

TECH Tips

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Research and Technology Field Results- Corn Zinc and Boron Fertilizer Sources

Objectives:

- 1) Demonstrate alternative sources of zinc compared to zinc sulfate, when used in dry fertilizer programs
- 2) Evaluate the agronomic effects of boron sources when used in dry fertilizer programs

Treatments Tested – Dry Fertilizer Zinc and Boron Sources:

- Zinc Sulfate
- WolfTrax Zinc (Compass Minerals)
- MicroSync Pro (Verdesian)
- MicroSync Plus (Verdesian)
- Sul4RPlus BZ (Calcium sulfate + micros-Sul4RPlus)
- Aspire (Mosaic)
- Wolftrax Boron (Compass Minerals)
- Sul4RPlus (Calcium sulfate- Sul4RPlus)

11-6-18 (AGTEG_BATH_18_CORN_DRY_FERT_MICRO)

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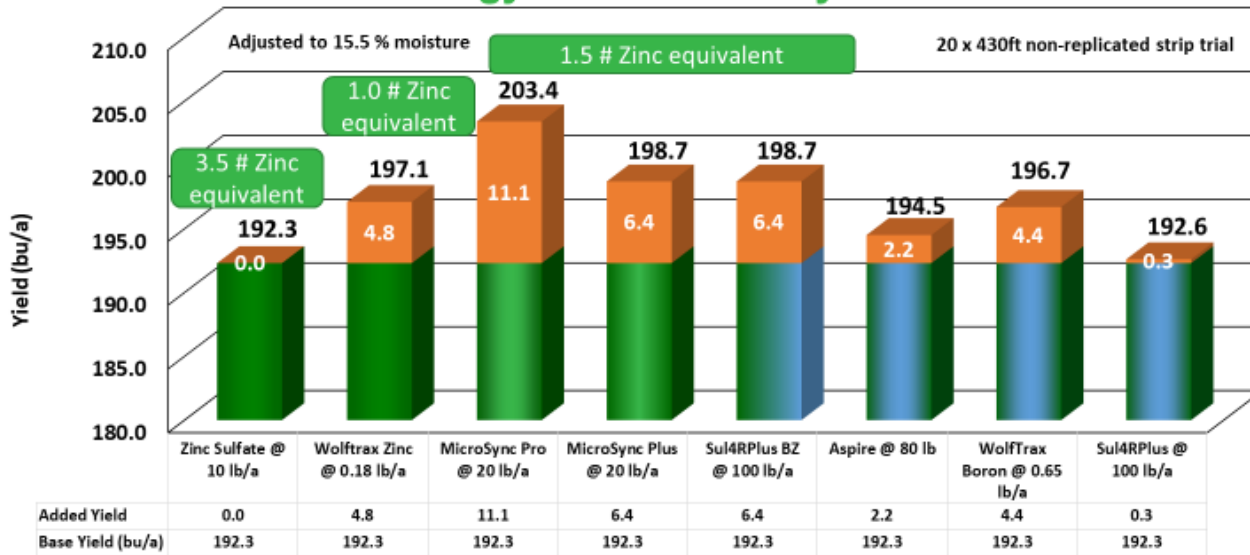
Agtegra Cooperative

2018 Spring Corn Dry Fertilizer and Micros	
Trial ID: AGTEG_BATH_18_CORN_DRY_FERT_MICROS	Location: Agtegra- Bath
Protocol ID: AGTEGRA18SPCORN	Trial Year: 2018
Project ID:	Investigator: Brad Ruden
Official Trial ID:	Study Director: Brad Ruden
	Sponsor Contact:

