“Making Every Nutrient Count for the Best Soybeans This Season”

Answers to Attendee Questions

Tim Sickman, technical services representative for Loveland Products, and University of Illinois research assistant Alison Vogel, responded to these questions posed during the March 1 webinar, “Making Every Nutrient Count for the Best Soybeans This Season.”

— No-Till Farmer editors

Q — How do you think this would work in a very high-fertility environment that has had large amounts of manure applied on it for many years? The problem with sizing in no-till is that residue moves with winter weather and water over the fall, winter and spring. How do you address that risk in no-till while wanting to improve decomposition?

Sickman: Extract has demonstrated effectiveness across the full fertility level spectrum from low to high, so it certainly has a fit on heavily manured land.

Substantial percentages of certain nutrients supplied by manure are in organic form and unavailable for crop uptake. A broadcast application of Extract, perhaps tank mixed as part of a pre-emergence herbicide pass, will increase the mineralization rate of those organically-bound nutrients and make them more available for crop root absorption. *(Please see Ms. Vogel’s response below to a similar question regarding Extract performance in high versus low-fertility situations.)*

Vogel: Sizing of residue in an area where there is a lot of water movement or hilly areas can be an issue, luckily we have not had much if any residue movement from fall harvest to spring planting. This could be attributed to standing corn stalks providing some resistance to water and wind movement of residue. However, in a situation where this issue does exist, a biocatalyst such as Extract PBA could be the golden ticket. It would help enhance residue decay and promote nutrient cycling for that subsequent crop.

Sickman: Smaller, lighter pieces of mechanically sized” residue certainly are more prone to displacement by heavy rain and wind. Fortunately, residue does not have to be chopped in order for the numerous biochemicals in Extract PBA to begin breaking down the tough cellulosic material in cornstalks, wheat/rice straw, etc.

Granted, sizing residue with a chopping corn head or certain types of tillage clearly can help accentuate decomposition and nutrient cycling. But in no-till environments, a broadcast spray application of Extract PBA alone will do a very good job of accelerating residue breakdown.

Q — Has any data been received on rice stubble in a soybean/rice rotation?

Sickman: I’m not aware that any formal research has been done with Extract on rice stubble specifically. However, since corn stover and rice straw have very similar carbon-to-nitrogen ratios, I would expect Extract to perform equally well at increasing the rate of rice stubble degradation and nutrient cycling.

Q — Did you do an economic analysis of adding MESZ or Titan? What are the costs per acre of each?

Vogel: According to Agricen, with spring applied Extract, there only needed to be a 1.1 bushel-per-acre increase in soybean yield to achieve a return on investment. However, with the variability that exists in grain prices and input costs, a producer is encouraged to crunch the numbers on a farm to farm basis, knowing there could be a 3-6 bushel-per-acre increase with spring applied MicroEssentials SZ (MESZ) or Titan on their soybean crop.

Sickman: Since Titan XC was not specifically referenced during the actual webinar, I first want to make certain all viewers understand what it is. Titan XC is expressly formulated for impregnation onto dry fertilizer. It contains the same biochemistry found in Accomplish LM, which as we noted during the webinar makes up 50% of the Extract PBA formulation.

The key difference between Accomplish LM and Titan XC is that the latter is about eight times more concentrated, making it much more suitable for use on dry fertilizer.

Currently, it costs approximately $48 to impregnate one ton of MESZ – or any other appropriate dry fertilizer — with Titan XC at its standard rate. That equates with $2.40 per hundred pounds of fertilizer treated. Let's say, for example, a grower applies 400 pounds of Titan-treated MESZ per acre. The per-acre Titan investment in that instance would be $9.60.

November 2017 soybeans and December 2017 corn were trading at $9.55 and $3.89 per bushel, respectively, at the time of this writing. Based on those prices, positive yield responses of slightly over 1 bushel an acre for soybeans and about 2.5 bushels an acre for corn would be required to break even in this example. Since actual corn and soybean yield responses to Titan often exceed those numbers by a factor of 3x or more, the odds of a positive return on investment are indeed excellent.

Q — I'm in a more northern region than any of the yield data results that you had, so we do have cooler temps at harvest time. That being said, would we be better off to do a spring application vs. a fall application? Would appear application with cover crop termination would be a good program? Are you seeing any differences in applications of Extract high fertility vs. poor/reduced fertility?

Vogel: The magnitude of yield enhancement tended to be greater in reduced fertility situations compared to higher fertility; however, regardless of initial fertility levels both had yield increases. Utilization of Extract PBA in any number of fertility conditions should promote nutrient availability from the previous crop's residue, fertilizer, or the soil for that current crop to have access to and promote that crop to have improved yield performance.

Sickman: That's a good question. Though autumn temperatures definitely decline faster and winter closes in sooner in more northern regions, there's still merit to fall-applied Extract in those areas.

Keep in mind, Extract's biochemistry is not nearly as influenced by temperature as live soil microbes are. Many naturally occurring beneficial soil bacteria that aid in residue

decomposition show a marked decrease in activity as soil temperatures dip below 50 F in the fall and shut down entirely at 32 F and below. In contrast, Extract's active components continue to function at degrading tough residue even as temperatures decline.

However, there's nothing wrong with waiting to spring apply Extract if that suits a grower's schedule and workload better. Though fall treatment offers an overall wider window of opportunity for the product to work, a spring application still will do a very good job of breaking residue down and releasing nutrients to the new crop in a timely, efficient fashion.