

# BECK'S Down Force Precision Planting Study - 2014

<b>PLANTED:</b>	May 20, 2014	<b>PREVIOUS CROP:</b>	Soybeans
<b>HARVESTED:</b>	October 01, 2014	<b>TILLAGE:</b>	Fall Chisel, Spring Vertical-Till
<b>POPULATION:</b>	35,000 seeds/A.	<b>HERBICIDE:</b>	Pre: 5 oz. Verdict®, 2 oz. Zidua®
<b>ROWS:</b>	Eight 30" Rows		Post: 1 qt. Durango®
<b>RELICATIONS:</b>	Three (averaged)	<b>PRODUCT TESTED:</b>	BECK 5475AMX™

**PURPOSE:**

Beck's Central IL PFR teamed up with Precision Planting® and 20/20 AirForce® and DeltaForce™ systems to conduct this automatic down force adjustment trial. Down force adjustments allow the amount of weight on a planter row unit to maintain constant ground contact and planting depth. If we set our planter row units for too much down force pressure, it can produce sidewall compaction, which can lead to poor root development. Conversely, too little down force pressure leads to shallow planting depth. In both cases, yield loss can occur. Setting the amount of down force pressure depends on planting conditions and planting speed. Most planters have either a spring tension device, airbags, or hydraulic cylinders on the planter row units. These can be adjusted manually by adjusting the amount of spring tension or by increasing or decreasing air pressure or hydraulic pressure. In all three cases, these are manual adjustments that have to be made on a field by field basis. Determining the amount of down force can be difficult due to varying soil types, tillage conditions, soil moisture, and seed quantity in boxes.

Precision Planting's 20/20 SeedSense® system can measure ground contact and the total row unit weight to make automatic adjustments needed to maintain ideal down force regardless of planting conditions while maintaining the ground contact that assures uniform seeding depth. The 20/20 AirForce system uses airbags (Photo 1) as a means to change down force, while DeltaForce uses individual hydraulic cylinders (Photo 2-3) on each row. This is the second year of testing the DeltaForce down force system and the sixth year testing the AirForce at the Central Illinois PFR Center.

Down Force	Down Force Pressure Setting	Percent Moisture	Bushels <sup>†</sup> Per Acre	Bu./A. Difference	Gross <sup>^</sup> Return	\$/A. <sup>◇</sup> Difference
DeltaForce Variable Rate	Standard Setting (Control)	26.1	212.1	---	\$880.22	+\$22.83
DeltaForce	0 lb. Manual	26.3	196.1	-16.0	\$813.82	-\$66.40
DeltaForce	125 lb. Manual	26.3	199.8	-12.3	\$829.17	-\$51.05
DeltaForce	250 lb. Manual	26.2	210.3	-1.8	\$872.75	-\$7.47
DeltaForce	375 lb. Manual	26.2	209.7	-2.4	\$870.26	-\$9.96
AirForce Variable Rate	Standard Setting (Control)	28.8	205.6	---	\$853.24	---
T-Spring	0 lb. Manual	29.0	197.2	-8.4	\$818.38	-\$34.86
T-Spring	125 lb. Manual	28.8	199.0	-6.6	\$825.85	-\$27.39
T-Spring	250 lb. Manual	28.9	204.0	-1.6	\$846.60	-\$6.64
T-Spring	375 lb. Manual	28.8	198.8	-6.8	\$825.02	-\$28.22

<sup>†</sup>XL brand seed is distributed by Beck's Superior Hybrids, Inc. XL® is a registered trademark of Pioneer.  
<sup>^</sup>Bu./A. corrected to 15% moisture. <sup>◇</sup>Gross return is Bu./A. x \$4.15/Bu. <sup>◇</sup>\$/A. difference is Bu./A. difference x \$4.15/Bu.

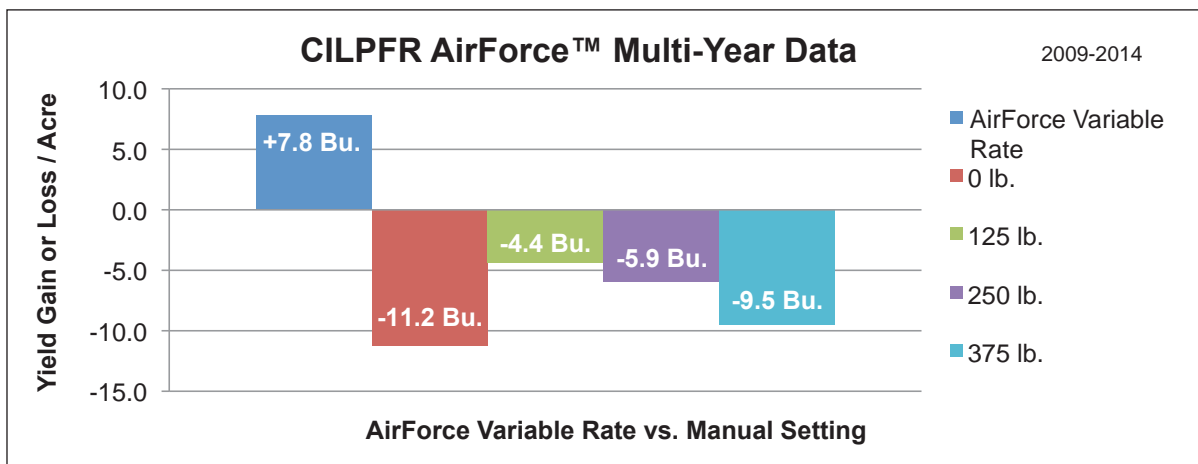


Figure 1.