

# AGRICULTURAL BEET

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Cercospora Leafspot Control  
BMP Series

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## AGBEET series on Cercospora Leafspot BMP's for 2019

### PLANNING THE WORK and WORKING THE PLAN!

There are many adages about the “upside” to difficult times. From “Adversity is the foundation for success”, to “Necessity is the mother of invention”, these sayings provide sage advice as we prepare our CLS fungicide strategies for 2019 on the heels of a frustrating season of CLS control in 2018. Soon, you will be crawling into your sprayer cabs armed with new plans and novel ideas designed to increase CLS control in 2019. But before you do, let’s revisit the last paragraph of the previous version in this series where a cautionary statement was made about the myriad of information you will be exposed to relating to potential alterations to the 2019 CLS fungicide strategy in the interest of providing better control and increased shareholder revenue.

First, investigation into new alternatives is both healthy and progressive to nearly any crop production issue. However, if you are considering adding to or otherwise altering your CLS program in 2019 be sure to prioritize your potential changes first to limit the amount of change that you end up making. It is absolutely crucial that these two processes go hand in hand. You must prioritize potential changes in such a way that you integrate legitimate data or personal experiences that provide a reasonable opportunity for success with limited risk. Alterations that are unsubstantiated or questionable should be eliminated because the stakes are high. Why is it so important to prioritize in order to limit the extent of change? Because if/when multiple changes are made in a single season, it is impossible to assess results because of difficulty in deciphering which change provided the success (best case) or failure (worst case) and ultimately leading to even more speculation and conjecture.

That said, let’s take a closer look at some of the more common ideas and/or information that is floating around relating to alterations to CLS programs and try to identify 1) What we know, 2) What we still need to find out, and 3) Watch-outs relating to their potential risks.

**Nozzles and Pressure:** What we know – Nozzles and pressure are closely tied to one another and ultimately determine droplet size spectra and establish a range of application volume based upon desired travel speed. Nozzles possess a recommended spray pressure range that should be followed to assure optimum droplet size and assure that the droplets reach their destination. What we still need to find out - What nozzles and pressure scenarios provide the most efficacious droplet size spectrum for CLS applications? This has become a major priority for 2019 research. Watch-outs - Suggestions that lowering pressure will reduce fine droplets without knowledge of at what expense. For instance, if a particular nozzle and pressure combination is capable of reducing fine droplet formation but results in the creation of significantly more extra-course droplets that do not deposit on the leaf, are we better off?



**Spray pH:** *What we know* – Numerous pesticide families including several CLS fungicides are relatively sensitive to the pH of the solution it is mixed with relating to the half-life of the active ingredient. In some cases this impact can be dramatic. Half-life represents the time for one half of the active ingredient added to become deactivated through chemical hydrolysis reactions. Generally speaking, a slightly to moderately acidic (pH ~ 5 to 5.5) will slow down these degradation processes and increase the chances of getting the product applied before it experiences significant breakdown. Local water tests indicate that much of the well water in southern MN is relatively neutral (pH ~ 7). *What we still need to find out* – Does the influence of pH on fungicide half-life extend beyond the spray tank down to the plant leaf upon deposition? Meaning, if a recommendation were ever established to buffer spray pH downward to 5.0 to 6.0 to extend active ingredient half-life in the tank but does nothing to protect it (or reduces protection) on the leaf surface, then have we really achieved anything worthwhile. This is another project being actively explored. *Watch-outs* – Buffering spray pH sounds like a relatively simple and effective method to increase the longevity of our fungicide activity but be careful with products that claim to buffer pH. Determine that it buffers appropriately and does not have an adverse effect on spray deposition that could negate any theoretic benefits to active ingredient half-life itself. Further, significant leaf burn has been documented from the application of copper-based fungicides in low pH spray solutions.



**Adjuvants:** *What we know* – Many fungicides that we utilize for the control of CLS in sugarbeet recommend the use of an adjuvant. However, in most cases the commonality ends there. Some specifically request a non-ionic surfactant while others are more specific in additive utility by recommending those adjuvants that improve fungicide performance by improving droplet deposition and retention. And although the tin-based products specifically state that they “do not recommend mixtures with surfactants, spreaders, stickers, or buffers”, they do not prohibit their use. *What we still need to find out* – Which adjuvants and adjuvant classes work and which do not? With no intention here to disparage adjuvant technology, the reality is that the science and the industry as a whole is unregulated. This means that there are A LOT of products and A LOT of formulations. Quite frankly, too many to screen all of them for sugarbeet fungicide utility. Therefore, shareholder use of adjuvants with CLS fungicides will require reliance on both personal experience and general adjuvant screening in order to estimate efficacy by adjuvant class to some degree. Further, certain adjuvant classes may have better utility with specific fungicides. For example, EBDC product labels are far more receptive to sticker type adjuvants with deposition aids whereas triazoles appear to prefer deposition aids but do not mention stickers. *Watch-outs:* Be aware of look-a-like products and approach them cautiously. For instance, there is evidence that certain stickers work to keep droplets on leaves longer and certain fungicides



mention this in their label. However, there is limited data that suggests that if the sticker is latex-based that it may actually either impair droplet size spectrum and deposition or create an impervious droplet that is unable to exert fungicide activity. The take home message: 1) Adjuvant tests at SMBSC and elsewhere indicate that appropriate adjuvants can generally improve CLS control. 2) Some adjuvants in certain weather can result in leaf injury. 3) We lack enough information to conclude that adjuvants can be used to extend intervals. 4) Buyer beware, adjuvants and adjuvant classes ARE NOT all created equal.

Finally, as you march in to battle to combat CLS in 2019, I am reminded of General Eisenhower’s motivational plea to his troops prior to battle 75 years ago on D-Day. “You are about to embark upon a Great Crusade... your task will not be an easy one... your enemy is well trained and well equipped... and I have full confidence in your devotion to duty, we must accept nothing less than full victory.”

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