Yield Evaluation of Low Linolenic vs. Conventional Soybeans

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Objective

The objective of this trial was to compare yield and economic benefit of low linolenic soybeans to conventional soybeans.

Background

Crop Year:	2008	Herbicide:	
Cooperator:	Farm Focus/Marsh Foundation	PREPLANT:	Authority First at 3.2 oz/A +
County/Town:	Van Wert/Van Wert	(May 1)	Rage-D Tech at 0.75 pt/A +
Soil Type:	Hoytville silty clay loam, Haskins loam, Digby loam		Glyphomax XRT at 1.5 pt/A + AMS at 17lb/100 gal
Drainage:	Non-systematic tile	POST:	Durango DMA at 1.5 pt/A +
Previous Crop:	Corn	(July 1)	AMS at 17lb/100 gal
Tillage:	No-till	Row Width:	15 inch
Soil Test (2005):	pH 6.5, P 68 ppm, K 159 ppm	Planting Rate:	200,000 seeds/A
Fertilizer:	None	Planting Date:	May 28, 2008
Variety:	Variable- see Methods	Harvest Date:	October 13, 2008

Methods

This trial was designed with three low linolenic acid soybean varieties, and two conventional soybean varieties of similar genetics replicated six times in a complete randomized block design. All 5 varieties used in the study had no seed treatments applied. The five varieties were:

1. Asgrow 3101
2. Asgrow 3302
3. Asgrow 3121V
4. Asgrow 3122V
5. Asgrow 3521V

"V" after number denotes a low linolenic acid variety

Plots were planted using a John Deere 7000 Maxemerge six row planter equipped with a five row splitter attachment for a row spacing of 15 inches. Plot size was 27.5 feet wide by 337 feet long.

Harvest populations were estimated on September 26 by counting the number of plants on each side of a 10 foot section of row at three different locations in each plot. The average number of plants counted per 10 feet was converted to plants per acre. Yield data was collected by harvesting the entire plot. Grain weights were measured with a calibrated weigh wagon and grain moistures were taken from the combine yield monitor. Yields are adjusted to 13% moisture.

Results

Table 1. Harvest population, moisture and yield means[1] for each variety.

Variety	Harvest Population	Moisture	Yield
	(plants/A)	(%)	(bu/A)
Asgrow 3101	127,400	12.5 ab	57.1
Asgrow 3302	128,700	12.5 ab	58.7
Asgrow 3121V	127,900	12.6 a	56.8
Asgrow 3122V	125,500	12.2 c	56.3
Asgrow 3521V	130,500	12.4 b	55.0
LSD (P=0.05)	NS	0.1	NS
CV (%)	7.1	<1	5.4

[1] Means followed by the same letter in the same column are not significantly different from each other based on Fisher's protected LSD.
NS = not significant

Summary

Results from this trial indicate there were no significant differences between the five different soybean varieties for yield or harvest population. Moisture was statistically different between the varieties, but did not correlate to maturity or the low linolenic acid trait. Farmers may be able to receive a $0.50-0.60 per bushel premium for delivering low linolenic acid soybeans. Farmers do not have to pay additional fees to plant low linolenic acid soybeans, therefore, there is an economic advantage to low linolenic acid soybeans that yield comparably to conventional soybeans. However, there may be special post-harvest handling requirements for planting low linolenic acid soybeans.

These results contradict 2007 Farm Focus results that conventional soybeans provided a statistically significant yield advantage compared to low linolenic acid soybeans (http://farmfocus.osu.edu/lowlin_beans-07.pdf). The varieties were different for each test year. This year's results may also indicate low linolenic acid soybean genetics are improving.

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