



# GRAZING PASTURE MANUAL



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# SEMPRA PLUS BANJO FOR NAVUA SEDGE CONTROL IN GRAZING PASTURE

Navua sedge (*Cyperus aromaticus*) is a highly competitive weed that has spread along many roadsides and into grazing pastures (Figure 1) across the wet tropics. It prefers wetter areas and grows during the summer months. It sets many seeds (Figure 2) which can be easily spread by machinery, wind, water, cattle and other wild animals.



**Figure 1:**  
Navua sedge infested pasture.

Navua sedge has the potential to completely dominate a pasture. It adversely affects grazer returns due to reduced carrying capacity as a result of the decline in pasture production, and significantly reduces land valuations.

Nufarm has conducted trials over 5 years with excellent results leading to the registration of Sempra for control of Navua sedge in pastures.



**Figure 2:**  
Close-up of Navua sedge seed head.

## APPLICATION TIMING

Apply Sempra to actively growing, non-stressed Navua sedge following opening wet season rains (Sept/Dec). Application should cease once the Navua sedge begins to senesce, usually April/May.

**Apply two applications of Sempra, 10 weeks apart to optimise control of Navua sedge present at the first application and subsequent germinations prior to the second application.**

NAVUA SEDGE APPLICATION TIMING FOLLOWING OPENING WET SEASON RAINFALL, UNTIL APRIL/MAY											
Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun

This Sempra herbicide management strategy maximises control of Navua sedge, significantly reducing subsequent germinations and populations. Increased pasture competition will continue to dominate the overall plant stand.

## WEED AND GRAZING MANAGEMENT PLAN

Sempra use must be strategically incorporated into an effective weed and grazing management plan (Table 1) for desirable results.

**TABLE 1**

GRAZING MANAGEMENT PRE-TREATMENT	TREATMENT 1 TIMING	GRAZING MANAGEMENT POST-TREATMENT 1	TREATMENT 2 TIMING	GRAZING MANAGEMENT POST-TREATMENT 2
DO NOT over-graze prior to treatment, as control of Navua sedge is enhanced with a competitive pasture following Sempra applications. Remove grazing cattle at least 2 weeks prior to application to allow the Navua sedge to regrow.	<b>Apply to actively growing, non-stressed Navua sedge following opening wet season rain.</b>	Do not graze until the 10 week grazing withholding period (WHP) is observed. If grazing is required at this time, only graze for 1 week, and then remove cattle for 2-3 weeks to enable the new germinations of Navua sedge present to recover prior to treatment 2.	<b>Apply treatment 2 to actively growing Navua sedge 10 weeks after treatment 1.</b> If the pasture has been grazed following the grazing WHP after treatment 1, delay treatment 2 for 2-3 weeks following removal of stock.	Do not graze until the 10 week grazing WHP is observed. Avoid over-grazing to promote pasture competition for enhanced Navua sedge control.

# KEY POINTS TO ACHIEVE OPTIMAL CONTROL OF NAVUA SEDGE USING SEMPRA

1. Only spray Semptra on actively growing Navua sedge plants. This will usually be leading into early summer after good rainfall and when temperatures have increased. Semptra will not work as well during the cooler winter months when plant growth is slow.
2. Remove livestock 2-3 weeks prior to spraying. This allows the Navua sedge to recover from the stress imposed by grazing livestock, improving herbicide contact, uptake and performance.
3. **Boom spray Semptra at 65g/ha - 100g/ha + Banjo at 1L/100L in 150-200L water/ha depending on the pasture height and density.** Use the 100g/ha rate for dense infestations (Figure 3) or for more robust control compared with the 65g/ha rate. Apply using a boom spray with flat fan nozzles or apply using boomless nozzles ensuring correct calibration and a double-overlap spray pattern.
4. Use nozzles with a COARSE droplet spectrum.
5. **Re-apply Semptra as above 10 weeks after the first application.** Navua sedge sets many seeds and after controlling the existing stand a new germination from the seedbank in the soil will occur.
6. Cattle can be re-introduced after the 10 week grazing withholding periods are observed following each treatment. Manage grazing carefully, avoiding over-grazing which enables pasture growth to continue to dominate the plant stand and out-compete subsequent Navua sedge population emergence.
7. Prepare to re-treat the following season with the same strategy.

