

TECH

Tips

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Research and Technology Field Results- Corn Downforce and Planting Speed

Objectives:

- Demonstrate the agronomic effects of light to excessive manual downforce settings on planters as compared to the Auto Standard, variable downforce
- Demonstrate downforce effects on root development, plant development and uniformity of ear development as well as measure final yield
- Demonstrate the effects on singulation and depth control, while measuring plant stand and crop development with planter speeds ranging from 4.0 MPH up to 7.6 MPH using a traditional planter equipped Precision Planting electric drives and standard seed tubes.

Treatments Tested and Rates:

- Downforce settings: 0, 125, 250, 375 pounds and Auto Standard downforce
- Downforce plots were repeated with a second set of plots
- Planter speeds of 4.0, 5.2, 6.4 and 7.6 MPH, all planting 34,000 seeds per acre

12-17-18 (AGTEG_BATH_18_CORN_DOWN_SPD)

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Agtegra Cooperative

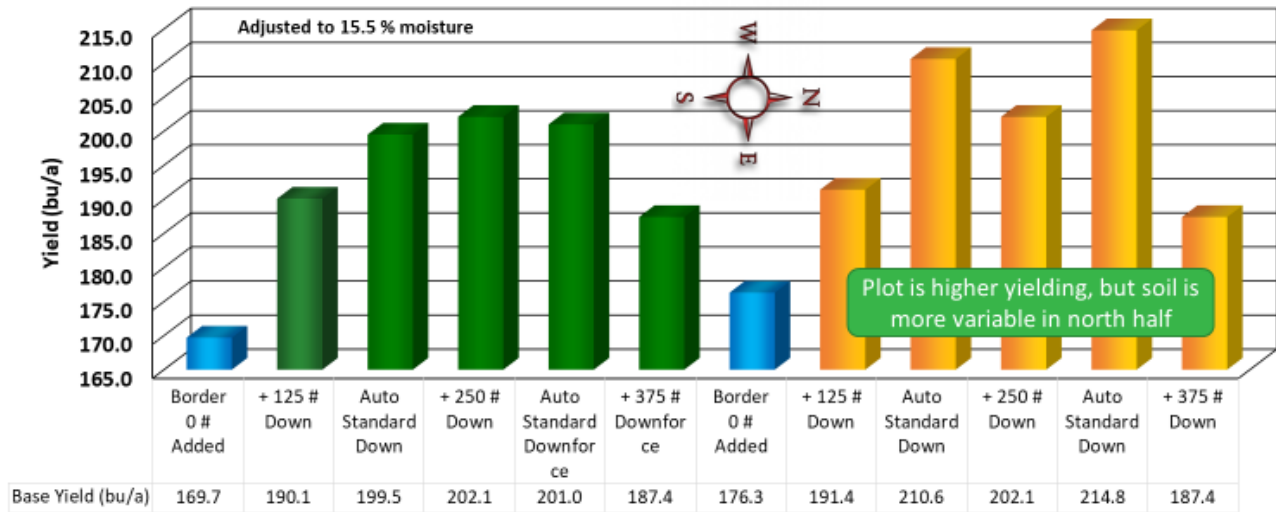
Trial ID: AGTEG_BATH_18_CORN_DOWN_SPD		Location: Agtegra- Bath		Trial Year: 2018	
Protocol ID: AGTEG18SPCORN		Investigator: Brad Ruden		Study Director: Brad Ruden	
Project ID:		Sponsor Contact:			

Trt No.	Treatment Type Name	Form Conc	Form Unit	Form Type	Rate Rate	Growth Stage	Appl Code	Comment 1	Rep 1	Notes
1	FERT Untreated Border + 0 Down	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Border	101	
2	FERT DF + 125	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Plot	102	
3	FERT DF + Auto	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Plot	103	
4	FERT DF + 250	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Plot	104	
5	FERT DF + Auto	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Plot	105	
6	FERT DF + 375	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Plot	106	
7	FERT Untreated Border + 0 Down	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Border	107	
8	FERT Speed- 4.0 MPH	24 %	P2O5	SN	5 gal/a	ATPLAN	A	20 ft Plot	108	
9	FERT Speed- 5.2 MPH	24 %	P2O5	SN	5 gal/a	ATPLAN	A	20 ft Plot	109	
10	FERT Speed- 6.4 MPH	24 %	P2O5	SN	5 gal/a	ATPLAN	A	20 ft Plot	110	
11	FERT Speed- 7.6 MPH	24 %	P2O5	SN	5 gal/a	ATPLAN	A	20 ft Plot	111	
12	FERT DF + 125	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Plot	112	
13	FERT DF + Auto	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Plot	113	
14	FERT DF + 250	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Plot	114	
15	FERT DF + Auto	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Plot	115	
16	FERT DF + 375	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Plot	116	
17	FERT Untreated Border	24 %	P2O5	SN	5 gal/a	ATPLAN	A	10 ft Border	117	

