

## Herbicide damage guide for cotton

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**Herbicide:** atrazine  
**Rate:** 1 kg a.i./ha  
**% of typical field rate:** 50%  
**Date of exposure:** 8<sup>th</sup> Dec  
(8 weeks post-emergence)  
**Growth stage at exposure:** 9 nodes

<b><u>Damage key:</u></b> <b>Leaf loss</b> <b>Leaf distortion</b> <b>Petiole distortion</b> <b>Plant stunting</b> <b>Square shedding</b> <b>Boll shedding</b>
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### 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 1.1 kg/ha to 9 node cotton. Photo taken on 15<sup>th</sup> Dec, 7 days after exposure.

There was no apparent damage on the plants 7 days after exposure.



Gesaprim® granules 900 WG (atrazine) applied broadcast at 1.1 kg/ha to 9 node cotton. Photo taken on 23<sup>rd</sup> Dec, 15 days after exposure.

Symptoms of atrazine damage were apparent on many of the expanded leaves 15 days after exposure. Damaged leaves had a mottled appearance, with patches of inter-veinal yellowing between green veins.



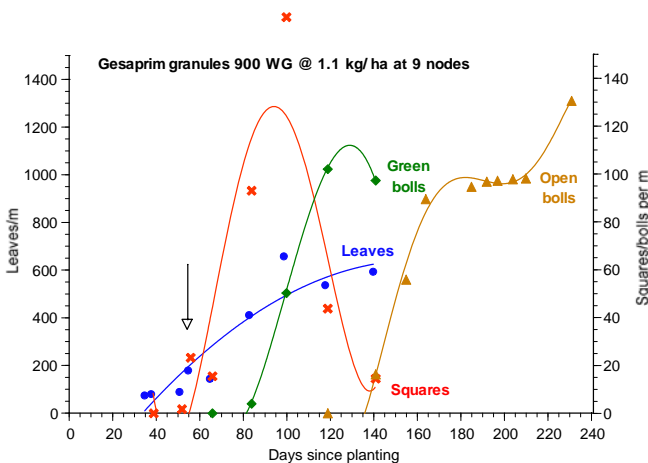
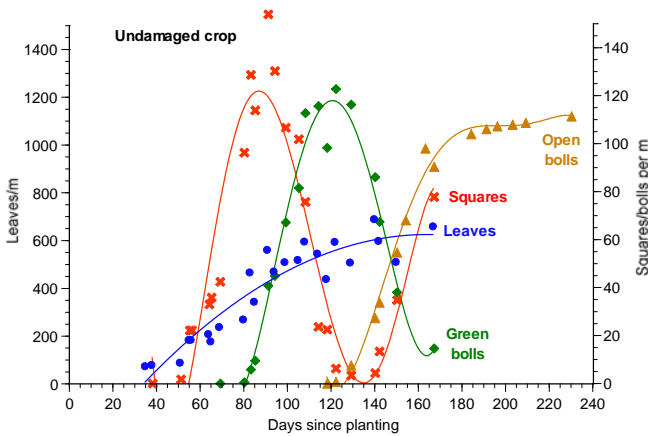
Gesaprim® granules 900 WG (atrazine) applied broadcast at 1.1 kg/ha to 9 node cotton. Photo taken on 5<sup>th</sup> Jan, 28 days after exposure.

Symptoms of atrazine damage remain apparent on many of the older, lower leaves, with patches of inter-veinal yellowing 28 days after exposure. However, plants appear to be unaffected by this damage, with no damage symptoms apparent on much of the plant.



Gesaprim® granules 900 WG (atrazine) applied broadcast at 1.1 kg/ha to 9 node cotton. Photo taken on 14 Jan, 37 days after exposure.

Symptoms of atrazine damage were still apparent on the lower leaves of these plants 37 days after exposure.



### Impact on plant growth

**Plants:** exposure to the 50% rate of atrazine at 9 nodes had no adverse impact on plant size, with plants on average 1.7 nodes and 7 cm taller than the undamaged plants at picking. However, there was an 80% increase in the percentage of tipped-out plants.

**Leaves:** inter-veinal yellowing was apparent on many of the exposed leaves, but there was no other obvious damage. Leaf production was largely unaffected. Plants had 14% fewer leaves at the last observation but there was no reduction in leaf area.

**Squares:** there was no apparent effect on square production.

**Bolls:** there was no adverse effect on boll production, the pattern of boll retention, boll weight or crop maturity, but plants retained an additional 20% (26 bolls/m) at picking.

**Lint:** there was no effect on ginning turnout, fibre quality or lint yield.

<b>Final plant count data</b>		
	<b>undamaged</b>	<b>atrazine</b>
<b>Nodes/plant</b>	30.9	32.4
<b>Leaves/m*</b>	687	590
<b>Leaf area (cm<sup>2</sup>/m)*</b>	23830	23282
<b>Reduction in leaf area*</b>		2%
<b>Bolls/m</b>	132	158
<b>Boll weight (g/open boll)</b>	5.3	5.1
<b>Retention in posit's 1-3<sup>^</sup></b>	95%	98%
<b>Nodes carrying &gt;80% bolls<sup>#</sup></b>	7 - 18	6 - 19
<b>Days to 50% open bolls</b>	157	156
<b>Maturity delay (days)</b>		-
<b>% Open bolls at picking</b>	85%	83%
<b>Lint yield/ha</b>	2380	2308

Exposure to 50% of a typical field rate of atrazine at 9 nodes caused extensive inter-veinal yellowing of many of the lower leaves and a small reduction in leaf area.

Plants compensated for this damage, with increased boll retention (the pattern of boll retention was unchanged). There was no delay in crop maturity or effect on boll size, lint quality or lint yield.

Note\* These parameters were last recorded 140 days after planting.

Note<sup>^</sup> Percentage of retained bolls in positions 1 – 3.

Note<sup>#</sup> The spread of nodes carrying more than 80% of open bolls.