

## Herbicide damage guide for cotton

Photographs & material by:

Graham Charles  
NSW Dept. Primary Industries

**Herbicide:** **simazine**  
**Rate:** **300 g a.i./ha**  
**% of typical field rate** **10%**  
**Date of exposure:** **25<sup>th</sup> Nov**  
**(5 weeks post-emergence)**  
**Growth stage at exposure:** **5 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 330 g/ha to 5 node cotton. Photo taken on 1<sup>st</sup> Dec, 6 days after exposure.

No symptoms of simazine damage were apparent at this stage, 6 days after exposure.



Simazine granules 900 WG were applied broadcast at 330 g/ha to 5 node cotton. Photo taken on 15<sup>th</sup> Dec, 20 days after exposure.

Symptoms of simazine damage were obvious 20 days after exposure. Damaged leaves had areas of inter-veinal yellowing. No damage was apparent on the upper leaves.



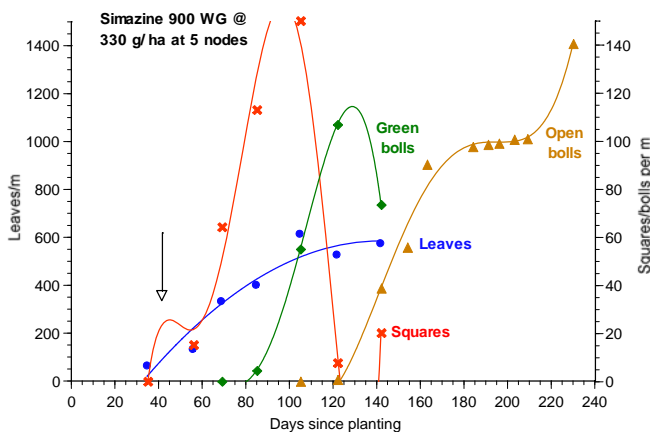
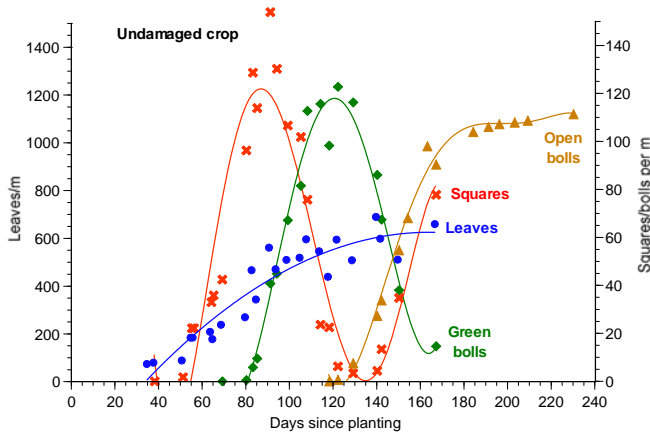
Simazine granules 900 WG were applied broadcast at 330 g/ha to 5 node cotton. Photo taken on 23<sup>rd</sup> Dec, 28 days after exposure.

Symptoms of simazine damage were no longer obvious 28 days after exposure.



Simazine granules 900 WG were applied broadcast at 330 g/ha to 5 node cotton. Photo taken on 14<sup>th</sup> Jan, 50 days after exposure.

No symptoms of simazine damage were apparent 50 days after exposure.



### Impact on plant growth

**Plants:** exposure to the 10% rate of simazine at 5 nodes caused a 20% increase in tipping out. Plants were also 12 cm shorter than undamaged plants at picking, but there was no reduction in node number or plant weight.

**Leaves:** the herbicide damage caused mild leaf damage, with inter-veinal yellowing of the lower leaves. This damage had little effect on the plants, although it did result in a 13% reduction in leaf area.

**Squares:** there was no apparent effect on square production, although some early squares were shed following the exposure.

**Bolls:** there was no effect on boll production, the pattern of boll retention or the proportion of open bolls at picking but plants were holding an additional 34 bolls/m (26%) at picking. There was no delay in crop maturity.

**Lint:** ginning turnout and lint quality were unaffected by the herbicide damage. Lint yield was reduced by 7%.

Final plant count data		
	undamaged	simazine
<b>Nodes/plant</b>	30.9	31.8
<b>Leaves/m*</b>	595	572
<b>Leaf area (cm<sup>2</sup>/m)*</b>	24900	21559
<b>Reduction in leaf area*</b>		13%
<b>Bolls/m</b>	132	166
<b>Boll weight (g/open boll)</b>	5.3	5.2
<b>Retention in posit's 1-3^</b>	95%	97%
<b>Nodes carrying &gt;80% bolls#</b>	7 - 18	8 - 18
<b>Days to 50% open bolls</b>	157	156
<b>Maturity delay (days)</b>		-
<b>% Open bolls at picking</b>	85%	85%
<b>Lint yield/ha</b>	2380	2217

Exposure to 10% of a typical field rate of simazine at 5 nodes caused tipping out, some leaf damage to the lower leaves and a reduction in leaf area.

This damage had no apparent affect on total boll retention, the pattern of boll retention, boll size, crop maturity or fibre quality, but lint yield was reduced by 7%.

Note\* These parameters were last recorded 142 days after planting.

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

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