Sort Order: Treatment

Results (Corn Downforce):

Research and Technology Plots- Corn Downforce



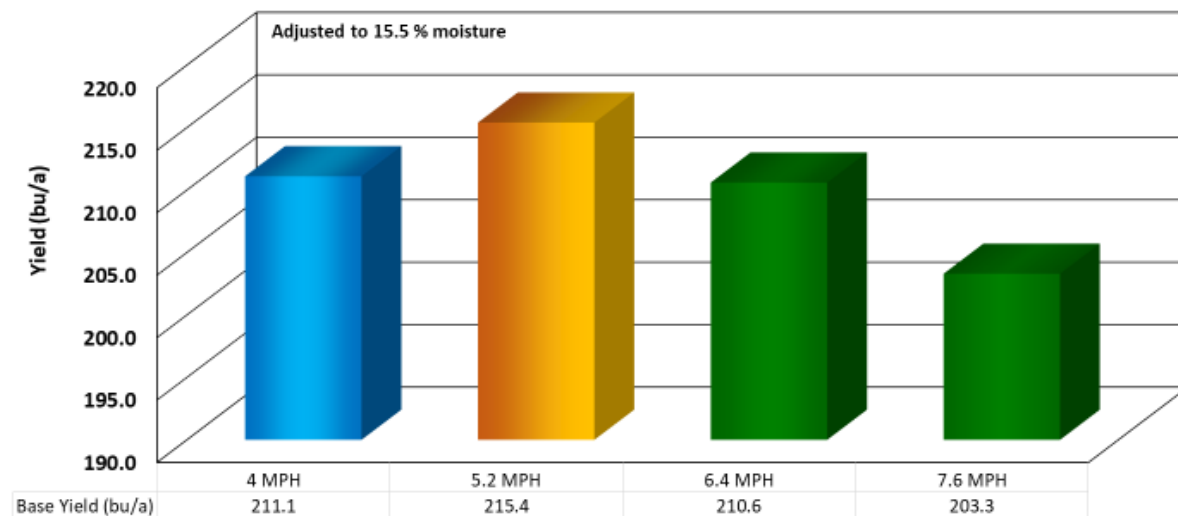
Soil Test Nutrients	Fall 2017		
Nitrogen	81	Zinc	1.68
Phosphorus	21	Calcium	2686
Potassium	363	pH	6.8
Sulfur	120 + 360	CEC	18.6

- Fertilizer Applied: 120# MAP + 50# potash
- 223# RemaiN treated urea to 200# N/acre (soil test + fertilizer)
- Corn Hybrid: DKC 47-47; Population: 34000 seeds/acre
- Planted 5-23-18



Results (Corn Planter Speed):

Research and Technology Plots- Corn Planter Speed



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Nitrogen	81	Zinc	1.68
Phosphorus	21	Calcium	2686
Potassium	363	pH	6.8
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Key Observations 2018:

- **Observations on Downforce**

- Auto Standard downforce produced the most consistent and highest yields
- Auto Standard downforce produced the most uniform ear development
- Auto Standard downforce produced the largest root systems, with the greatest spread and depth of roots.
- This season, it appeared that a manual setting of 250# downforce was most comparable to Auto Standard.
- 250# manual downforce did NOT yield up to the Auto Standard in higher yielding north section of the plot

- **Observations- Planter Speed**

- Optimal planter speeds appeared to be no greater than 6.4 MPH, with optimal around 5.2 MPH, based on yield data.
- Visual stand uniformity was greatest at the slower planter speeds, as expected. Erratic stand was noticed at 7.6 MPH

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 23, 2018
- Plot Size: 20 x 350 ft. single replicate demo plot