

Invasive plants and animals

Giant sensitive plant

Mimosa diplotricha (= *Mimosa invisa*)



DECLARED CLASS 2



Description

Giant sensitive plant is a shrubby or sprawling annual although behaving as a perennial vine in certain years. Stems bunching, often scrambling over other plants, four-angled, the angles usually with a line of sharp, hooked prickles.

Leaves are alternate, bright green, feathery and fern-like, each leaf divided into five to seven pairs of segments. Each segment carries about twenty pairs of very small leaflets which close up when disturbed, injured, or at nightfall.

Very small pale pink flowers occur as round, fluffy balls about 12 mm across, on short stalks in the leaf joints. Numerous pods are clustered, each about 25 mm long and 6 mm broad when ripe. Clothed with small prickles, these later break into four or five one-seeded pieces.

The problem

Giant sensitive plant will choke out cane, other crops and grassland, thus causing loss of crop and pasture production.

Life cycle

An annual, which usually flowers and seeds from April through to the end of June. In years when there has been very little cold weather, plants will seed from April through to December and some plants only 10 cm high can set seeds. Seeds have been known to lie dormant for up to 50 years.

Habitat and distribution

Giant sensitive plant is native to Brazil, in tropical South America. It is now naturalised in the high rainfall areas of coastal north Queensland from Ingham to Cooktown and also around Mackay.

Shires of major infestation are Cardwell, Cook, Douglas, Hinchinbrook, Johnstone, Mareeba, Mulgrave, Pioneer, Proserpine and Sarina. Heaviest infestations are in the Johnstone and Cardwell Shires.

Declaration details

Giant sensitive plant is a declared Class 2 plant under *Land Protection (Pest and Stock Route Management) Act 2002*. Declaration requires landholders to control declared pests on the land and waters under their control. A Local Government may serve a notice upon a landholder requiring control of declared pests.

Prevention

Seeds are transported by running water, vehicles, machinery, stock and contaminated earth.

Vehicles and machinery passing through giant sensitive plant infested areas should be washed down before moving on to another area. Sugar cane contaminated with giant sensitive plant seed should not be harvested or transported. Sand pits in the Johnstone Shire have been quarantined, and records of all sand/gravel movement from these areas must be kept by carriers.

Plants should be treated with herbicide or slashed before seeding occurs, as once a plant seeds, infestations will re-occur each year for many years.

Control

The spread of weeds threatens the sustainability of agriculture and other land uses. Weeds also devastate native plants and animals.

The best form of weed control is prevention. Always treat weed infestations when small, do not allow weeds to establish. Weed control is not cheap, but it is cheaper now than next year, or the year after. Proper planning ensures you get value for each dollar spent.

Look at your weed problem carefully. Can you realistically eradicate it? Or should you contain the weed to stop new infestations developing while you reduce existing ones? What are you required to do by legislation? How does weed control fit into your property plan? What can you do to restore areas and prevent re-establishment?

The best approach is usually to combine different methods. Control may include chemical, mechanical, fire and biological methods combined with land management changes. The control methods you choose should suit the specific weed and your particular situation.

Mechanical control

Slashing in pastures and other non-crop situations on a regular basis to prevent seeding provides effective control.

Cultivation, where appropriate, is also effective, particularly for seedling control.

Herbicide control

Herbicides registered for the control of giant sensitive plant are listed in the attached table.

Cropping areas

Selective herbicides are available for the control of giant sensitive plant in sugar cane. Each of the chemicals listed should be applied by boom spray fitted with droppers through 110° flat fan nozzles in a volume of 200 L of spray solution per hectare as a directional inter-row spray. The rate of application of residual herbicides will depend on the size of weed and period of residual control desired.

Biological control

A survey by the Department of Primary Industries and Fisheries of potential biological control organisms in Brazil resulted in two insects specific to giant sensitive plant being released in Queensland. Only one insect however has successfully established in the field. An indigenous fungus has also exercised a degree of control.

GSP psyllid *Heteropsylla spinulosa*

This is a very small sap-feeding bug, about 2.5 mm long and pale green in colour. The insects are usually found near the growing point of plants, either under the leaves or on the stems. Tiny, yellow, oval eggs, visible to the naked eye, are laid on the upper leaf surfaces. The short (four week) life cycle, combined with high egg numbers, makes it possible for the population to increase rapidly.

High *Heteropsylla* numbers cause growing tip distortion, brittle stems and stunted plants. Growing tip elongation and seed production can be reduced by 72% and 80% respectively. *Heteropsylla* spreads well from initial release sites by flying and being carried on wind currents.

