

## Herbicide damage guide for cotton

Photographs & material by:

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**Herbicide:** **simazine**  
**Rate:** **1.5 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**

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

### Herbicidal action

**Herbicide group:** **C**  
**Translocation:** readily absorbed by roots and translocated to shoots  
**Mode of action:** inhibits photosynthesis  
**Residual activity:** prolonged residual activity. Plant-back period may be up to 1 year depending on rate, soil moisture, soil Ph and temperature  
**Soil half-life:** 55 - 186 days. Breakdown is slower in dry, alkaline and cold soils



Simazine granules 900 WG were applied broadcast at 1.65 kg/ha to 9 node cotton. Photo taken on 15<sup>th</sup> Dec, 7 days after exposure.

No symptoms of simazine damage were apparent at this stage, 7 days after exposure.



Simazine granules 900 WG were applied broadcast at 1.65 kg/ha to 9 node cotton. Photo taken on 23<sup>rd</sup> Dec, 15 days after exposure.

Symptoms of simazine damage were apparent 15 days after exposure, with mild inter-veinal yellowing apparent on some leaves.



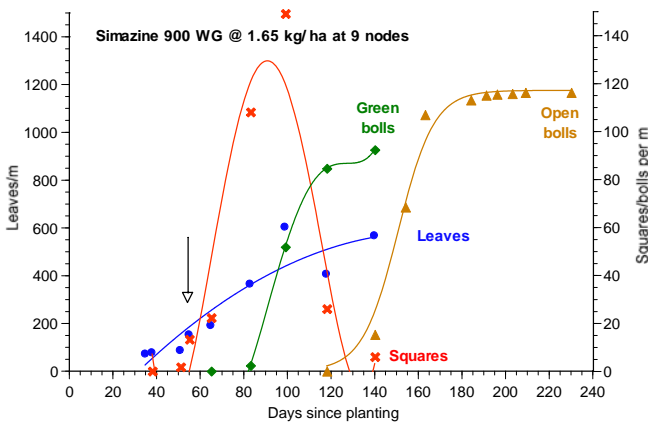
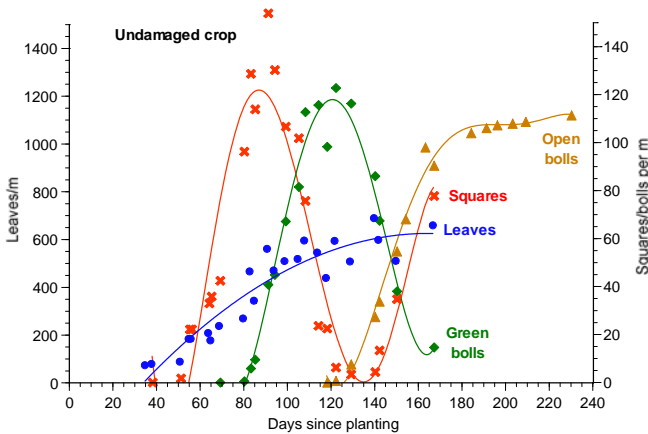
Simazine granules 900 WG were applied broadcast at 1.65 kg/ha to 9 node cotton. Photo taken on 5<sup>th</sup> Jan, 28 days after exposure.

Symptoms of simazine damage were still apparent on some leaves 28 days after exposure, with mild inter-veinal yellowing.



Simazine granules 900 WG were applied broadcast at 1.65 kg/ha to 9 node cotton. Photo taken on 5<sup>th</sup> Jan, 28 days after exposure.

This photo, taken at the same time as the previous photo, shows how few symptoms of simazine damage were apparent on the plant at this stage, 28 days after exposure.



### Impact on plant growth

**Plants:** exposure to the 50% rate of simazine at 9 nodes reduced the plant stand by 20%. The remaining plants were 5 cm and 2.3 nodes shorter at picking.

**Leaves:** caused a small amount of leaf damage on the exposed leaves. This affected plant development, with an 18% reduction in leaf number at the final observation.

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

**Bolls:** the herbicide exposure did not effect early bolls, but resulted in the loss of some mid- and late-season bolls, delaying and reducing peak boll set and resulting in a higher proportion of pickable bolls coming from the bottom branches than was the case for undamaged plants. There was no delay in crop maturity.

**Lint:** ginning turnout, fibre quality and lint yield were not affected by the herbicide damage.

<b>Final plant count data</b>		
	<b>undamaged</b>	<b>simazine</b>
<b>Nodes/plant</b>	30.9	28.6
<b>Leaves/m*</b>	687	566
<b>Leaf area (cm<sup>2</sup>/m)*</b>	23830	23180
<b>Reduction in leaf area*</b>		3%
<b>Bolls/m</b>	132	125
<b>Boll weight (g/open boll)</b>	5.3	5.1
<b>Retention in posit's 1-3^</b>	95%	97%
<b>Nodes carrying &gt;80% bolls#</b>	7 - 18	7 - 15
<b>Days to 50% open bolls</b>	157	149
<b>Maturity delay (days)</b>		-
<b>% Open bolls at picking</b>	85%	88%
<b>Lint yield/ha</b>	2380	2382

Exposure to 50% of a typical field rate of simazine at 9 nodes caused a small amount of leaf damage and a reduction in leaf number and plant size mid-season.

The herbicide affected the pattern of boll retention but did not reduce the final boll retention or boll size, delay crop maturity or reduce boll size, fibre quality or lint yield.

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

Note^ Percentage of retained bolls in positions 1 - 3.

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