

GAMBA GRASS

MANAGEMENT GUIDE

This guide provides advice on how to manage gamba grass on your property. The methods described aim to make control as strategic, cost effective and efficient as possible.

THE PROBLEM

Gamba grass (*Andropogon gayanus*) was introduced into the Northern Territory as a pasture grass in the 1930s.

Subsequently, plantings occurred throughout pastoral and agricultural areas of the Top End. Since this time gamba grass has proved to be highly invasive, establishing itself in savanna woodlands, riparian areas and vulnerable vegetation communities.

A combination of impacts on fire regimes, soil nutrient and soil water cycles are dramatically changing these native plant communities. Wildlife communities and our environment are also at risk from habitat loss.

FIRE

Gamba grass creates very high fuel loads. This results in intense fires that destroy native plant communities. Due to the intense heat and volumes of smoke produced, gamba grass fires are harder to control, require more resources and place fire fighters, volunteers and the public at greater risk.

DESCRIPTION

Gamba grass is a highly invasive grass native to Africa.

Key identifying features include:

- tussocks up to 4m tall and 70cm in diameter
- leaves more than 1m long and up to 3cm wide
- leaves which stay green after native annual grasses have died off
- fine soft hairs on leaves and stems
- distinctive white midrib on the leaves
- a wide, shallow root system
- a 'fluffy' V-shaped seed head.



Gamba grass (*Andropogon gayanus*)



More information on how to spray gamba



JAN



FEB



MAR



APR

Step 1 Assess your situation

Draw a map of your property

Include the following:

- the density and distribution of gamba grass (other weeds should also be considered)
- the location of clean (weed free) areas
- natural variations of the property, including slope, waterways and areas subject to flooding
- any infrastructure, including fence lines, driveways, yards
- paddocks, where you intend to actively manage gamba grass as a pasture (B Zone)

Your map will help to prioritise areas for control, determine a work program and develop a budget.

Step 2 Develop your plan

Determine

Which: management zone applies to your property: Eradication (A Zone) or containment (B Zone). The map on the back shows the zone areas.

Where: priority control areas are located

What: are the most appropriate control method(s) for each location

When: the works should be undertaken (refer to calendar on next page)

Who: will conduct the surveys, weed control and monitoring (self, family, contractor, staff)

Your plan should achieve the following management requirements:

Eradicate isolated plants and outbreaks (A and B Zones)

Design and implement a survey and eradication program for small and isolated clumps of gamba grass to prevent these becoming large infestations in the future. This is a legislated requirement.

Containment of major infestations (B Zone)

Major infestations, including grazing areas, must be contained and seed production prevented/minimised through an integrated control program. Know the extent of your gamba grass to ensure no further spread occurs, and actively aim to reduce the size and density of infestations. This is your legal obligation under the *Weeds Management Act 2001*; (growth and spread to be controlled), and the statutory weed management plan.

All properties in the containment zone must have minimum 15m wide buffer zones free of gamba grass around all infrastructure, property boundaries and along either side of driveways and tracks. Larger properties, and those adjoining the eradication zone have additional requirements.

Good land management

Avoid creating conditions which promote gamba grass germination and spread by monitoring grazing pressure, managing feral animals, controlling erosion and fire where applicable and maintaining some form of ground cover.

Implement an early detection and management program

Regularly monitor/survey land, including previously treated areas, to identify new or re-establishing gamba grass infestations at an early stage.

Design and implement a weed spread prevention program

Gamba grass or its seed should not be moved on machinery or equipment or in hay. All gravel, sand, livestock and other products moved within or between properties must be free of seeds or plants. It is illegal to sell hay contaminated with gamba grass.



Gamba grass annual growth and management cycle

Step 3

Implement your plan

Integrated management

The most effective way to manage gamba grass is by using a number of control methods at the appropriate growth and reproductive stage. Correct timing of slashing, grazing or fire can be used to decrease biomass to make spraying more effective and can also reduce seed production. Table 1 indicates when specific control methods should be employed. The methods used will also depend on a range of factors including seasonal variation, site characteristics (eg. accessibility, paddock size, adjoining vegetation) and previous treatment.

