

By: Anita Speers

Soybean School: Class is in Session

"Bean" there, harvested that – soybeans have come to a wrap! Now that soybean harvest is in the rearview mirror, it is time to reflect on what has been learned throughout the course of 2018 when it comes to growing soybeans. This month's newsletter talks about record yields, rapid growth syndrome in soybeans and what sudden death syndrome means for your soybeans.

Yields and Fertilizer Recommendations

Whether you prefer to grab a Cup of Joe from the local coffee shop or spend your time on a virtual coffee shop that is otherwise known as Twitter, there has been constant chatter surrounding the yields of 2018; from the pleasant surprise of how well hailed soybeans yielded to record breaking yields over 70 bu per acre (bu/ac). It is important to keep in mind that these big yields also remove big nutrients from your soil. For example, on a 65 bu/ac yield, removing just the grain portion of soybean will remove 215 lbs of Nitrogen, 47 lbs of Phosphorous, 78 lbs of Potash (Potassium) and 12 lbs of Sulfur from your soils. Be sure to keep these numbers in mind when planning for your fertilizer needs. At minimum, you should be spreading enough fertilizer to cover crop removal (which is reflected above).

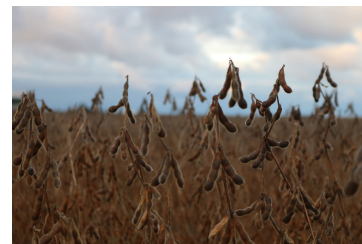


Figure 1: Big soybean yields = Big nutrient removals. Be sure to take crop removal into consideration when planning for 2019 fertilizer needs.

What Can Be Learned from 2018?

One of the most incredible things about the agriculture industry as a whole is that there is always something new to be learned. It is not a stagnant industry, but at times it may feel overwhelming to keep up with all the advancements that are taking place. For now, let's focus on three things: Sudden Death Syndrome (SDS), Soybean Cyst Nematode (SCN) and nutrient deficiency.



Figure 2: Interveinal chlorosis and necrosis is a common symptom of SDS and BSR

Sudden Death Syndrome is a disease that is moisture loving. SDS reared its ugly head this past summer when the rain started to set in. Foliar symptoms of SDS typically start off as yellow spots between the veins on a soybean leaf, known as interveinal chlorosis. Eventually, these spots progress to be necrotic tissue (figure 2), causing the plant's leaves to die and prematurely drop. But it is not enough to go by only foliar symptoms to diagnose SDS, as Brown Stem Rot (BSR) shares the same foliar characteristics. To distinguish between SDS and BSR, split the stem open with a knife. If the pith of the stem remains green and surrounding stem is brown, confirmation is given to SDS (figure 3). The opposite holds true for BSR; the pith will be brown and surrounding stem will be healthy. Presence of Soybean Cyst Nematode (SCN) can also increase the severity of SDS. This is because of the extensive root damage caused by SCN making the soybean plant more vulnerable to SDS infection. Think of the relationship between SCN and SDS like having a sinus pressure with your already preexisting cold – it just makes things worse!



Figure 3: Top stem – a green pith and brown stem confirms SDS. Bottom stem – healthy soybean stem

Now, with that being said, it is not fair to state that SCN causes SDS. There is a very strong correlation between the two, but SCN isn't the only factor contributing to SDS. If your yields suffered this past year from SDS, it is time to take a look at your soil fertility program. Research shows that having a strong soil fertility program is a key factor in reducing the impact that SCN has on your crop. Ensuring that your soils have enough potash is critical to aid in reducing the impact SCN feeding has on your crop. Potash is needed for cell wall structure and helps with plant stress. Soybeans receiving adequate levels of potassium have a more stable cell structure and are better equipped to combat SCN feeding, which in turn, can help to reduce the impact of SDS in your crop.

What else can be done to help keep your soybean crop protected for 2019? Look for a soybean variety that has a good SCN genetic package, treating your soybeans with a nematicide and soil sampling fields with suspected high populations of SCN.