

Herbicide damage guide for cotton

Photographs & material by:

Graham Charles
NSW Dept. Primary Industries

Herbicide: simazine
Rate: 1.5 kg a.i./ha
% of typical field rate: 50%
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
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 and incorporated prior to planting cotton. Photo taken on 4th Dec, 42 days after emergence.

No symptoms of simazine damage were apparent at any stage.



Simazine granules 900 WG were applied broadcast at 1.65 kg/ha and incorporated prior to planting cotton. Photo taken on 15th Dec, 53 days after emergence.

No symptoms of simazine damage were apparent at any stage.



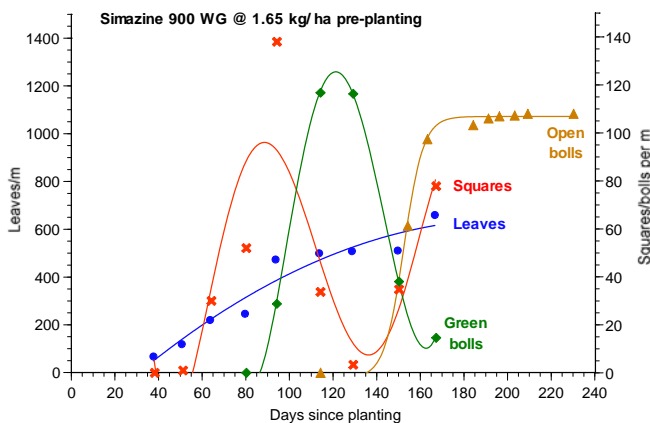
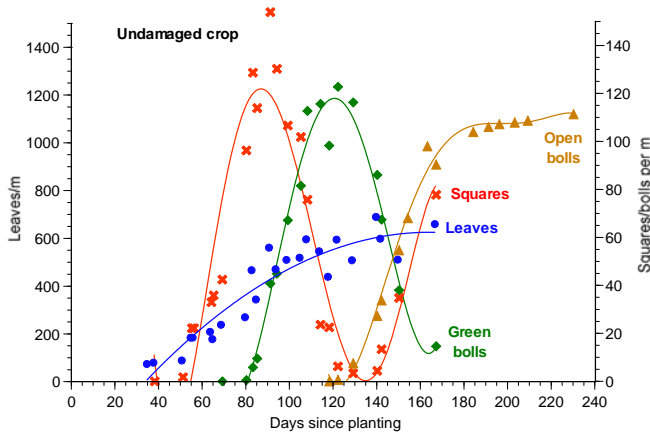
Simazine granules 900 WG were applied broadcast at 1.65 kg/ha and incorporated prior to planting cotton. Photo taken on 31st Dec, 69 days after emergence.

No symptoms of simazine damage were apparent at any stage.



Simazine granules 900 WG were applied broadcast at 1.65 kg/ha and incorporated prior to planting cotton. Photo taken on 14th Jan, 83 days after emergence.

No symptoms of simazine damage were apparent at any stage.



Impact on plant growth

Plants: exposure to the 50% rate of residual simazine caused some stunting. Plants were 15cm and 2.6 nodes shorter at picking.

Leaves: the herbicide had no obvious effect on the foliage. However, plant had 8% fewer leaves and 20% less leaf area at the last observation.

Squares: there were no noticeable effects on square production.

Bolls: there were no obvious effects on boll production, the pattern of boll retention, or boll weight, although plants retained 16% fewer bolls at picking. There was no delay in crop maturity.

Lint: ginning turnout, lint quality and lint yield were unaffected by the herbicide damage.

Final plant count data		
	undamaged	simazine
Nodes/plant	30.9	28.3
Leaves/m*	543	497
Leaf area (cm²/m)*	23764	19029
Reduction in leaf area*		20%
Bolls/m	132	110
Boll weight (g/open boll)	5.3	5.0
Retention in posit's 1-3[^]	95%	100%
Nodes carrying >80% bolls[#]	7 - 18	7 - 17
Days to 50% open bolls	157	154
Maturity delay (days)		-
% Open bolls at picking	85%	83%
Lint yield/ha	2380	2263

Exposure to 50% of a typical field rate of residual simazine had no observable effect on the plants, but caused a reduction in plant size, leaf number and leaf area.

There no obvious effects on boll production, the pattern of boll retention, boll weight, crop maturity, the proportion of bolls open at picking, fibre quality or lint yield, although plants retained fewer bolls at picking.

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.