Trt No.	Treatment Type Name	Form Conc	Form Unit	Form Type	Rate Rate	Growth Stage	Appl Code	Rep 1	Notes
1	FERT Urea	46 %	N	GR	208 lb/a	PREPRE	A	101	
	FERT Zinc Sulfate	35.5 %		GR	10 lb/a	PREPRE	A		
	FERT Jumper Plus	23 %	P2O5	SN	5 gal/a				
2	FERT Urea	46 %	N	GR	208 lb/a	PREPRE	A	102	
	FERT MicroSync PRO	30.25 %		GR	20 lb/a	PREPRE	A		
	FERT Jumper Plus	23 %	P2O5	SN	5 gal/a				
3	FERT Urea	46 %	N	GR	208 lb/a	PREPRE	A	103	
	FERT MicroSync PLUS	28.75 %		GR	20 lb/a	PREPRE	A		
	FERT Jumper Plus	23 %	P2O5	SN	5 gal/a				
4	FERT Urea	46 %	N	GR	208 lb/a	PREPRE	A	104	
	FERT Wolftrax Zinc	62 %		GR	0.18 lb/a	PREPRE	A		
	FERT Jumper Plus	23 %	P2O5	SN	5 gal/a				
5	FERT Urea	46 %	N	GR	208 lb/a	PREPRE	A	105	
	FERT Aspire	58 %	K2O	GR	80 lb/a	PREPRE	A		
	FERT Jumper Plus	23 %	P2O5	SN	5 gal/a				
6	FERT Urea	46 %	N	GR	208 lb/a	PREPRE	A	106	
	FERT Sul4R-Plus Boron Zinc	15 %	S	GR	100 lb/a	PREPRE	A		
	FERT Jumper Plus	23 %	P2O5	SN	5 gal/a				
7	FERT Urea	46 %	N	GR	208 lb/a	PREPRE	A	107	
	FERT Sul4R-Plus	17 %	S	GR	100 lb/a	PREPRE	A		
	FERT Jumper Plus	23 %	P2O5	SN	5 gal/a				
8	FERT Urea	46 %	N	GR	208 lb/a	PREPRE	A	108	
	FERT Wolftrax Boron	18.5 %		GR	0.65 lb/a	PREPRE	A		
	FERT Jumper Plus	23 %	P2O5	SN	5 gal/a				

Results – Dry Fertilizer Zinc and Boron Sources:

Research and Technology Plots- Corn Dry Zinc and Boron



Soil Test Nutrients	Fall 2017		
Nitrogen	84	Zinc	1.88
Phosphorus	24	Calcium	2670
Potassium	405	pH	6.2
Sulfur	20 + 162	CEC	18.1

- Fertilizer Applied: 150# MAP + 50# potash
- Remain treated urea to 200# N/acre (soil test + fertilizer)
- Zinc treatments blended with the dry fertilizer program
- Corn Hybrid: DKC 47-47; Population: 34000 seeds/acre
- Planted 5-10-18



Key Observations – Dry Fertilizer Zinc Sources

- The plot results show a **significant response to added micronutrients**
- The basic Zinc sulfate treatment (Treatment #1) can be compared directly to the Wolfrax Zinc (Treatment # 2), as both contain only zinc
- Zinc sources were applied according to company recommendations to compare to 10 lb/a zinc sulfate
 - 10#/acre zinc sulfate treatment delivers 3.5 lb zinc
 - Wolfrax at 0.18 lb/a is comparable to 1 lb zinc sulfate, according to Compass Minerals
 - The MicroSync treatments have 1.5 lb zinc plus other micronutrients: MicroSync Pro (Zinc + Manganese, Boron, Calcium and Sulfur) or MicroSync Plus (Zinc + Boron, Calcium and Sulfur)
 - The Sul4RPlus B+Z product also applied 1.5 lb zinc per acre, along with calcium sulfate
- ZINC SULFATE:** Data shows the inefficiency of zinc sulfate, especially under dry field conditions
- WOLFRAX:** Rate is equivalent to 1 lb zinc sulfate. The performance of Wolfrax compared to zinc sulfate shows the efficiency of zinc on each prill
- Wolfrax Zinc** showed a 4.8 bu/acre gain vs zinc sulfate, even with the lower equivalent rate
- The Wolfrax data looks positive and supports our efforts to use this effective product line.
- MICROSYNC brands:** These products outperformed zinc sulfate alone by a significant margin. Further study of these brands is needed to fully evaluate performance.
- Sul4R Plus brands:** Novel calcium sulfate products with added micronutrients. Further field testing is needed on these brands to determine if the response is micronutrients or from calcium and sulfur.

Key Observations – Dry Fertilizer Boron Sources

- The Boron treatments, #5, 6 and 7 look positive, with a 2.4 to 5.6 bu/acre gain vs base yield. Fertilizer based boron products are effective and should be regularly recommended.
- It appears that a potassium response was not present in the plots, as Aspire did not look as good as other Boron sources.
- Further and expanded testing of dry fertilizer boron sources will be completed

2018 Plot Setup Information:

- Plot located at the Agtegra Bath location in the Research and Technology demonstration plots
- Variety: DKC 47-47 planted at 34,000 plants per acre in 30" rows
- Plots planted May 10, 2018
- Plot Size: 20 x 430 ft. single replicate demo plot