STIMULATING SOYBEANS TO INCREASE YIELD BY TERMINAL PRUNING

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SUMMARY:

In an evaluation to determine if terminal or tip pruning the growing point of soybeans could stimulate the plant to set and hold more pods thereby increasing yields, mixed results were achieved. The replicated line-trimmer pruning trials reduced yields to either 0 or near 0 bu/ac when pruned at the V7 - R1 stage of growth or at first flower. At the R3 stage, yields were reduced slightly by terminal pruning. But when hand pruned without removing any extra leaves at the early and later stages (in an unreplicated trial), yields were above any untreated check and nearly double the check.

OBJECTIVE:

Some farmers' stories from days gone past said that mechanically injuring the growing soybean plant could cause the plant to put on and hold more beans and increase yield. This demonstration is conducted to determine if pruning the growing point of soybeans at various growth stages can stimulate the plant to set and hold more pods and increase yield.

MATERIALS and METHODS:

Northrup King RA 452 soybeans were planted on April 2, 2005 at the seeding rate of 138,000 seeds per acre. Seeds were bulk inoculated by Helena Chemical Company with Lipha-Tech Optimizer. No fertilizer or insecticide was applied to this demonstration. Boundary 6.5 herbicide was applied banded at the rate of 1 pt/ac broadcast.

Two rows of thirty foot plots were tip pruned removing the terminal growing point with a line trimmer at three different dates: May 5, 2005; May 23, 2005 and June 9, 2005. Only the upper two inches of the terminal growth and surrounding leaves were removed by the line trimmer. Plots were replicated three times. (One additional plot was hand tip pruned (verses using a line trimmer) at the second and third pruning dates to minimize leaf loss and evaluated if the leaf loss with a line trimmer adversely affected yield.)

Harvest was accomplished on two dates, August 2 and August 22, 2005 with a two row research combine.

RESULTS and DISCUSSIONS:

The soybean plant stages when terminal pruning occurred were noted as in Table1. The soybean plants were reduced in height at the terminal pruning time and did result in an overall lower plant height at harvest compared to the untreated check. Some extra lower branching did occur due to the terminal pruning. Stink bug pressure was heavy in the plots affecting yield especially with the delayed maturity of the pruned plots. As a result yields were extremely low and the data is not only representative of the pruning practice but of insect damage due to delayed maturity which may be greater.

In the unreplicated plots that were hand tip pruned, yields were nearly double that of the untreated check. It is unsure what caused the big yield difference but it occurred both at the May 23 and June 9 hand terminal pruning.

Table 1. Soybean plant growth and yield characteristics due to terminal pruning to alter yield. Raymond Brandl, Victoria County, TX, 2005.

Terminal Pruning Date	Plant Pruning Timing			Harvest Results	
	Stage	Height	Plant Description	Plant Height	Yield Bu/Ac
May 5	V2	7	Second node formed	38	0.7
May 23	V7 - R1	16	First open flower	38	0.0
May 23 a)	V7 - R1	16	First open flower	44	22.9
June 9	R3	28	3/16 inch pod at one of the four uppermost nodes with a fully developed leaf	38	10.5
June 9 a)	R3	28	3/16 inch pod at one of the four uppermost nodes with a fully developed leaf	46	20.2
CHECK	-	-	-	46	12.4

a) Soybean terminals only were hand pruned (no leaves); unlike the other plots with the top 1 inch of the stem and surrounding leaves cut off with line trimmer. Plots with an a) were not replicated 3 times like the remainder of the plots.

ACKNOWLEDGMENTS:

Appreciation is expressed to Raymond Brandl, cooperator and to James Grichar, Texas Ag. Experiment Station, Research Scientist.

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