Nebraska On-Farm Research Network

Years:	2013
Title:	Harvest Losses with Crary Wind System
Crop:	Dry Beans
County:	Box Butte
Study ID:	091013201301
Objective:	To determine & document the effect of an Crary Wind System on the harvest losses in dry bean production.
Treatments:	Check (7.5 & 15 spacing) Air Reel (7.5 & 15 spacing)

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Diamond Hill Farms, Direct Harvest with and without Crary Wind System, 2013

Box Butte County, NE

The purpose of this On Farm Study is to compare direct harvest of dry edible beans using an appropriate combine head, with and without the wind generated with the Crary Wind System. The Study was conducted with a 2012 John Deere 635 Hydraflex Combine Head which is a 35 foot wide flex draper head. This head was mounted on a 2010 John Deere 9770 Combine. The head was equipped with a 2012 Crary Wind System. This wind system directs powerful air flow just in front of the sickle bar back toward the draper system through multiple drop pipes along the front edge of the head. This air flow is intended to help move the harvested crop back away from the sickle onto the draper feed. The treatments were applied to beans planted in 15 inch rows and drilled in 7.5 inch rows in a split field study.

The study was conducted on a center pivot irrigated field of Aries variety great northern beans divided in half. Half the field was planted with a John Deere Maximerge planter set up for 30 inch row spacing. The beans were planted into 15 inch rows using two passes with the planter. The other half of the field was planted with a Sunflower grain drill in 7.5 inch rows. The 15 inch planting was planted at a population of 120,000 seeds per acre, and the 7.5 inch drilled beans were at 140,000 seeds per acre. The 15 inch beans were planted June 1, and the 7.5 inch beans on June 2. Pre-harvest pod heights were taken on Sept. 5 to determine the percentage of pods that were in their entirety more than two inches above the soil surface. Low hanging pods increase harvest loss when using direct harvest. Percentage of pods more than two inches off the soil surface were 77.2% for beans planted in 15 inch rows, and 78.4% for beans planted in 7.5 inch rows.

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Diamond Hill Farms, Direct Harvest with and without Crary Wind System, 2013 (cont.)

Fertilization, Herbicides, Fungicides and watering were the same over all treatments. Gramoxone was used as a harvest aid desiccant and flown onto the field halves Sept. 1 and Sept 8 for the 15 inch rows and 7.5 inch rows respectively.

The study was laid out as a randomized complete block design with two treatments replicated four times. The treatments were direct harvest with and without the wind generated by the Crary Wind System. This design was applied in both the 15 inch and 7.5 inch row width field halves. Rep two was omitted in the 15 inch plot area because of a sampling error. Direct harvest of the 15 inch beans was on Sept. 6, with ft^2 harvest loss counts on Sept 7. The 7.5 inch drilled beans were harvested on Sept. 11, with loss counts on Sept 12. The plot area was 300 feet by 70 feet. The yield monitor on the combine was calibrated before harvest. The yield in each plot area was determined by getting 20 separate readings from the yield monitor in the 300 foot plot length as the combine traveled through the plot. Each plot consisted of a round harvesting in both directions to eliminate potential directional differences in yield or harvest loss. Harvest loss was estimated by counting 12, $1ft^2$ sample counts from the harvested plot area, and taking these counts equally from the center and both ends of the combine pass.

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Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska–Lincoln cooperating with the Counties and the United States Department of Agriculture.

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Information: 2013 Dry Beans - Crary Wind Systems

Aries, northern 7.5 inch 140,000 2-Jun-13, 1.5 inch depth
Aries, northern 15 inch 120,000 1-Jun-13, 1.5 inch depth
Drilled dry beans much higher ylds but not directly comparing 7.5" vs. 15".
7.5" NS air off vs. air on (4 reps). 15" NS air off vs. on (3 reps).
Compaction a concern when drove over 30" spacings to create 15" rows?
Crop Rotation: Corn, beans, wheat

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Results: 2013 Dry Beans - Crary Wind System

	Yield 7.5"	Yield 15"	Loss 7.5"	Loss 15"
Check	63.1 A	36 A	6.8 A	13.2 A
Crary Wind System	62.3 A	39.1 A	5.3 A	10.2 A
Prob>/T/	ns	ns	ns	ns

Harvest: **15 inch** 6-Sep-13
Harvest: **7.5 inch** 11-Sep-13

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***OFRN* Summary:** Dry Beans - Crary Wind System

(2013) Using the Crary Wind System did not result in significant differences in either yield or harvest loss in dry beans planted in 7.5 or 15 inch rows. The beans planted in 7.5 inch rows visibly yielded more and had less harvest loss than the 15 inch planting. The beans planted in 7.5 inch rows were seeded at 140,000 seeds/ac and those in 15 inch rows at 120,000. Harvest conditions when the 7.5 inch beans were harvested were around 72° F with high humidity. Harvest conditions for the 15 inch row beans were 95 ° F with a breeze and low humidity. Extreme hot and dry conditions are more conducive to pod shatter and higher harvest loss.

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