Nebraska On-Farm Research Network

Years:	2013
Title:	Direct Harvest Variety Trial
Crop:	Dry Beans
County:	Box Butte
Study ID:	015013201301
Objective:	To determine and document varietal harvest loss in dry bean direct harvest.
Treatments:	Santa Cruz LaPaz Monterrey

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Information: 2013 Dry Bean Direct Harvest

The purpose of this study was to compare 3 different Pinto bean varieties in a direct harvest bean production system looking at both yield and harvest loss. Traditionally dry beans are harvested in a three step process starting with cutting, then windrowing and finally combining. Direct harvest is simply one pass through the field with the combine. A good upright bean variety, proper level field conditions and a combine header suitable for direct harvest are essential to minimize harvest loss and economically justify direct harvest.

This study evaluated three Pinto bean varieties, all suitable for direct harvest. The varieties: Santa Cruz, LaPaz and Monterrey were replicated four times in plots 770 by 40 ft. The plots were planted in a randomized complete block design on June 7 with a Sunflower double disk drill with 7.5 inch row spacing. Stand counts were taken on June 28 when beans were approximately 3 inches tall. The plots were all fertilized, sprinkler irrigated and treated identically. The pre-emergent herbicide Outlook with post emergent application of Raptor and Result were applied to the entire field with average weed control. Fungicides and copper were applied to manage fungal and bacterial disease potential. Gramoxone was applied Sept. 3 as a pre harvest desiccant. Pod height measurements to determine the percent of pods above 2 inches were taken on Sept 9. Low hanging pods are a major cause of harvest loss in this process.

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Information: 2013 Dry Bean Direct Harvest

(Continued)

The plots were harvested on Sept. 18 using a Gleanor R76 combine equipped with a MacDon FD70, 35ft draper header. The center 35 feet of the 40 foot plot was harvested. The harvested plot area was 0.62 acres per treatment per rep. The beans from each plot were weighed using a Parkan Weigh Wagon. Nine square foot counts along the plot area were taken the day of harvest to estimate harvest loss during combining. A sample of beans was taken from each plot and analyzed for quality by Kelley Bean Company in Alliance. All bean samples graded USDA #1, and the moistures were between 12 and 13.9%. The dry beans direct harvested in the surrounding field were Pinto variety Sinaloa with an average yield of 50 bu/ac.

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Results: 2013 Dry Bean Direct Harvest Loss

	Yield	Moisture	Plant Population	Harvest Loss	Pod Height
LaPaz	51.8 A	12.5 B	125k AB	2.83 AB	97.3 A
Monterrey	51.3 A	12.3 B	134k A	2.23 B	96.1 AB
Santacruz	48.3 B	13.1 A	118k B	3.13 A	95.5 B
Prob>/T/	0.0198**	0.0064***	0.0691*	0.0633*	0.0314**

Plant Population - Growing season plant population. (June 28)
Harvest Loss - Beans remaining on ground after harvesting. (bu/acre)
Pod Height - Percent of pods greater than 2" above the soil.

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Dry Bean Direct Harvest Loss

Summary:

(2013) LaPaz, Monterrey, and Santa Cruz are all Pinto dry bean varieties with upright characteristics suitable for direct harvest. There were significant differences between treatments but not large differences. With Pinto beans at $40 per cwt at harvest the yield difference of 3.5 bu/ac amounts to $84 per acre. Harvest loss differences amounted to $22 per acre. Differences in pod height above the soil existed. This characteristic can be very important in minimizing direct harvest loss.

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