

Herbicide damage guide for cotton

Photographs & material by:

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Herbicide: atrazine
Rate: 200 g a.i./ha
% of typical field rate: 10%
Date of exposure: 14th Oct
(pre-planting)
Growth stage at exposure:

<u>Damage key:</u>	
Leaf loss	
Leaf distortion	
Petiole distortion	
Plant stunting	x
Square shedding	
Boll shedding	

Herbicidal action

Herbicide group: C
Translocation: readily absorbed by roots and translocated to shoots, absorbed by leaves
Mode of action: inhibits photosynthesis
Residual activity: prolonged residual activity. Plant-back period may exceed 1-2 years depending on rate, soil moisture and temperature
Soil half-life: 60 days. Breakdown is slower in dry, alkaline soils and cold conditions.



Gesaprim® granules 900 WG (atrazine) applied broadcast at 220 g/ha and incorporated prior to planting cotton. Photo taken on 4th Dec, 42 days after emergence.

No symptoms of atrazine damage were apparent on these plants at any stage.

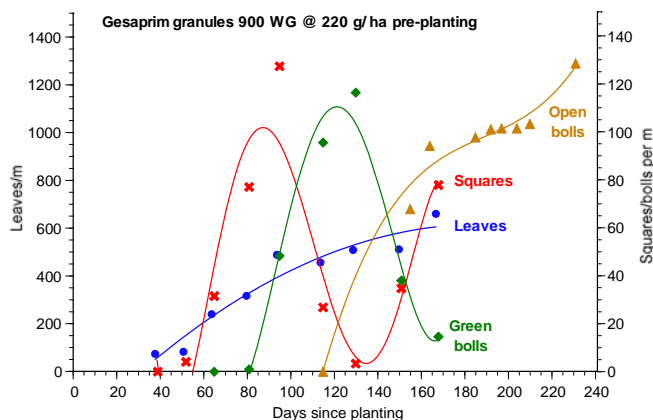
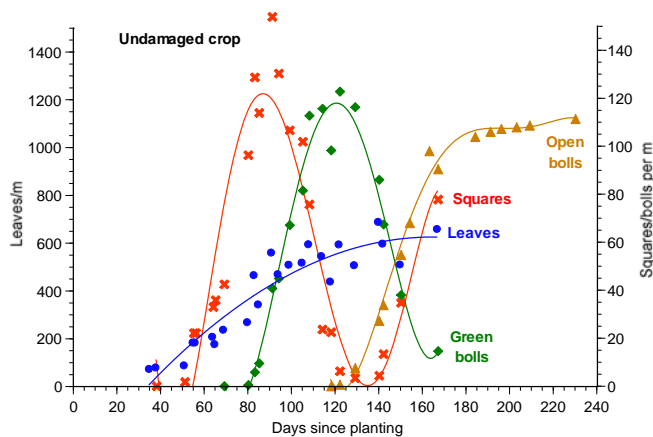


Untreated plants on 4th Dec. There was no visual difference between these and the plants exposed to the low rate of atrazine at planting.



Gesaprim® granules 900 WG (atrazine) applied broadcast at 220 g/ha and incorporated prior to planting cotton. Photo taken on 14th Jan, 83 days after emergence.

No symptoms of atrazine damage were apparent on these plants at any stage.



Impact on plant growth

Plants: exposed to the 10% rate of residual atrazine were 10 cm and 1 node shorter at picking.

Leaves: the atrazine had no observable impact on the cotton foliage. However, plants were affected season-long, with 17% fewer leaves and 19% less leaf area at the final observation.

Squares: there was no effect on square production.

Bolls: there was no apparent effect on boll production, retention or maturity. Most bolls (81%) were retained between nodes 6 and 19, a similar retention pattern to the undamaged crop.

Lint: ginning turnout and lint yield were unaffected by the herbicide damage, but the cotton fell below base grade, with 12.4% short fibres.

Final plant count data		
	undamaged	atrazine
Nodes/plant	30.9	29.9
Leaves/m*	543	453
Leaf area (cm²/m)*	23764	19203
Reduction in leaf area*		19%
Bolls/m	132	147
Boll weight (g/open boll)	5.3	5.2
Retention in posit's 1-3[^]	95%	96%
Nodes carrying >80% bolls[#]	7 - 18	6 - 19
Days to 50% open bolls	157	154
Maturity delay (days)		-
% Open bolls at picking	85%	87%
Lint yield/ha	2380	2309

Exposure to 10% of a typical field rate of residual atrazine caused only minor damage to the crop, but the crop was affected throughout the season, with a reduction in plant height, leaf number and leaf area.

There was no impact on boll retention, boll weight, crop maturity or yield, but fibre quality was reduced.

Nevertheless, the extent of early season damage from residual herbicides can be greatly influenced by early-season conditions. More damage may have occurred in a season where wetter and/or colder conditions followed planting.

Note* These parameters were last recorded 114 days after planting.

Note[^] Percentage of retained bolls in positions 1 – 3.

Note[#] The spread of nodes carrying more than 80% of open bolls.