

# Navua sedge

*Cyperus aromaticus*



Navua sedge is extremely aggressive and competes strongly for nutrients, light and moisture. Navua sedge can form dense stands that can smother many tropical pasture species.

In pastures, Navua sedge is unpalatable and provides little feed value for cattle. If pastures are overgrazed, Navua sedge can quickly take over.

Spread occurs through the normal extension of the rhizome (underground stem) system, by seed and by dispersal of viable rhizome fragments during cultivation. Seed can be dispersed by passing through the digestive system of animals and birds, and also by being transported in mud on hooves, pelts, footwear or machinery.

Navua sedge can be a problem in sugar cane where the crop is light with poor canopy cover.



Queensland  
Government

## Legal requirements

Navua sedge is not a prohibited or restricted invasive plant under the *Biosecurity Act 2014*. However, by law, everyone has a general biosecurity obligation (GBO) to take reasonable and practical measures to minimise the biosecurity risks associated with invasive plants under their control.

Local governments must have a biosecurity plan that covers invasive plants in their 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.

## Description

Navua sedge is a vigorous grass-like, perennial sedge. It normally grows 30–70 cm in height but may occasionally reach 2 m. The plant has a continuously growing underground stem which produces shoots at regular intervals along its length. These interconnected plants then develop an extensive shallow fibrous root system.

Each plant has a cluster of drooping leaves at the base of the stem, with each leaf being approximately 5–15 cm long and 3 mm wide. The flower stalk is triangular with the flower at the apex of the stalk. Immediately under the white knob-like flower are six leaf-like bracts. Three of these are long and three are short.

The seed is brown to black and egg shaped with a hook on one end.

## Distribution and habitat

Originally native to tropical Africa, Navua sedge has been introduced to a number of countries including Australia, Sri Lanka, Malay Peninsula, Fiji, Vanuatu, Samoa, Tahiti and the Solomon Islands.

It was first noted in Australia growing on the footpaths of Cairns in 1979. It has spread north to the Bamaga township and southward to Townsville and west to the Atherton Tablelands where new outbreaks are being regularly found. Small isolated infestations have also been found in the Mackay, Sunshine Coast and Brisbane areas, highlighting the potential of this invasive plant to spread beyond its current distribution.

Navua sedge prefers areas with an annual rainfall exceeding 2500 mm, without a distinct dry season. In areas where there is substantially less rain and a distinct dry season, it is generally restricted to damp, low-lying parts in pastures, drains or disturbed areas.

## Life cycle

Because Navua sedge grows from seed as well as through vegetative reproduction, it is a very effective coloniser.

Seedlings develop quickly and can flower within eight weeks of emergence. At the time of flowering, a new shoot is also produced on the underground stem. This new shoot then grows similar to a seedling producing a flower after around eight weeks. This process is continually repeated and results in a gradually spreading

colony of stems growing from an interconnected underground stem system.

The seeds can germinate at any time of the year but the highest germination occurs when soil temperatures alternate between 15°C and 25°C. The seeds also require exposure to light for germination to occur. The seed heads on each shoot generally produce about 250 seeds each. Seed production per hectare is extremely high with estimates well in excess of 500 million seeds. A portion of the seed can remain viable for more than ten years; full longevity has not been determined.

## Control

Treatments that include herbicides are the most effective option for controlling Navua sedge. Maintaining pastures in a vigorous and dense condition reduces the chance of invasion and ensures competition against Navua sedge seedling establishment. Heavy grazing is likely to encourage the spread of the plant.

## Hygiene

Machinery such as slashers can readily spread seed to other areas, so it is important to ensure all such vehicles are thoroughly washed down before moving from an infested to a clean area.

## Mechanical control

Physical removal is possible for small clumps. Each clump has to be dug out with a spade and the entire plant turned over, exposing the root system while making sure all aerial parts of the plant are completely covered.

For large infestations, it may be possible to bring the underground roots to the surface by discing and allowing them to dry out. The effectiveness of this technique can depend on the weather, since considerable regrowth would be expected in damp conditions. Any mechanical techniques that contribute to deeper seed burial are likely to prolong seed longevity and reduce seed losses in the paddock.

A single rotary hoe pass reduced the Navua sedge population by only 2%. Mechanical control methods are generally not a long-term solution and require repeated applications.

## Herbicide control

Sempra herbicide is the only selective herbicide registered for Navua sedge control.

