MINN-DAK FARMERS COOPERATIVE

BEET TOPics

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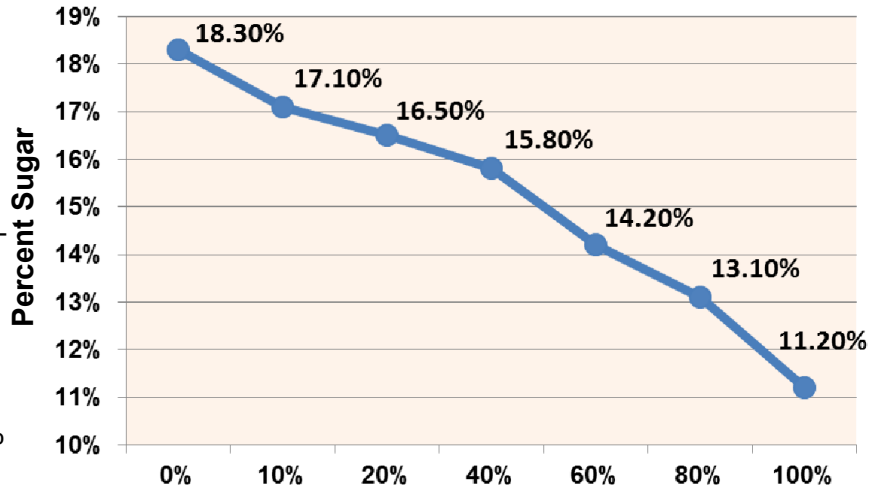
Mike Metzger - Editor

Rhizoctonia Management for 2012...

Although Rhizoctonia has been present in our soils for quite some time, its seems like its prevalence has increased greatly over the past few growing seasons. One of the many questions growers repeatedly ask the Ag Staff with regards to this root disease is, "Why has it gotten so out of hand?" Although there is not a single, direct answer to this simple question, many believe it has to deal with a combination of factors including the change in crop rotation (particularly beets following beans or corn), differences in varietal resistance seen while transitioning away from conventional to Roundup Ready and unseasonably later planting dates causing beets to be sown closer to the pathogen's peak infection period. Whatever the reason (or reasons) may be, the fact of the matter is that Rhizoctonia is here and it is here to stay.

So what does this disease cost the average Minn-Dak grower? Although this is a tricky question to answer, American Crystal Sugar has published data testing the yield impact of Rhizoctonia-infected beets in a quality (or tare) sample. This graph shows the relationship between sugar percentage and the percent of the beets in the sample that were infected with Rhizoctonia. Using their data as a model incorporated with our current beet payment, the difference between a Rhizoctonia-free sample and that of a sample with just 10% of the beets infected **was just over $115 per acre**. That number easily **jumps over the $250 per acre** mark at only the 40% level - Keep in mind that this is only the on-farm yield loss and does not include the known storage complications or factory processing issues associated with Rhizoctonia infected beets. These yield losses alone more than justify the need for fungicidal control of Rhizoctonia. Don't think of it as an expense - it is an investment...



Percent of Rhizoctonia Infected Beets in Quality Sample

Genetic Resistance is the 1st Line of Defense

When it comes to fighting Rhizoctonia, the VERY BEST and MOST ECONOMICAL management practice is utilizing a resistant variety. Each and every year, the varieties selected for sale at Minn-Dak have to be entered and evaluated in high-pressure Rhizoctonia Nurseries (located in Fort Collins, CO and Moorhead, MN) to determine their level of disease resistance to this pathogen. The Minn-Dak Seed Committee considers a variety with a disease rating equal to 3.82 or lower to be a "Rhizoctonia Specialty" variety – The following varieties are available for sale in 2012:

Variety (Rzc Rating):		
	Hilleshög 4204 (3.33)	ACH 830 (3.36)
	Hilleshög 4022 (3.48)	ACH 798 (3.41)
Hilleshög 4062 (2.87)	Hilleshög 4251 (3.67)	ACH 643 (3.66)