Following treatment, subsequent germinations are fewer, with significantly reduced seed-set compared with untreated plants. This enables increased pasture competition to continue to dominate the overall plant stand. (Figure 4).



**Figure 3:**  
Dense Navua sedge infestation in pasture.



**Figure 4:**  
Enhanced pasture growth through reduced Navua sedge competition following 2 applications of Semptra at 100g/ha + Bonza @ 1.0%v/v, applied 10 weeks apart.

## GRAZING WITHHOLDING PERIOD

DO NOT graze Sempra treated pastures for 10 weeks after application. If grazing is absolutely necessary following this 10 week withholding period, only graze for 1 week, and then allow the Navua sedge to re-generate for another 2-3 weeks prior to the second Sempra application.

## SPOT SPRAY APPLICATION USING KNAPSACK SPRAYERS

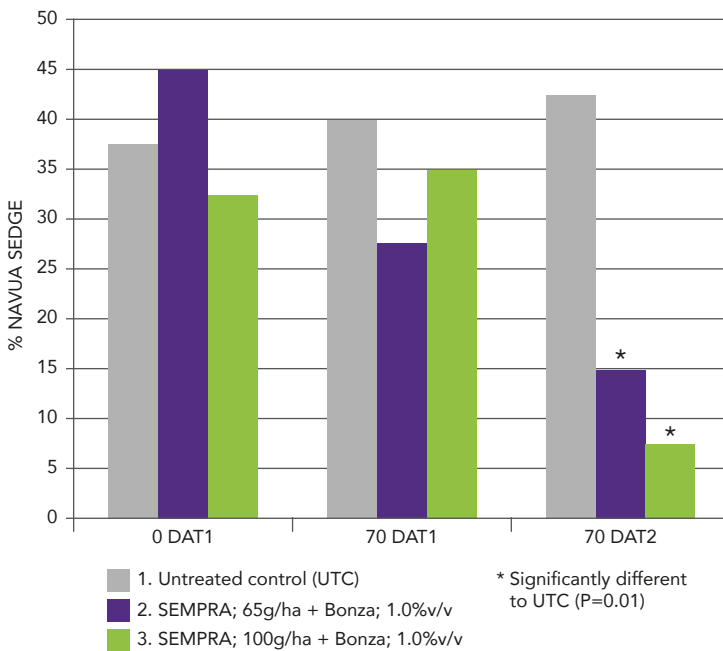
Sempra is also registered for spot spray application, at a rate of 1g/100m<sup>2</sup>. ie add 1g Sempra to 10L water, add 100ml Banjo, and apply 10L of the mix per 100m<sup>2</sup>.

## SPOT SPRAY APPLICATION USING TRACTOR MOUNTED HANDGUN SPRAYERS

Apply Sempra at a rate of 50g/5000m<sup>2</sup> ie add 50g Sempra to 100L water, add 1L Banjo and apply 100L of the mix per 5000m<sup>2</sup>.



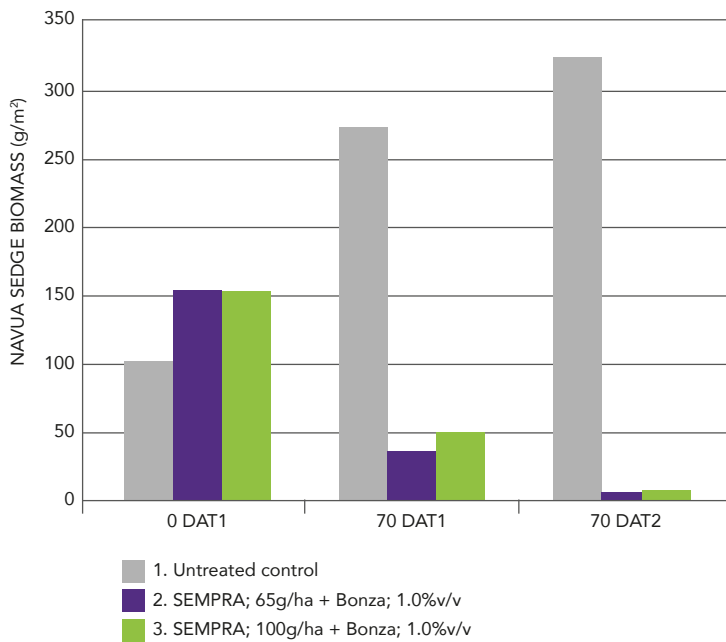
**PASTURE COMPETITION IS VERY IMPORTANT. DO NOT SLASH OR OVER-GRAZE BETWEEN OR DIRECTLY AFTER SEMPRA APPLICATIONS.**



