2016 Field Rolling Trial

Purpose: Field rolling is a common practice on many farms in Michigan. Its appeal is largely due to the fact that rolling reduces stone damage to combines and operator fatigue during harvest operations. Most producers roll soybeans after planting and prior to emergence. This is a very narrow window in some years and producers are wondering if they can safely roll soybeans during the early vegetative stages. There is also growing speculation that rolling soybeans between the V1 and V3 stages may stress the plants and actually increase yield. The purpose of the 2016 field roller trials was to determine the effect of field rolling at various growth stages on soybean yields.

Procedure: Field rolling trials were conducted at seven locations in 2016. The cooperating producers were encouraged to choose the rolling treatments they wanted to compare on their farms (table 1). Stand counts were taken in all treatments at four of the seven locations to determine if rolling affected final stand.

Table 1. The effect of field rolling at various growth stages on soybean yield in 2016

Location	Unrolled control	Pre-emerge	First trifoliate	Second trifoliate	Third trifoliate	LSD $_{0.10}$
	---------- Yield (bu/ac) ----------					
Bay	68.0 b	68.0 b	71.9 a			1.5
Lenawee	60.0 b	63.6 a	62.8 a			2.4
Monroe 1	54.7			55.6		7.8
Monroe 2	54.3				54.8	1.2
Monroe 3	69.8		70.2			3.2
Tuscola	78.7	79.6	79.8			1.7
Sanilac		61.5 b	67.6 a		60.7 b	5.0

Table 2. The effect of field rolling at the V1 growth stage on soybean yield, income and final stand in 2016

Location	Unrolled control	First trifoliate	LSD $_{0.10}$	Yield difference	Unrolled control	First trifoliate	LSD $_{0.10}$
	----- Yield (bu/ac) -----			Yield (bu/ac)	Final stand (plants/ac)		
Bay	67.9 b	71.9 a	2.4	4.0	127,200	123,900	6,874
Lenawee	60.0	62.3	3.1	2.3	98,100	103,000	31,269
Tuscola	78.7	79.8	1.1	1.1	87,900	85,500	7,606
Monroe 3	70.2	69.8	3.2	-0.4	--	--	--
Average	**69.3 b**	**70.9 a**	**1.3**	**1.6**	**104,600**	**104,000**	**6,144**
	------- Income ($/ac) -------						
Average income	**$638**	**$644**					

Field rolling cost = $7.90 per acre

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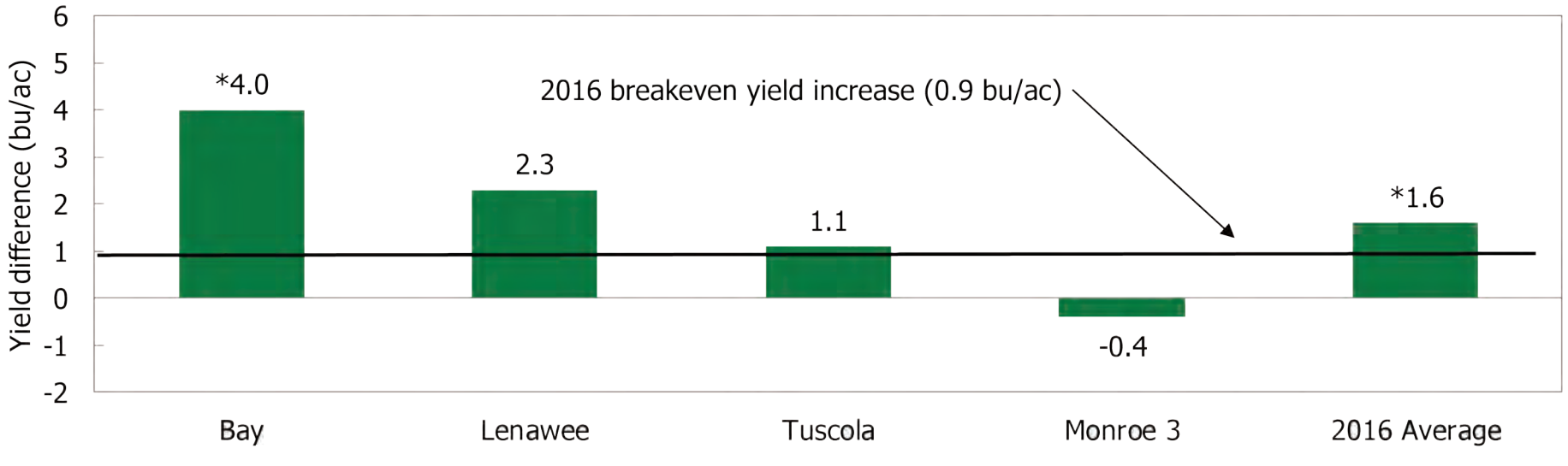
Results: Field rolling did not adversely affect soybean yields at any of the six locations that included an unrolled control treatment. In fact, rolling at the V1 stage increased yields by 4 bushels per acre at the Bay County location and by 2.8 bushels per acre at the Lenawee site (table 1). The pre-emergence treatment also increased yields by 3.6 bushels per acre over the unrolled control in the Lenawee trial. Table 2 and figure 1 summarize the four sites that compared an unrolled control to rolling at the V1 stage. When all four sites were combined and analyzed, rolling at V1 increased soybean yields by 1.6 bushels per acre and income by $6.00 per acre. Final plant stands were not affected by rolling at any of the sites in 2016 for which this information was collected (table 2).

We want to thank the Center for Excellence, Martin Nagelkirk and Ned Birkey for coordinating these trials.

2016 Field rolling trial locations

Figure 1. Yield difference produced by field rolling at the V1 growth stage in 2016



* The yield difference was statistically significant at this location