Table 1: Guide to the management of gamba grass

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Flowering												
Seed fall												
Germination												
Slashing												
Fire*												
Spraying												

Approximate times for reproductive events

Months most suitable for control option

Control option less suitable

Control option not suitable

Spread prevention

Spread prevention is the most successful and cost effective way of managing weeds. Always prioritise eradication of isolated plants/infestations, working back towards major infestations. Reduce size of dense, large infestations gradually over several seasons by spraying inward from edges. Implement vehicle hygiene practices to minimise spread from infested areas.

Physical control

Individual plants can be removed by hand or by using a mattock, ensuring the entire root mat is removed. This method is generally only feasible where plant numbers are limited. Slashing infestations in the early dry season is beneficial in areas where gamba grass missed being sprayed in the wet season. This decreases seed set and reduces the risk of potentially dangerous fires in the late dry season. Late dry season slashing is less beneficial because seed has already matured, but it can be used to manage fuel loads and increase the effectiveness of spraying in the subsequent wet season. (Be aware and manage fire risk appropriately depending on fire danger rating).

Grazing management

Gamba grass pastures should be managed so that seed production is minimised and spread is prevented. Pasture height should be maintained at less than 1m to avoid tussocks becoming woody and unpalatable, and developing to produce large quantities of seed. Higher stocking rates will be needed in the wet season compared to the dry season to keep gamba grass adequately managed. Rotational grazing (high stock numbers regularly moved between paddocks) in the wet season may be an option.



SEP

OCT

NOV

DEC

Fire management*

Gamba grass is extremely fire tolerant. Controlled burns in the early dry season (April-May) can reduce high fuel loads to decrease the risk of potentially dangerous fires later in the dry season. Controlled burns in the early wet season (depending on rain) can also be used to get rid of 'rank' growth prior to applying herbicide to regenerating tussocks. Areas that have been burnt should be prioritised for control in the following wet season.

Chemical control

Ideally, existing plants should have been slashed, grazed or burnt since the previous wet season to reduce 'rank' material. Allow plants to regrow green leaves following rain; apply herbicide once plants have reached knee-height so that herbicide is more effective. Early spraying of green gamba grass uses less herbicide and access is usually easier compared to when the gamba grass is 4m tall at the end of the wet season. Follow-up spraying may be needed at the end of the wet season to control seedlings which have emerged, and dormant stems which have grown since initial treatment.

Gamba grass, especially dense infestations, can be sprayed up until the early dry season, coinciding with flowering and early seed set. Spray before seed fall (end of May) to reduce gamba grass spread. High rates of gamba grass mortality can be achieved at this time; mature tussocks readily uptake herbicide, new seedlings which have germinated over the wet season can also be targeted, herbicide can suppress seed development, and this extends the opportunity for spraying in areas which were inaccessible in the wet season. Follow-up spraying will also be required in the next season. Gamba grass has a short-lived seed and infestations can be successfully managed in three years if seeding is prevented.

Spraying your gamba grass

Apply 1L of glyphosate (360g/L) mixed with 100L of clean water (1%) to actively growing (green and not stressed) gamba grass plants.

Coat the entire plant; missed stems may keep growing.

Heavy rain will wash off herbicide; glyphosate needs at least two hours to be absorbed through the leaves.

Glyphosate is a 'non-selective' herbicide; prevent contact or drift onto desirable plants to avoid off-target effects.

Dirty water and hard water that contains too much calcium will neutralise glyphosate. Lowering the water pH and adding a wetting agent can improve glyphosate effectiveness.

Avoid off-target damage. Recruitment of desirable species like this native annual speargrass (*Sorghum*) which has a different growth cycle to gamba grass, helps maintain ground cover.