**Figure 5:** Average % Navua sedge component (visual), Innisfail and Gordonvale, Qld. Eurofins, 2013.

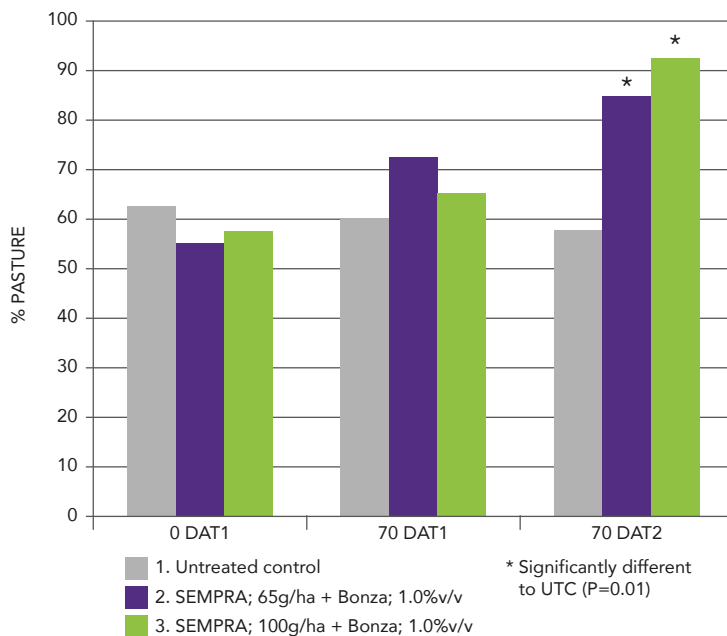
Left untreated, numerous germinations of Navua sedge over time result in an increasing dominance of Navua sedge plant populations in the pasture stand. At 70 DAT1, the initial Sempra treatment has reduced the Navua sedge population present, with subsequent germinations now requiring treatment. The second application (applied 10 weeks after the first) has resulted in a significant reduction in the Navua sedge population compared with untreated control (refer 70 DAT2), with the higher rate providing a greater level of residual control.

**SPELL CATTLE IN YARDS FOR AT LEAST 1 WEEK AFTER REMOVAL FROM A NAVUA SEDGE INFESTED PASTURE TO HELP REDUCE SEED SPREAD.**



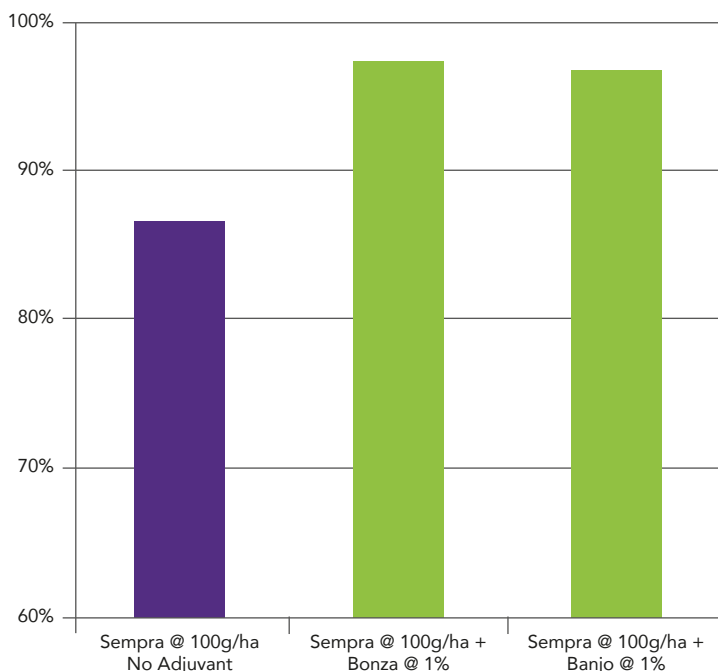
**Figure 6:**  
Average Navua sedge biomass (g/m<sup>2</sup>), Innisfail and Alooomba, Qld. Eurofins, 2013.