Syngenta Quadris

In-Furrow Application

Rate: 10 fl oz/A

Water Volume: 8 - 10 GPA

Application: In-furrow or T-Band

Mix with Starter Fertilizer: No

Tank Agitation: Moderate

- DO NOT mix Quadris with in-furrow liquid fertilizers due to compatibility issues and potential crop injury.
- Research shows that Quadris applied at 10 oz/A in a 4.0" T-Band (with 8 gal/A of water) is not only safer, but more effective when compared to in-furrow applications of the same specifications.
- Quadris applied pre-emerge over the row (in a method similar to Nortron) has not been very effective for Rhizoctonia control.
- In-furrow applications of Quadris dribbled on the seed will likely reduce emergence and seeding rates will need to be adjusted accordingly.
- Quadris is more phytotoxic when applied during colder air and soil temperatures.
- Since an at-plant application Quadris gives the sugarbeet seedling around 4 to 5 weeks of protection, a post-emerge application (used in place of or in addition to) may be a better option than an at-plant application for earlier planting dates.

Headline fungicide

In-Furrow Application

Rate: Slight Disease - 6 fl oz/A
Severe Disease - 9 fl oz/A

Water Volume: Min 2.5 GPA

Application: In-furrow

Mix with Starter Fertilizer: Yes

Tank Agitation: High

- Headline can be used and mixed with a variety of starter fertilizers.
- The addition of compatibility agents does very little to improve the stability of Headline in combination with liquid fertilizers and are not recommended.
- Headline is lighter than liquid fertilizer and tends to settle towards the top of the tank when mixed together - constant agitation is mandatory to avoid separation and precipitation. The best option to prevent layering is to suck from the bottom of the tank and recirculating to the top of the tank. As a rule of thumb, the better the agitation, the less frequently problems will occur.
- Use a minimum of 2.5 gallons carrier volume per acre. Headline will mix better and require a little less agitation if the liquid fertilizer is mixed 50/50 with water - data supports a total applied volume of > 6 gallons per acre.
- Never let solutions set for more than 4 hours without agitation - the longer the fungicide and fertilizer remain tank mixed, the greater the chance of product separation.

Syngenta Quadris

Post-Emerge Application

Rate: 14.3 fl oz/A

Water Volume: 10 - 20 GPA

Application: Band or Broadcast

Aerial Application: Yes

Tank Agitation: Moderate

- Quadris should be applied when the soil temperatures at the 4" depth reach 65 degrees and as close to the 4-6 leaf stage as possible – When in doubt, remember that it is better to make application too early rather than too late.
- Quadris can be successfully mixed and applied with a post-emerge application of glyphosate - use the lowest labeled rate of AMS to help prevent phytotoxicity issues.
- Quadris tank-mixed with any surfactants, organosilicates, COCs, MSOs or EC formulations is pretty risky and may cause significant crop injury.
- Deposition aids tank-mixed with Quadris/Glyphosate may cause precipitation issues.
- Research shows that narrower bands (7-11") offer the best control.
- Use the same rate of Quadris (14.3 fl oz/A) for all band widths.
- For fields with a known history of severe Rhizoctonia pressure, research shows increased disease control and significant yield advantages when an in-furrow or pre-emerge application is followed by a post-emerge application of Quadris.

Make Sure You Know the Difference!!!

Aphanomyces vs. Rhizoctonia

It is critical that you correctly identify and know which root disease you are dealing with. Although the root symptoms expressed by Aphanomyces and Rhizoctonia appear to be very similar to the naked eye, the recommended control strategies for each are very different and unfortunately, are disease specific. Using a post-emerge application of Quadris for Aphanomyces control would be just as much of a waste of money as using Tachigaren-treated seed for an early-season Rhizoctonia infection. Visit with your Agriculturist to determine which disease(s) are present on your farm and the best management practices for each.

Thank You to Dr. Al Cattanach & Dr. Carol Windels for the use of their pictures and data in this issue