

# **2014 Soybean Management Field Days**

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Site & Year	Variety	Bio-stimulant Seed Treatment	Yield (Bushels/Acre)	Bushels/acre vs. Check
Waverly 2011	Pioneer 93M11	BioForge	55.2	2.1
		Optimize	54.8	1.8
David City 2011	Asgrow 2909	Optimize	46.4	0.3
	Mycogen 5B261RR	Optimize	53.6	2.0
David City 2011	Pioneer 93M11	Optimize	42.1	2.0
		BioForge	43.0	2.8
Rising City 2009 (Irr.)	NK 30-D4	BioForge	70.3	0.6

2014SMFDStoryboards-RETHWISCH (1)

### Calculated Nutrients/Acre at 3 Levels of Soybean Production (minus 220 Lbs./acre 'Fixed' Nitrogen)

Fertilizer Component	Stover	Per bushel of Grain	60 bu.	80 bu.	100 bu.
Nitrogen (N)	25	3.75	30	105	180
Phosphorus (P)	10	0.36	32	39	46
Potassium (K)	70	1.23	144	168	193
Calcium (Ca)	90	0.38	113	120	128
Magnesium (Mg)	24	0.20	36	40	44
Sulfur (S)	3	0.46	31	40	49

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## Take Home Points

- Biostimulants do not replace fertilizer!!
- BioStimulants and Growth Enhancement products can increase yield potential.
- Application makes a difference:
  - Seed vs. In-Furrow vs. Foliar results differ
- To realize yield increases additional inputs such as additional fertilizer may be necessary to capture potential yield increases.

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## Factors that Effect Response to Biostimulants/ Growth Enhancement Products

- Crop
- Crop Variety
- Biostimulant Rate
- Herbicide Applications (tank mixes, subsequent herbicide applications)
- Growing Environment
- Surfactant
- Timing and Application Method (seed vs. in-furrow vs. foliar)
- Fertility Levels

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## **BioStimulant Classes**

- Cytokinins
- Gibberellic Acids
- Brassinosteroids
- Polyamines
- Harpin Proteins
- Jasmonic Acid
- Salicylic Acid
- Lipochito-oligosaccharides (LCOs)
- Several Others

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## **What are plant responses to biostimulants?**

- Faster growth
- Systemic Activated Response (SAR)
- Increased flowering
- Induced Responses for fighting diseases
- Increased stress resistance, etc.

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