The abundance of the insect and hence its impact on giant sensitive plant is reduced by extreme weather (flood or drought) and availability of plants throughout the dry season. Each year, populations of the GSP psyllid resurge from the few plants that survive through the winter months. The insect cannot feed from wilted plants, and long periods of torrential downpour also reduces survival of *Heteropsylla*.

Stem-spot disease *Corynespora cassicola*

An isolated strain of the indigenous stem-spot fungus *Corynespora cassicola* appears specific to giant sensitive plant. The disease causes defoliation and dieback in very hot humid conditions, and is now widespread in Queensland. Initially older leaflets are shed, then small, dark, oval spots develop along the stems. As the spotted area increases, the growing tip dies. If very hot and humid weather occurs late in the growing season, flowering and seed production can be reduced by stem-spot disease.

Management strategies

Introduced GSP psyllids (insects) can control giant sensitive plant in north Queensland in non-crop areas. Pastures and non-crop infestations should be assessed for insect abundance between November-April. The effectiveness of insect control can be predicted by abundant insects prior to flowering commencing in early April. If insects are present in sufficient numbers, the growing tips and leaves are curled and stunted, resulting in no or minimal flower production. Slashing or herbicides should be applied if there are not sufficient numbers of insects prior to April for effective control.

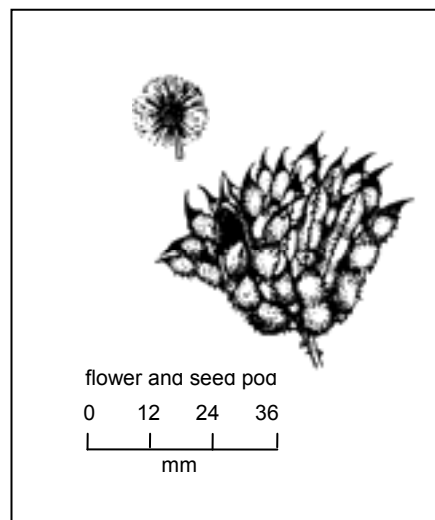
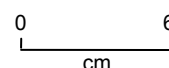
In pastures animals grazing giant sensitive plants tend to control this protein rich legume and prevent it dominating. Plants stunted by *Heteropsylla* attack are less spiny and readily grazed by stock. In non-grazed infested areas 4.5 mL Starane 200 per litre of water can be used.

Further information

Further information is available from the vegetation management/weed control/environmental staff at your local government.



stems, leaves and seed pods



flower and seed pod
0 12 24 36
mm

TABLE 1 – HERBICIDES REGISTERED FOR THE CONTROL OF GIANT SENSITIVE PLANT

	Herbicide	Rate/ha	Optimum stage and time	Comments
Pre and post crop emergence	¹ Atrazine 900 g a.i./kg	2.2-3.3 kg	Aim to apply to moist soil. For larger plants or dry conditions add 2,4-D amine at 1 L/ha plus wetting agent	Higher rate will give up to 3 months residual control of broadleaf weeds
	¹ Atrazine 500 g a.i./L	4-6 L	Apply post-emergence to moist soil when rain expected within 10 days	Avoid spraying emerged cane. Higher rate will give longer residual control
	Diuron 800 g/kg	2.2-4.5 kg	As above	Direct spray below cane leaves if used post crop emergence
	Diuron 900 g/kg	2-4 kg	As above	As above
	² Basta [®]	2-5 L	When weed is actively growing	Thorough coverage essential. Follow up treatment generally required
	³ Velpar K4 [®]	3-4 kg	Post harvest but before crop and weed emergence; or as a directed spray in emerged cane at last cultivation	Phytotoxic to emerged cane. Thorough coverage of emerged weeds essential. Do not use more than 4 kg/ha per season
Post crop emergence only	Starane 200 [®]	1.3-1.5 L or 0.45 L/ 100 L	Plants actively growing but before flowering	For high volume spraying, wet plant thoroughly. Will kill pasture legumes
Aerial application	Starane 200 [®]	1.3-1.5 L	As above	As above

¹ Australia wide agreement to limit the use of atrazine to no more than 3 kg active ingredient per ha per year.

² Not registered for use in sugar cane

³ Only registered for use in sugar cane

Fact sheets are available from DPI&F service centres and the DPI&F Information Centre phone (13 25 23). Check our web site <www.dpi.qld.gov.au> to ensure you have the latest version of this fact sheet. The control methods referred to in this Pest Fact should be used in accordance with the restrictions (federal and state legislation and local government laws) directly or indirectly related to each control method. These restrictions may prevent the utilisation of one or more of the methods referred to, depending on individual circumstances. While every care is taken to ensure the accuracy of this information, the Department of Primary Industries and Fisheries does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.

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