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## Low Linolenic Acid Soybean Variety Trial

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# Low Linolenic Acid Soybean Variety Trial

## **Abstract**

Major food providers such as Wendy's and Applebee's are switching to zero trans fats in their cooking oil. Trans fats, which do not normally exist in vegetable oils, are formed during the process of partial hydrogenation. New soybean varieties, which produce an oil that is superior to alternative non-hydrogenated oils high in unhealthy saturated fats, have become available. These varieties have a lower percentage of linolenic acid than conventional varieties and command a premium price. This study was conducted to determine if low linolenic (low-lin) varieties yield as well as conventional varieties.

## **Keywords**

Agronomy, Plant Pathology

## **Disciplines**

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Plant Pathology

## Low Linolenic Acid Soybean Variety Trial

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spacing of 30 in. The seeding rate was 10 seeds/ft. The center two rows were harvested using a self-propelled research plot combine. Total seed weight and moisture were measured on the combine during harvest and subsequently converted to bushels/acre at 13% moisture.

### Introduction

Major food providers such as Wendy's and Applebee's are switching to zero trans fats in their cooking oil. Trans fats, which do not normally exist in vegetable oils, are formed during the process of partial hydrogenation. New soybean varieties, which produce an oil that is superior to alternative non-hydrogenated oils high in unhealthy saturated fats, have become available. These varieties have a lower percentage of linolenic acid than conventional varieties and command a premium price. This study was conducted to determine if low linolenic (low-lin) varieties yield as well as conventional varieties.

### Materials and Methods

Comparable low-lin and conventional varieties in a range of maturities were obtained from three seed companies and the ISU breeding program. Seven varieties with low linolenic acid content and six conventional varieties were planted in four-row plots 12 ft long with a row

### Results and Discussion

The 2.5 maturity and later varieties yielded less than the earlier varieties. On September 15, the latter varieties had not lost all their leaves and there was a frost that may have reduced their yield. In the 2.0 to 2.4 maturity range there were no differences in yields between low linolenic varieties and the conventional varieties. The average of the low-lin varieties was only 0.25% less than the average of the conventional varieties. In the 2.5 maturity range the two low linolenic variety yields did not differ statistically from the conventional variety (only 4% less). Within a maturity class there was more variation between varieties within each type than between types.

### Acknowledgements

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**Table 1. Low linolenic soybean variety trial.**

Variety	Yield (bu/A) <sup>1</sup>	Maturity	Cyst resistance
Low linolenic			
Latham E2238V	63.6abcd	2.1	no
Latham 2353V	66.4ab	2.3	no
Prairie Brand 2377VN	64.3abc	2.3	yes
Asgrow 2423V	67.5a	2.4	yes
Prairie Brand 2517VN	58.8e	2.5	yes
IA 2078	59.3de	2.5	no
Prairie Brand 2737VN	61.1cde	2.7	yes
Conventional			
Latham 2038R	67.0a	2.0	yes
Latham 2136R	63.7abcd	2.1	no
Prairie Brand 2183NRR	64.1abc	2.1	yes
Latham 2336R	67.0a	2.3	no
Asgrow 2406	66.8a	2.4	yes
Latham 688	61.8bcde	2.5	yes
LSD <sub>(P=0.05)</sub>	4.8		

<sup>1</sup>Yield means with any letter in common are not statistically different from one another.