

EFFECTS OF GREEN-SOL PGRs ON THE PHYSIOLOGY AND YIELD OF COTTON 2000 -2001
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Abstract

SUL-15 PLUS, GREEN-SOL 48, and GREEN-SOL 70 are EPA registered products of GREEN-SOL Inc. headquartered in Ozark, Alabama. SUL-15 PLUS contains Gibberellic Acid (GA₃), GREEN-SOL 70 contains Kinetin [N-(2-Furanyl methyl)-1-H-Purin-6-amine], and GREEN-SOL 48 contains a combination of both GA₃ and Kinetin. GA₃ is used to create a healthier plant and the Kinetin to stimulate the reproduction of the plant. Tests were conducted in several different formats in an attempt to identify various methods and times of application these products should be used to enhance yields. Most of the tests included the use of mepiquat chloride (MC) along with the GREEN-SOL products. All of the tests were in field plots where the crops were grown under realistic field conditions. This was done to determine whether a farmer and/or consultant could use the products easily with positive results. The farmer and/or consultant determined the fertility program, weed management program, and pest management program. The plant growth regulator program used followed the locally accepted production practices. The normal consultant plant growth regulator program was used as the control. The GREEN-SOL products were added to that program in various ways to evaluate the GREEN-SOL products. All of these tests resulted in increases in yield of lint per acre.

Results and Discussion

Trial 1

RESULTS OF REPLACING 1/2 OF MEPIQUAT CHLORIDE WITH SUL-15 PLUS

NED SCONYERS FARM

CLAYHATCHEE, ALABAMA

Conducted by Bo Deloney of Helena Chemical Company

This trial evaluated the use of mepiquat chloride alone (treatment # 2) and 1/2 the rate of mepiquat chloride with an equal amount of SUL-15 PLUS (treatment # 3). The field received the normal cultural practices. Treatments of the GREEN-SOL product were started just prior to Pinhead Square and consisted of:

- Treatment # 1 Check (no PGRs)
- Treatment # 2 Normal consultant recommended rates of mepiquat chloride (8 ozs)
- Treatment # 3 Normal consultant recommended rate of mepiquat chloride cut in half (4 ozs) and replaced with equal amounts of SUL-15 PLUS (4 ozs)

Growing conditions were excellent, adequate rainfall was received throughout the season. Soil was a sandy loam that was soil tested and fertilized accordingly. The cotton was DPL 5690 RR and was planted the first week of May.

A random block design method of measurement was used to evaluate yields. Thirty randomly selected blocks of 10 row feet from a grid of 100 blocks were hand harvested and weighed. A gin out factor of 37% was used to determine the lint per acre yield.

Results:	Treatment # 1	Treatment # 2	Treatment # 3
	727 lbs. Lint/A	993 lbs lint/acre	1,051 lbs lint/acre

The replacement of 1/2 of the mepiquat chloride with an equal amount of SUL-15 PLUS resulted in a yield increase of 58 lbs of lint per acre with no visual difference of height over the full rate of mepiquat chloride.

Trial 2

USE OF 1 APPLICATION OF SUL-15 PLUS & GREEN-SOL 70 WITH GLYPHOSATE

FREEMONT, NORTH CAROLILNA

Conducted by Eric DuBoise of Helena Chemical Company

This trial evaluated the use of 1 pint of SUL-15 PLUS and 1/2 pound of GS 70 per acre at the 5-leaf stage mixed with glyphosate. The field also received the consultant recommended rate of mepiquat chloride along with the farmer's normal farming practices.

Untreated	Consultant recommended rates of mepiquat chloride (10 ozs total) and glyphosate
Treated	1 pint SUL-15 PLUS and 1/2 pound of GREEN-SOL 70 applied with glyphosate and the consultant recommended rate of mepiquat chloride (10 ozs total) at the 5-leaf stage.

Growing conditions were good. Rain was adequate until just prior to the application of mepiquat chloride, glyphosate, and GREEN-SOL products. It did not rain again for 4 weeks. The cotton was DPL 436 RR and was planted mid May. The soil type and growing conditions were consistent throughout the field.

The farmer picked the plot with a 4 row John Deer spindle picker. There were 28 rows treated in the field. A total of 5600 row feet of both treated and untreated cotton were picked and weighed in a boll buggy using a set of portable DOT scales. A gin out factor of 37% was used to determine the lint per acre yield.

Results:

Untreated	Treated
1180 lbs lint/acre	1230 lbs lint/acre

This test resulted in a 50# per acre yield increase on the treated cotton. After harvest, the plots were evaluated for other potential yield indications. There were 2 bolls per row foot in the untreated that were large enough to open in the next 2 weeks compared to 10 bolls per row foot in the treated plot of the same size. The farmer made the harvest decision based on the majority of the field that needed to be harvested. It was not feasible to leave the 28 rows of the treated and come back later to harvest it. If the bolls had been allowed to open the yield would very likely have been much better on the treated plot. It appeared that after the 4 weeks of drought ended and the rain returned that the GREEN-SOL treated plot fruited longer than the mepiquat chloride only plot.

Trial 3

RESULTS OF SEVERAL GREEN-SOL PRODUCTS ALONG WITH MEPHIQUAT CHLORIDE

AGRI SERVICES, LTD.
 VIDALIA, LOUISIANA
 River View Farms
 Conducted by Cecil Parker

This trial conducted during the 2000 crop year evaluated the use of several applications of, GREEN-SOL 3-12-3, GREEN-SOL SUL-15 PLUS, GREEN-SOL 70, and 13-0-46 along with mepiquat chloride. The normal accepted and consultant recommended cultural practices were used in the untreated plots. The treated plots received the same treatments as the untreated until it was time for plant growth regulators to be applied. At that time the GREEN-SOL program was used. This was a small plot replicated trial using 4 rows each 50 feet long. The soil was commerce silt loam. DPL-451 BG/RR cotton was planted on May 9, 2000.

Treatment:

Treatment # 1	Treatment # 2	
Grower Standard	GREEN-SOL Program	
21 ozs mepiquat chloride	8 ozs of mepiquat chloride	30 ozs of GREEN-SOL 70
	4 ozs GREEN-SOL 3-12-3	16 ozs of SUL-15 PLUS
	6 lbs of 13-0-46	

Growing conditions were fair with low rainfall. The center two rows of each plot were machine harvested and weighed. A gin out factor of 35 % was used to determine the lint per acre yield.

Results:

Treatment # 1	Treatment # 2
Grower Standard	GREEN-SOL Program
686.42 lbs lint/acre	861.05 lbs lint/acre

The use of the GREEN-SOL program resulted in a 174.60 lbs of lint/acre increase in this trial.

Conclusion

In conclusion, the use of GREEN-SOL products tended to produce more cotton with a positive economic benefit to the farmer. However, the increases in yield were not statistically significant in most cases. The farmer was able to fit the GREEN-SOL products into their farming operations with some modifications to their normal programs without problems. The positive economic benefit after considering any additional inputs and/or application costs is as follows:

Trial # 1	A positive return of \$29.00 per acre at \$.50 per lb of lint.
Trial # 2	A positive return of \$12.25 per acre at \$.50 per lb of lint.
Trial # 3	A positive return of \$40.00 per acre at \$.50 per lb of lint.

We believe that cotton growers can benefit from the use of GREEN-SOL products.