On-Farm Demonstration Trial: Growth Promoter Studies Soybean Plant Health Trials

Mike Witt—on-farm trials coordinator and agronomist, ISU Extension and Outreach

Andrew Weaver—agricultural specialist, Northwest Research and Demonstration Farm

Dordt University—Agriculture Department

Objective

Determine the effects of the products for plant health on yields in soybean.

Introduction

Plant health is a factor causing yield variation in soybean. If plants are unhealthy, these cannot produce at maximum yield potential. Many different products or methods are used to observe and attempt to promote healthier and more vigorous soybean plants. Two such methods are applications of fungicides and biostimulant products. Fungicides are known to protect plants from diseases, when these are present, and promote plant health through defense. The fungicide Approach® from Corteva corporation was used in this trial. BlueN™, a Symborg Inc. product, is promoted as an endophytic bacterium, Methylobacterium symbioticum, which naturally provides nitrogen to the plant. It enters the plant through the leaves in its initial stages of development and quickly colonizes the crop's phyllosphere. It also is promoted to convert nitrogen from the air into ammonium, directly and constantly metabolizing it into amino acids throughout the growing season. The purpose of this trial was to investigate what effect BlueN™ or a fungicide would have on plant health and yields.

Materials and Methods

Crop Year–2021

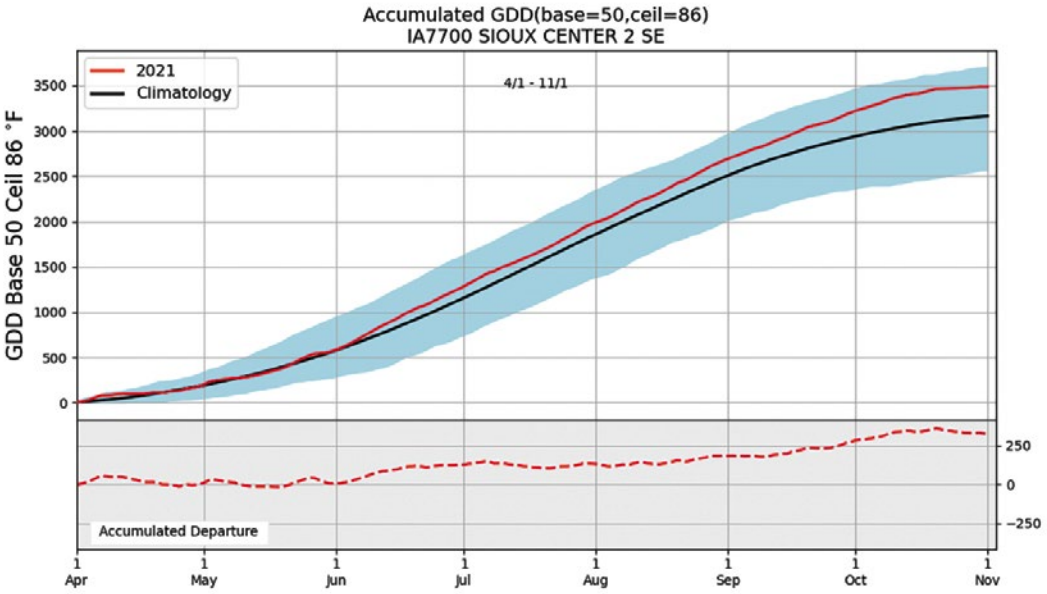
Trial	210111
Trial County	Sioux
Soil Type	8B, 31, 91, 91B, 133, 310B, 310B2, 310C2, 428B
Previous Crop	Corn
Tillage	Conventional
Current Crop	Soybean
Hybrid–Variety Number	P20T64E
Hybrid–Variety Company	Pioneer/Corteva
Row Spacing	30 in.
Seeding Rate	140,000/ac.
Planting Date	April 29
Harvest Date	September 28
Experimental Type	On-Farm Demo
Replications	3
Fungicide	Approach 9oz./ac.
Biostimulant	BlueN 5oz./ac.

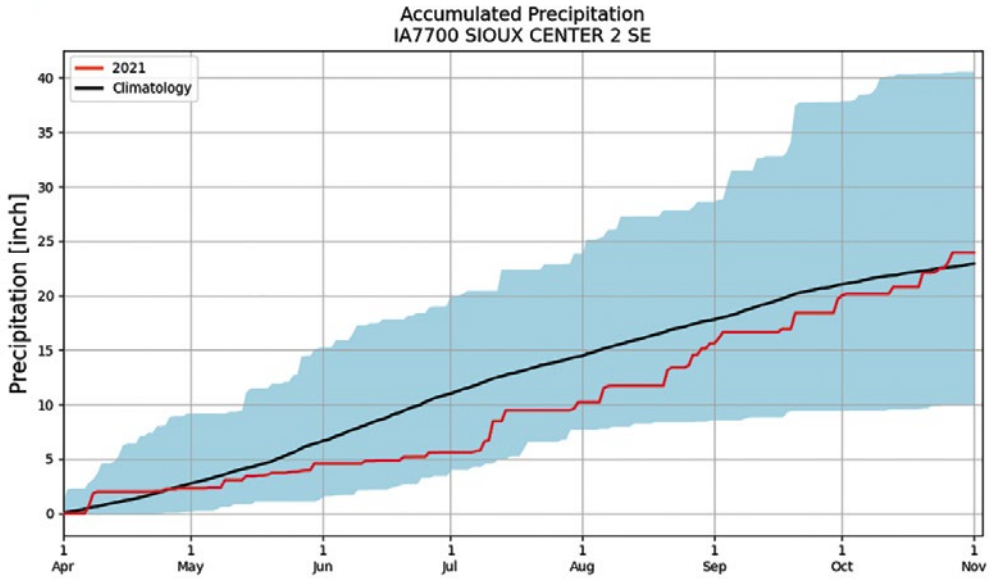
Results

Trial Number	Treatment	Yield (bu./ac.)[a]	P-value[b]
210111	Fungicide	71.6 a	0.55
	Biostimulant	69.3 a	
	Untreated Control	71.9 a	

[a]Values denoted with the same letter within a trial are not statistically different at the significance level of 0.10.
[b]P-value = the calculated probability that the difference in yields can be attributed to the treatments and no other factors. For example, if a trial has a P-value of 0.10, there is 90% confidence the yield differences are in response to treatments. This is consistent for demonstration trials.

Location Climate Analysis





Key Takeaways

- There were no significant yield effects from the two treatments in the experiment.
- Neither approach to a plant health promotion of yield was beneficial or harmful.

NOTE: The results presented are from replicated demonstration trials. Statistics are used to detect differences at a location and should not be interpreted beyond the single location.