Navua sedge biomass increases dramatically over time with lack of control. At 70 DAT1, Navua sedge biomass is significantly reduced compared with untreated control. At 70 DAT2, Navua sedge biomass is negligible, highlighting the efficacy of Sempra on Navua sedge. This also highlights the importance of two well-timed Sempra applications to control subsequent germinations. The Navua sedge population is reduced over time, resulting in an improved pasture stand which helps dominate subsequent Navua sedge germinations through effective competition.



**Figure 7:**  
Average % pasture component (visual), Innisfail and Alooomba, Qld. Eurofins, 2013.

The pasture component declines over time as numerous Navua sedge germinations increasingly dominate the pasture stand. The first Sempra application has controlled the initial Navua sedge population (70 DAT1), resulting in an increased pasture component as a result of reduced competition. A second application of Sempra at 70 DAT1 has resulted in a significant increase in the pasture component (refer 70 DAT2), as the new germination of Navua sedge has been effectively controlled. The higher rate of Sempra has provided longer residual control of Navua sedge, resulting in a greater pasture component at 70 DAT2 compared with the lower Sempra rate.



## ADJUVANTS

Nufarm Banjo Spray Adjuvant has superseded Nufarm Bonza Spray Adjuvant. However, field trials have demonstrated comparable efficacy between these adjuvants in terms of agronomic performance (Figure 8), and therefore either may be used. These trials also demonstrate the importance of adding a spray adjuvant for optimal results.

**Figure 8:**  
Efficacy of Bonza v Banjo v no adjuvant - % non-viable seed heads v UTC. Average 2 trials, El Arish and Ingham, 2015.

# PASTURE USE PATTERN

## DIRECTIONS FOR USE

### RESTRAINTS

DO NOT apply more than 200g/ha per season.

DO NOT apply after the onset of frosts.

DO NOT apply this product through any type of irrigation system.

DO NOT apply if heavy rain is expected within at least 48 hours.

## PASTURE (NORTH QUEENSLAND ONLY)

SITUATION	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Established Pasture as named: <i>Brachiaria decumbens</i> <i>Brachiaria humidicola</i> <i>Setaria spp</i> <i>Pangola spp</i>	Navua sedge ( <i>Cyperus aromaticus</i> )	2 applications of 65-100g/ha	Remove grazing cattle at least 2 weeks prior to application to allow Navua sedge to regrow. ONLY apply to actively growing weeds. Use the higher rate of Sempra for dense infestations.  ALWAYS add Bonza or Banjo or Supercharge Elite at 1L/100L.  DO NOT apply after seed maturation.  Apply using a boom spray with flat fan nozzles OR with Boomless nozzles using a double overlap spray pattern in at least 150L/ha of water. Ensure spray is delivered using a coarse spray quality.  Follow up treatments must be applied to control new germinations 8-12 weeks later. For optimum control, mowing, slashing & discing should be avoided during the treatment period. DO NOT graze for 10 weeks following application. Pasture can be briefly grazed before a follow-up treatment no more than 12 weeks after the first treatment.  In addition, application to pasture weakened by weather conditions or by physical damage due to intensive use or cultural practices such as scarification, coring, aeration or top-dressing, may result in damage and/or delayed recovery.
		1.0g/100m <sup>2</sup>	For spot treatment using knapsack sprayers, apply 1.0g per 100m <sup>2</sup> . For example, mix 1.0g Sempra in 10L water, add 100mL Bonza or Banjo or Supercharge Elite and apply 10L of the mix per 100m <sup>2</sup> .  Retreat 8-12 weeks later if new germinations warrant treatment.
		50 g / 5000m <sup>2</sup>	For spot treatment using tractor mounted handgun sprayers, apply 50g per 5000m <sup>2</sup> . For example, mix 50g Sempra in 100L water, add 1L/100L Bonza or Banjo or Supercharge Elite, and apply 100L of the mix per 5000m <sup>2</sup> .  Retreat 8-12 weeks later if new germinations warrant treatment.