The Sempra herbicide label allows Navua sedge growing in pastures (*Brachiaria decumbens*, *B. humidicola*, *Setaria* spp. and *Pangola* spp.) to be controlled (see Table 1). The label allows the application of up to 200 g/ha per annum at application rates of 65–100 g/ha (depending on plant density) to actively growing plants, prior to seed set. Spot applications are also allowed at 1 g/100 m<sup>2</sup>. Treated areas should be resprayed within 8–12 weeks of initial treatment. To optimize control Bonza Spray Adjuvant is recommended at 1 L/100 L of spray solution.

The minor use permit PER80065 (apvma.gov.au) allows for the foliar application of Sempra at 130 g/ha (broadacre) or

5.2 g/100 L (spot-spraying) using ground based equipment such as boom sprays, hand-held or knapsack sprayers for controlling Navua sedge growing in commercial and industrial areas, rights-of-way, including footpaths and road verges (see Table 1). The herbicide should be applied during February to October when Navua sedge is actively growing and prior to seed set. A minimum re-treatment interval of 10 weeks between consecutive applications should be adhered to, and only apply a maximum of two foliar applications per year to the same area.

Additional herbicides permitted are those registered for the control of sedges (*Cyperus* spp.) in general. These herbicides are registered for control of sedges in certain situations specified on the herbicide label. Most of these herbicides are non-selective in pastures and

have withholding periods. For aquatic areas herbicides containing Glyphosate-ipa can be used and for land-commercial/industrial, rights-of-way herbicides containing Glyphosate-ipa, glyphosate-mas or imazapyr are permissible.

### Withholding period

Use of Sempra imposes a withholding period on livestock grazing on the treated area. Do not graze for livestock or cut for fodder or forage for ten weeks after treatment.

### Further information

Further information is available from your local government office, or by contacting Biosecurity Queensland on 13 25 23 or visit [biosecurity.qld.gov.au](http://biosecurity.qld.gov.au).

**Table 1. Selective herbicides for the control of Navua sedge**

Situation	Application method	Herbicide	Rate	Comments
Established pasture as named <i>Brachiaria decumbens</i> , <i>Brachiaria humidicola</i> , <i>Setaria</i> spp., <i>Pangola</i> spp.	Foliar spray	Sempra Herbicide 750 g/kg HALOSULFURON-METHYL	Two applications of 65–100 g/ha	Boom spray. Remove grazing cattle at least two weeks prior to application. ONLY apply to actively growing weeds. Use higher rate of Sempra for dense infestations.  ALWAYS add Banjo or Supercharge Elite at 1 L/100 L DO NOT apply after seed maturation. DO NOT graze for 10 weeks following application.
			1 g/10 L to treat 100 m <sup>2</sup>	For spot treatment using knapsack sprayers Retreat 8–12 weeks later if new seedling emergence warrants treatment.
			50 g/100 L to treat 5000 m <sup>2</sup>	For spot treatment using tractor mounted handgun sprayers.  Re-treat 8–12 weeks later if new seedling emergence warrants treatment.
Commercial and industrial areas, rights-of-ways, including footpaths and roadside verges	Foliar spray	Sempra Herbicide 750 g/kg HALOSULFURON-METHYL	130 g/ha	APVMA PER80065 Remove grazing cattle at least two weeks prior to application.  Apply during February – October when Navua sedge is actively growing and prior to seed set, with minimum re-treatment interval of 10 weeks between consecutive applications.  Apply a maximum of two foliar applications per year, using ground based calibrated boom sprayer or similar equipment, hand-gun or knapsack sprayer.  For boom sprayer, apply using a spray volume of 400 L water/ha.
			5.2 g/100 L water (applied to 100 m <sup>2</sup> )	For spot spraying using handgun or knapsack sprayer, apply 5.2 g product per 100 m <sup>2</sup> ; for example, mix 5.2 g product in 100 L water and apply 100 L of the mix per 100 m <sup>2</sup> .  Adjust spray equipment to achieve an even spray pattern to ensure complete and uniform wetting of all foliage. For handgun application, a D5 spray tip nozzle or equivalent with an operating pressure of 200 to 400 kPa is recommended.  Add Banjo or Supercharge Elite Spray Adjuvant at 1 L/100 L. Refer to Sempra Herbicide label.  Use in accordance with all label Restraints and Directions for Use, unless otherwise stated in the permit.  DO NOT graze for 10 weeks following application.

**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 [biosecurity.qld.gov.au](http://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.

