



**Queensland
Government**

Dept of Agriculture & Fisheries, Biosecurity QLD, Brisbane

Estimating the economic cost of Navua sedge weed in Queensland

A: Introduction

In a recent weed prioritisation exercise (Osunkoya et al 2019*), Navua sedge ranked in the top 60 exotic weed species needing management intervention in Queensland. A similar assessment was made by the select committee of the Far North Queensland Regional Organisation of Councils (FNQROC) in its prospectus on Navua sedge weed. Navua sedge is an extremely aggressive weed affecting the beef, dairy, and sugarcane/sweet potato industries in the Queensland Wet Tropics. Navua sedge is unpalatable, often forming dense stands in paddocks and hence replacing palatable tropical pasture species. The weed spreads through both seeds and underground rhizomes and is now prevalent along roadsides and rail lines in far north Qld. There are also infestations in the Redland Bay area of southeast Qld.

There are few quantitative, economic data on the yield loss to the grazing and cropping industries caused by Navua sedge. The Department of Agriculture and Fisheries (DAF) through its agency, Biosecurity Queensland (BQ), continue to identify field sites that are suitable as research and demonstration plots in north and far north Qld (consisting of grazing and cropping sites in the coastal areas of the Daintree–Innisfail–Ingham/Townsville townships, and upland areas of Malanda/Atherton Tablelands). We will use the data collected at these sites to estimate current and potential yield loss of palatable pasture grass species (e.g., Humidicola, spear and signal grasses) caused by the weed under varying grazing and herbicide treatments. In this financial year and using questionnaires, we wish to gauge impacted stakeholders (e.g., graziers/agronomists) response in terms of economic loss due to infestation of their properties by the weed. Thus, this survey will be part of a larger framework with the following aims

Aims

- (i) Quantify the economic impact of the weed through a survey of impacted stakeholders (graziers and nature conservators [e.g., LG pest management officers]),
- (ii) Establish field demonstration plots for estimation of ecological impact and yield loss by Navua sedge in response to herbicide treatments and competition with desirable grass species, and
- (iii) Determine changes in Navua sedge soil seed and tuber banks in response to the various treatments (e.g., herbicides) imposed.

B: Location and stakeholder identity

To estimate the costs of Navua sedge weed, we need a few details about the area that you manage or are responsible for. Personal information collected will be treated anonymously and in accordance with privacy legislation; we are only asking for the identity of the respondent to be able to follow up in case clarity is required.

* Osunkoya OO, Froese JG, Nicol S, Perrett C, Moore K, Callander J, Campbell S (2019) A risk-based inventory of invasive plant species of Queensland, Australia: regional, ecological and floristic insights. **Austral Ecology** 44(7), 1123–1138. doi:10.1111/aec.12776

B1: Please provide your name

B2: Please provide the address and details (e.g. Lot/Plan, property number) of your farming property:

B3: Please provide your phone contact, e-mail, and postal address:

B4: Can we contact you for further discussion on impact and management of Navua sedge?

C: Area impacted and management tactics

C1: What is the total area farmed in hectares or acres (choose one)?

In hectares:

In acres:

C2: What is the nature of agriculture on your property (grazing, cropping, horticulture, organic etc)?

C3: How long has your property (in yrs) been affected by Navua sedge?

C4: What proportion (%) of your property is impacted by Navua sedge?

C5: Do you control Navua sedge on your property?

C6: What are the methods you use in control of Navua sedge on your property?

C6a: Physical-

Explanation:

C6b: Chemical-

Explanation:

C6c: Do you use combinations of various management (i.e., Integrated weed management options, e.g., combinations of machinery rollers, rotational grazing, burning, sowing, chemical etc?)

Explanation:

C7: How much do you spend controlling Navua sedge on your property?

C6a: In labour (hours and estimated \$(yearly or monthly)?

C6b: In chemical (\$) (yearly or monthly)?

C6c: In machinery (yearly or monthly)?

C8: Following chemical treatment of Navua sedge on your farm, how long is your pasture spelling period, if any?

C9: How much do you lose (\$/annum) by spelling the paddock?

C10: Overall, how confident are you in your assessment of costs (on a scale between 100% being accurate and 0% being inaccurate)

C11: Any other comments?