Department of Agriculture and Fisheries
Biosecurity Queensland

Restricted invasive plant

Giant sensitive plant

Mimosa diplotricha (=Mimosa invisa)

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

Legal requirements

Giant sensitive plant is a restricted invasive plant under the *Biosecurity Act 2014*. It must not be given away, sold, or released into the environment without a permit. The Act requires everyone to take all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This is called a general biosecurity obligation (GBO). This fact sheet gives examples of how you can meet your GBO.

At a local level, each local government must have a biosecurity plan that covers invasive plants and animals in its area. This plan may include actions to be taken on certain species. Some of these actions may be required under local laws. Contact your local government for more information.

Queensland Government

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.

Flowers are very small pale pink, 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.

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.

Methods of spread

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

Habitat and distribution

Giant sensitive plant is native to Brazil, in tropical South America. Giant sensitive plant 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.

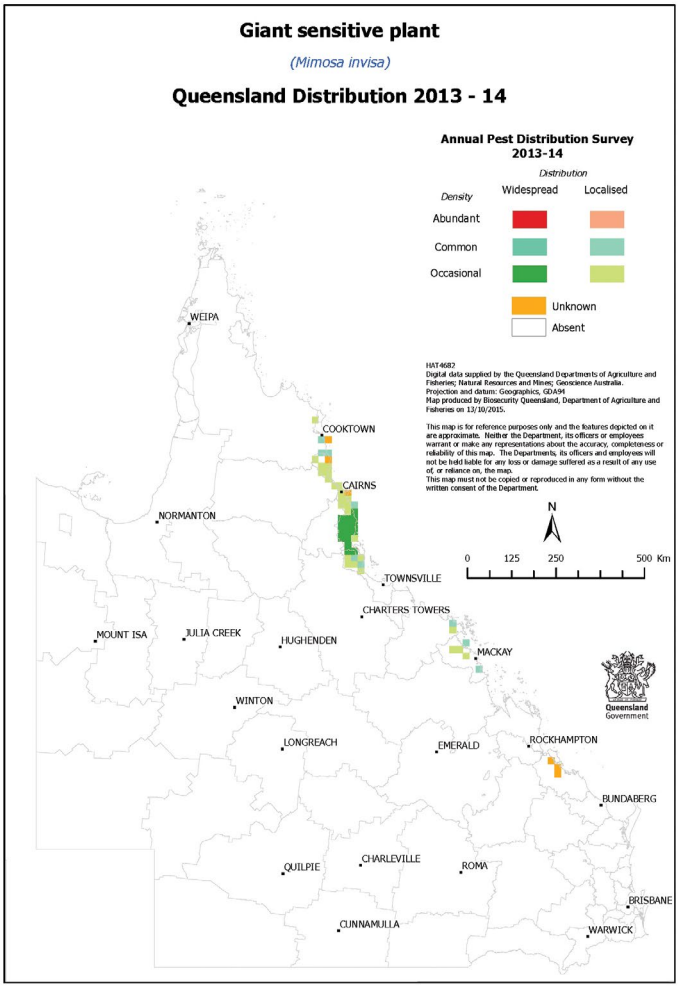
Control

Managing giant sensitive plants

The GBO requires a person to take reasonable and practical steps to minimise the risks posed by giant sensitive plant. This fact sheet provides information and some options for controlling sensitive plant.

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

Map 1. Distribution of giant sensitive plant in Queensland



Prevention and early detection

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.

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.

Biological control

A survey by Biosecurity Queensland 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 cassiicola*

An isolated strain of the indigenous stem-spot fungus *Corynespora cassiicola* 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.

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.

Herbicide control

Selective herbicides are available for the control of giant sensitive plant in non-agricultural land, rights-of-way, pastures and sugar cane. Actives registered for the control of giant sensitive plant are listed in Table 1.

In sugar cane crops selective herbicides are available for the control of giant sensitive plant. 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.

Further information

Further information is available from your local government office, or by contacting Biosecurity Queensland on 13 25 23 or visit www.biosecurity.qld.gov.au.

Table 1. Herbicides for the control of giant sensitive plant

Situation	Herbicide	Rate	Optimum stage and time	Comments
Pre and post crop emergence	[1]Atrazine 900 g a.i./kg (e.g. Macspred Atrazine 900 WG)	2.2–3.3 kg/ha	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 three months residual control of broadleaf weeds
	[1]Atrazine 500 g a.i./L (e.g. Ospray Atrazine)	4–6 L/ha	Apply post-emergence to moist soil when rain expected within 10 days	Avoid spraying emerged can Higher rate will give longer residual control
	Atrazine 600 g/L (e.g. Gesaprim®)	3.3–5 L/ha	Apply post-emergence to moist soil when rain expected within 10 days	Avoid spraying emerged cane Higher rate will give longer residual control
	[2]Glufosinate 200 g a.i./L (e.g. Basta®)	2–5 L/ha 500 mL/100 L water	When weed is actively growing	Thorough coverage essential Follow up treatment generally required.
	[3]Diuron 468 g a.i./L + hexazinone 132 g a.i./L (e.g. Velpar K4®)	3–4 kg/ha	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	Fluroxypyr 333 g a.i./L (e.g. Starane Advanced®)	0.9 L/ha	Plants actively growing but before flowering	For high volume spraying, wet plant thoroughly. Will kill pasture legumes
	[3]Dicamba 700 g/kg (e.g. Cadence WG®)	0.4 kg/ha		
Aerial application	Fluroxypyr 333 g a.i./L (e.g. Starane Advanced®)	0.9 L/ha		

[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

Read the label carefully before use. Always use the herbicide in accordance with the directions on the label.

This fact sheet is developed with funding support from the Land Protection Fund.

Fact sheets are available from Department of Agriculture and Fisheries (DAF) service centres and our Customer Service Centre (telephone 13 25 23). Check our website at www.biosecurity.qld.gov.au to ensure you have the latest version of this fact sheet. The control methods referred to in this fact sheet 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 use 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, DAF does not invite reliance upon it, nor accept responsibility for any loss or damage caused by actions based on it.

© The State of Queensland, Department of Agriculture and Fisheries, 2016.