

Snap Bean Project(amended insert)

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Objectives:

D: To determine the effect of row spacing and weed management on snap bean production.

Methods:

D: A trial was established at the OSU vegetable research farm to determine what effects row spacing has on crop yield, bean plant biomass, and weed biomass in snap beans. The trial was planted on 6/13/90 and harvested on 8/9/90 and 8/10/90. Treatments are listed in table 8. Weed control was evaluated using bean yield, bean plant biomass, and weed biomass as parameters.

Table 8. The levels of row spacing and weed interference used to determine the treatments used in the trial. "T" symbolizes treatment and the number following "T" is the treatment number (T1 is treatment number 1).

Weed Interference Levels	Row Spacing Levels (in.)			
	8	16	24	32
Weed removal done throughout trial	T1	T5	T9	T13
Weed removal first 3 weeks after bean emergence	T2	T6	T10	T14
Weed removal after 3 weeks after bean emergence	T3	T7	T11	T15
No Weed removal	T4	T8	T12	T16

Snap Bean Yield. Row spacing and weed interference levels were independent of each other in the trial with respect to snap bean yield (no interaction). However, there appears to be a trend that shows that as row spacing increases, yield increases (Table 9). All weeded treatments yielded higher than nonweeded treatments. There were no yield differences between those plots kept weed free throughout the trial and those that were only partially weeded. Therefore, the first flush of weeds is not competitive with the crop if it is removed within the first three weeks after bean emergence. The second flush of weeds did not compete with the bean plants (Table 10).

Table 9. Snap bean yields with respect to row spacing.

Row Spacing (inches)	Bean Yield (Tons/Acre)
8	5.3
16	6.3
24	6.3

32

7.4

Table 10. Snap Bean yields with respect to level of weed interference.

Weed Interference Levels	Bean Yield (Tons/Acre)
Weed removal done throughout trial	7.1
Weed removal first 3 weeks after bean emergence	6.5
Weed removal after 3 weeks after bean emergence	6.6
No Weed removal	5.0

Entire Bean Plant Yield. Row spacing and weed interference levels had no effect on each other with respect to bean plant biomass (no interaction). Weeded treatments yielded more biomass than nonweeded treatments. There was no difference in biomass between treatments weeded throughout the trial and those partially weeded. Therefore, as with bean yield, if the first flush of weeds is removed within three weeks, there is no effect on bean plant biomass (Table 11). And, the second flush of weeds does not compete with the bean plant.

Table 11. Bean plant biomass with respect to level of weed interference.

Weed Interference Levels	Bean Plant Biomass (Tons/Acre)
Weed removal done throughout trial	15.5
Weed removal first 3 weeks after bean emergence	14.4
Weed removal after 3 weeks after bean emergence	14.7
No Weed removal	11.5

Weed Fresh Weight Row spacing and weed interference levels did not interact with respect to weed biomass. All weeded treatments had were significantly different from the nonweeded treatments (Table 12). Removing the first flush of weeds within three weeks had the same effect as keeping the plot weed free (Table 12). It appears that weeds do not compete with bean plants for resources up to three weeks after bean emergence. And, beans are able to compete effectively against weeds that emerge in the second flush.

Table 12. Weed biomass with respect to weed interference levels.

Weed Interference Levels	Weed Biomass (Tons/Acre)
Weed removal done throughout trial	0.1
Weed removal first 3 weeks after bean emergence	0.3
Weed removal after 3 weeks after bean emergence	0.2
No Weed removal	4.3