Thing You Put Into Your Spray Tank - Use It To Your Advantage

Water Volume + Fungicides	Recoverable Sugar per Acre
20 GPA	8,032 lbs.
15 GPA	7,878 lbs.
10 GPA	7,803 lbs.
7 GPA	7,623 lbs.
Check Trt.	7,289 lbs.

No 'miracle' adjuvant can replace the effectiveness that water volume has on your CLS fungicide program. Regardless of which fungicide combination you have in the tank, every single product relies on thorough leaf coverage to be effective - there is just no way around it. The data to the left was compiled by Dr. Mohamed Khan (NDSU) from a trial near Glyndon, MN. Just as one would expect, higher per acre water volumes resulted in higher levels of disease control (and the greater revenue per acre). Water is the cheapest thing that you put into the spray tank - **it doesn't make much sense to try to 'cheat' the performance of your CLS fungicides at the expense of something as simple as water...**

The picture to the right demonstrates the clear difference between spray water volumes on a per acre basis. A spray solution consisting of water and a pink dye was 'captured' on the back of paper plates. The same solution was applied with TeeJet XR8002 flat fan nozzles - the only difference was the spray volume. There is absolutely no difference between the surface of the plates or the surface of a sugarbeet leaf. **Remember: Coverage = Control**



# 2020 MDFC CLS Fungicide Program

1. Early EBDC + Copper *(Applied mid/late June)*
2. Provysol or Inspire + Copper *(Applied early July)*
3. TPTH + EBDC
4. Proline + Copper
5. TPTH + EBDC
6. Copper (High Rate)

*Keep all fungicide applications to a 10-12 day spray interval or tighter if rainfall and/or DIVs require*

TPTH	Rate/Acre	Pre-Harvest Interval	Reentry Interval
Dry	5 oz	7 Days MN / 21 Days ND	48 Hours
Liquid	8 oz	7 Days in Both States	48 Hours

Agri Tin, Agri Tin Flowable, Super Tin 4L, Super Tin 80WP

Copper	Rate/Acre	Pre-Harvest Interval	Reentry Interval
Dry	2 lbs.	0 Days	48 Hours
Liquid	2 pts.	0 Days	48 Hours

Badge SC / X2, Champ Formula 2 / WG / DP, ChampION, Kocide 4.5 LF / 2000 / 3000

EBDC	Rate/Acre	Pre-Harvest Interval	Reentry Interval
Dry	2 lbs.	14 Days	24 Hours
Liquid	1.6 qts.	14 Days	24 Hours

Dithane DF / F-45 / M-45, Koverall, Manex II, Manzate Max / Pro-Stick, Penncozeb 75DF / 80WP

Triazoles	Rate/Acre	Pre-Harvest Interval	Reentry Interval
Provysol	4 oz	21 Days	12 Hours
Inspire XT	7 oz	21 Days	12 Hours
Proline	5.7 oz	7 Days	12 Hours

*The product label trumps this information at all times - Always read & follow label instructions*

## Odds & Ends to Make Your CLS Program More Effective...

- **Start your program on time** and stay on schedule.
- **Keep your spray intervals tight** - everything in this year's program should be kept to a 10-12 day interval. Utilize the reminder feature in your smartphone - it's a handy tool to help stay on schedule!
- **Watch the NDAWN Daily Infection Values (DIVs).** These color-coded ratings can be found on the MDFC website or within the MDFC mobile app.
- **Use the correct nozzles.** The same nozzles you utilize for glyphosate applications are generally not the best for fungicide use (small vs large droplet size). Generally speaking, your target for fungicide applications should be around a medium droplet size (250 to 350 microns).
- **High water volumes.** Many of the tank-mix partners are protectants and as such, require a little more water than you'd normally like to use. Like I mentioned earlier, water is the cheapest thing you put into your spray tank; there should be no reason to cut back on it. Ground applications should target 20 GPA and aerial applications no less than 5 GPA.
- **Do not mix fungicides with glyphosate.** The main reason is the amount of water required with each application. CLS fungicide performance is best when applied with small droplets at high water volumes (20 GPA). Glyphosate is just the opposite as it has better performance when applied in larger droplets (pile effect) and lower water volumes (5-15 GPA). They are two completely different approaches to maximize the control offered by each type of product. You are money ahead making separate applications to achieve the needed weed and CLS control rather than making one single application and getting mediocre control of each.
- **Be wary of 'miracle-type' adjuvants.** Please keep in mind that if there was a 'silver bullet' that could be added to the tank to significantly increase CLS control we would be recommending it. Invest your money where you know it will return dividends - increased water volumes, tighter spray intervals, full rates, etc.
- **Use an aerial applicator if needed.** If rain/wet ground is prohibiting you from staying on your spray schedule, call in the 'Air Force.' You are money ahead by staying on schedule - once you get behind the eight-ball of CLS pressure, it's almost impossible to catch up.
- **Don't give up on the dry formulations.** They will give you little to no trouble if handled & mixed correctly. When in doubt, follow the A.P.P.L.E.S. recommended by NDSU Weed Science:
  - ⇒ **Agitate**
  - ⇒ **Powders soluble (SG, SP)**
  - ⇒ **Powders dry (DF, WDG, WP)**
  - ⇒ **Liquid flowables & suspensions (ASC, F, ME, SC, SE)**
  - ⇒ **Emulsifiable concentrates (EC, EW, OD)**
  - ⇒ **Solutions (S, SL)**

*Make sure that each product is uniformly mixed in the tank before adding another...*

Warm water will also help dissolve each product into solution. Leaving dark-colored bulk tanks filled with water out in the sun a few days before spraying will make a world of difference.
- **There is a pecking order when it comes to the Copper fungicides.** Cu-Hydroxide and Cu-Oxychloride formulations are most effective (i.e. Badge, Kocide, Champ, etc.), whereas products containing Cu-Sulfate (Cuprifix Ultra, MasterCop, etc.) do not perform as well in our research trials.
- **Pay attention to Harvest Intervals.** Pay close attention to the PHI of each product you pour into the spray tank - it will likely have an impact if we have an August start.
- **Listen to your Agriculturist.** They are the best source for information regarding CLS - keep in close contact with them regarding products, rates & timing.