

Soybean Productivity on Raised Seedbeds

2014

Objectives

- Evaluate soybean yield and response when grown on raised seedbeds compared with conventional tillage in flat land areas prone to soil water logging.
- Assess the effect of tile drainage on soybean production.

Study Description

Plot Layout: 4-row randomized plots

Replicates: 4 per location

Factors: Raised seedbed vs. flat
Tile drainage vs. no tile drainage

2012 Raised Beds Locations: Fargo and Prosper, ND, Hitterdal, Rothsay, and Barnesville, MN.

2013-2014 Raised Beds Locations: Fargo and Casselton, ND.

2011-2014 Tile Drainage Location: Fargo, ND.



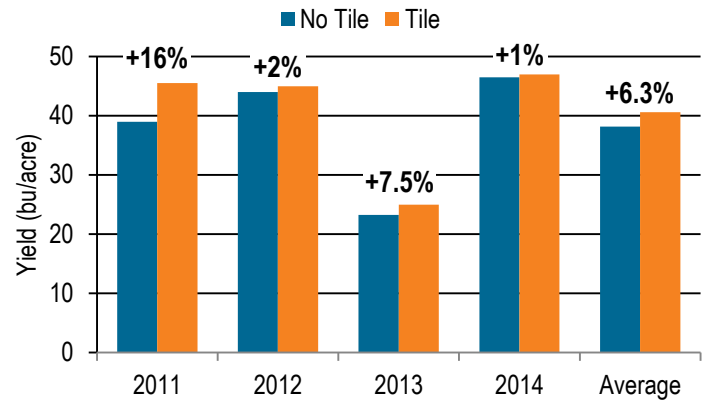
Raised bed



Flat

Results

- In 2014, when averaged across three locations, a significant difference was observed in stand count, vigor, iron chlorosis score, height, and yield between soybean grown on raised beds compared to flat land.
- These results are similar to trends observed in 2013.
- During the dry 2012 growing season, there were no yield differences observed between raised beds and flat land.
- Tile drainage did not significantly affect yield in 2012 or 2014.
- On average, tile drainage resulted in a 6.3% yield increase over the 2011-2014 period.



Tillage	Stand Count	Vigor ¹	IDC ²	Height
	plants/acre	1-9	1-5	cm
Flat	109,850	4.8	2.4	58.5
Raised bed	136,850	5.7	2.2	61.6
LSD (<i>P</i> =0.10)	7,525	0.8	0.15	2.7

¹ Vigor: 1 is poor, 9 is best.

² Iron deficiency chlorosis: 1 is green plant tissue, 5 is dead tissue.

Tillage	Yield 2012 ¹	Yield 2013 ²	Yield 2014 ²
	bu/acre	bu/acre	bu/acre
Flat	44.6	30.3	49.7
Raised bed	44.4	33.4	51.7
LSD (<i>P</i> =0.10)	NS	2	1.8

¹ Averaged across 5 locations.

² Averaged across three locations: Fargo (tile), Fargo (no tile), and Casselton.