

## Herbicide damage guide for cotton

Photographs & material by:

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**Herbicide:** **triclopyr + picloram**  
**Rate:** **15 g + 5 g a.i./ha**  
**% of typical field rate** **10%**  
**Date of exposure:** **14<sup>th</sup> 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:** I

#### **triclopyr**

**Translocation:** readily moves to the plant growth points  
**Mode of action:** an auxin-type (phenoxy) herbicide that affects cell wall plasticity & nucleic acid metabolism. Low concentrations cause uncontrolled cell division & growth, leading to plant death.  
**Residual activity:** some activity. Translocated to the growing points following root absorption  
**Soil half-life:** around 30 days

#### **picloram**

**Translocation:** readily absorbed by roots and foliage and moves to the growing points  
**Mode of action:** an auxin-type herbicide  
**Residual activity:** strong residual activity and readily absorbed by plant roots  
**Soil half-life:** 90 days, but can be up to 200 days. Breakdown is slower in dry, cool conditions.



Grazon DS (triclopyr + picloram) applied broadcast at 50 ml/ha and incorporated prior to planting cotton. Photo taken on 28<sup>th</sup> Nov, 36 days after emergence.

Plants showed no symptoms of herbicide damage at any stage.



Grazon DS (triclopyr + picloram) applied broadcast at 50 ml/ha and incorporated prior to planting cotton. Photo taken on 4<sup>th</sup> Dec, 42 days after emergence.

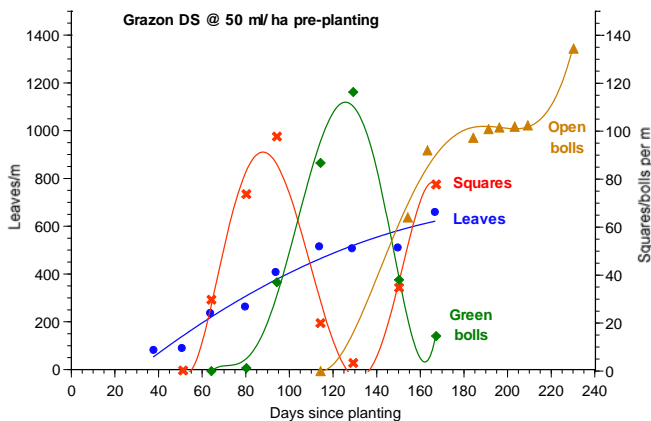
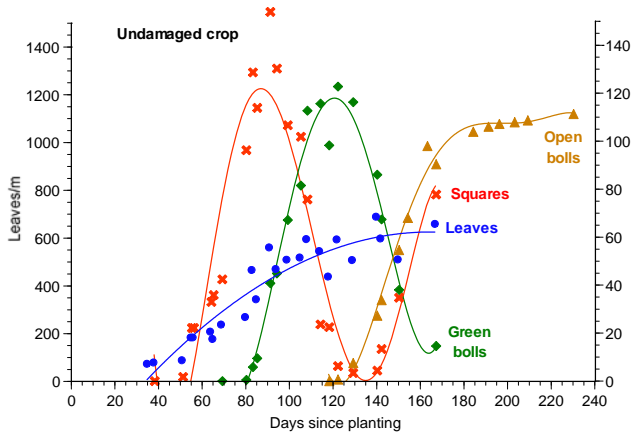
Plants showed no symptoms of herbicide damage at any stage.



Grazon DS (triclopyr + picloram) applied broadcast at 50 ml/ha and incorporated prior to planting cotton. Photo taken on 14<sup>th</sup> Jan, 83 days after emergence.

Plants showed no symptoms of herbicide damage at any stage.

### Impact on plant growth



**Plants:** exposure to the 10% rate of residual triclopyr + picloram had no visible effect on the cotton, but plants were 20 cm shorter, with 2.9 fewer nodes and 20% smaller by weight at the final observations.

**Leaves:** the herbicide caused no visible damage to the foliage, but plants had 6% fewer leaves and 29% less leaf area at the final observation.

**Squares:** there was a 36% reduction in peak square production.

**Bolls:** there were few negative effects on boll production, with the final boll count up by 20%, but plants retained fewer bolls on the main nodes. The changed retention pattern reduced the size (average weight) of the open bolls (down by 5%) but had no effect on the proportion of bolls open at picking or on crop maturity.

**Lint:** ginning turnout was unaffected by the herbicide damage, but the cotton fell below base grade with 10.9% short fibres and a staple length of 1.118". Lint yield was reduced by 18%.

Final plant count data		
	undamaged crop	triclopyr + picloram
<b>Nodes/plant</b>	30.9	28.0
<b>Leaves/m*</b>	543	513
<b>Leaf area (cm<sup>2</sup>/m)*</b>	23764	16842
<b>Reduction in leaf area*</b>		29%
<b>Bolls/m</b>	132	158
<b>Boll weight (g/open boll)</b>	5.3	5.0
<b>Retention in posit's 1-3^</b>	95%	97%
<b>Nodes carrying &gt;80% bolls#</b>	7 - 18	6 - 20
<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	1946

Exposure to 10% of a field rate of residual triclopyr + picloram resulted in a reduction in plant size and leaf area. Square production, boll retention and fibre quality were all affected. Lint yield was reduced by 18%

The extent of damage from residual herbicides is influenced by seasonal conditions and more damage may have occurred in a season with wetter and/or colder conditions following 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.