## WITHHOLDING PERIOD

### GRAZING

#### Pasture:

DO NOT GRAZE LIVESTOCK OR CUT FOR FODDER OR FORAGE FOR TEN WEEKS AFTER TREATMENT

**SEMPRA IS REGISTERED FOR USE IN PASTURE, AN IMPORTANT CONSIDERATION FOR CATTLE-CARE HERBICIDE DECLARATIONS. THIS USE PATTERN IS UNIQUE TO THE SEMPRA HERBICIDE LABEL.**

## MIXING

Sempre is a dry flowable granule that disperses in water. Add the measured amount gradually to a part-filled spray tank while maintaining continuous bypass agitation. Add the surfactant near the end of the filling process to avoid excessive foaming. Remove the hose from the mixing tank immediately after filling to avoid siphoning back into the water source. If allowed to stand, ensure that the mixture is thoroughly agitated before re-commencing spraying. Use the mixture within one day.

## ADJUVANT ADDITION

Sempre must be applied with Bonza or Banjo or Supercharge Elite at 1L/100L to ensure uptake. For hand-gun or knapsack application, add Bonza or Banjo or Supercharge Elite at 100mL/10L of water.

## SPRAYER CLEANUP

Before application of products other than Sempra the sprayer must be cleaned out as follows:

1. Drain the tank and flush equipment with water for a minimum of 10 minutes, including hoses, filters and booms.
2. Fill the tank with clean water and add chlorine bleach (contains 4% chlorine) at the rate of 300mL/100L of water. Flush through the boom and agitate for 15 minutes.
3. Repeat step 2 above.
4. Remove all nozzles and screens and clean thoroughly.
5. To remove traces of chlorine bleach, rinse the tank thoroughly with clean water and flush through hoses and booms.

Caution: DO NOT use chlorine bleach with ammonia. All traces of liquid fertilizer containing ammonia, ammonium nitrate or ammonium sulphate must be rinsed with water from the mixing and application equipment before adding chlorine bleach solution. Failure to do so will release a gas with a musty chlorine odour which can cause eye, nose, throat and lung irritation. DO NOT clean equipment in an enclosed area.

## FOLLOWING CROPS

The following crops may be planted at specific time intervals following application of approved rates of Sempra in approved situations. Use the time intervals listed below to determine the required time interval before planting.

CROP	PLANT BACK INTERVAL AFTER THE LAST APPLICATION OF SEMPRA
Corn/Maize, Sorghum, Sugarcane	2 months
Wheat, Pasture ( <i>Brachiaria decumbens</i> <i>Brachiaria humidicola</i> <i>Setaria spp</i> <i>Pangola spp.</i> )	3 months
Cotton	4 months
All other crops (except sugarbeet)	24 months
Sugarbeet	36 months



SprayWise Decisions® is an online weather forecasting site commissioned by Nufarm for planning your crop protection applications. Key application criteria are forecast for your property and provided in easy-to-read meteograms or spray planner, allowing you to choose the most appropriate application window. SprayWise Decisions is available at [spraywisedecisions.com.au](https://spraywisedecisions.com.au)

**For further information on Sempra use in pasture, contact your local Nufarm Area Sales Manager.**

**[nufarm.com.au](http://nufarm.com.au)**

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