Knapsack sprayers (15L) are often used for small or inaccessible infestations.



Small tanks up to 300L can be used on ATVs or vehicles for larger infestations.



Large units e.g. Quikspray®, are most effective for large, dense infestations.



What to do and when

Planning and action for gamba grass management should start in the dry season. This will help reduce fire risk as well as make herbicide application more effective once it starts raining.

The following visual cues illustrate some of the options you need to consider in your gamba grass management. The methods and timing you use will depend on your situation and site characteristics, plus prior gamba grass control and seasonal variation.



Gamba grass which has not been managed will have rank stalks which are not susceptible to herbicide. The green leaves at the base of the clumps are susceptible but follow-up spraying is usually required later in the season. Access and operator safety in dense infestations may also be an issue. Ability to spray multiple times will be influenced by costs and access.



Lush green leaves between knee and waist height are the most susceptible to glyphosate application.



Slashing in the dry season will reduce fuel load and encourage green growth more susceptible to spraying at the start of the wet season. Slashed corridors allow better access for spraying dense infestations. Apply herbicide once plants have reached knee-height.



Greater volumes of herbicide are needed to spray mature gamba grass late in the wet season compared to earlier in the season. Dense core infestations may require high volume spraying such as a QuikSpray® unit. However, new seedlings are more obvious and readily targeted.



A wet season 'cool' burn is not as damaging as a late dry season 'hot' fire and helps remove rank material. Gamba grass will recover to form dense infestations if follow-up spraying is not conducted. Allow time after burning and onset of rain for gamba grass to regenerate prior to spraying. Ensure all burning is in accordance with regulations*.



Mature seeding gamba grass in the early dry season is susceptible to spraying if it is still green. Spraying of seed on the plant can reduce seed viability. Off-target damage may be decreased since native species have already 'hayed off'.



Appropriate timing of burning (early dry season or early wet season) encourages vigorous green growth once it rains. This allows more effective spraying.



Grazing can be an effective management tool but stock numbers and paddock rotation need to be managed between the wet and dry seasons.

*Any management incorporating burning must be in accordance with the *Bushfires Management Act 2016* and the *Fire and Emergency Act 1996*. Please contact your local fire station for permits to burn if you live within a Northern Territory Fire and Rescue Service Emergency Response Area (NTFRS ERA). If you live outside a NTFRS ERA, contact your local Volunteer Fire Brigade Captain or local area Fire Warden through the Bushfires NT on 08 8922 0844.

Monitoring will help to determine the effectiveness of control methods, allowing you to work out your future weed management requirements. Consider keeping a diary of control works and weed surveys as they are conducted.

Monitor for new outbreaks

Identify regrowth or new seedlings early, so follow up control can be undertaken quickly.

Regularly check areas:

- disturbed by fire, flood, heavy grazing or earthworks
- previously infested with gamba grass
- near existing infestations (seed sources)
- which are downstream or downwind from current infestations

Document costs and resources used

Keep a record of which control methods were used and when. Also note whether or not they worked. Implementing inappropriate management actions at the wrong time can reduce success and increase costs.

Establish photo points

Photos taken from the same point, at the same time each year will help you to compare growth and management success from year-to-year. Photos will show changes in weed infestations, as well as pasture quality and/or regeneration of native vegetation.

Review your plan

Assess whether your plan achieved your requirements. Make amendments or fine tune as necessary to improve your weed control next year.

Weed Management Plan for Gamba Grass

Gamba grass is declared under the *Weeds Management Act 2001*. The Weed Management Plan for Gamba Grass (the Plan) establishes the legislative requirements for land managers in relation to gamba grass control. The Plan describes required management actions as they relate to declaration zones.

Where gamba grass presents a threat, land managers may be issued with an order to prevent spread and/or eradicate gamba. Penalties can apply for failing to comply with the requirements of an order.

Class A	Eradication Zone - To be eradicated, in all areas of the Northern Territory, except where it is classified as Class B.	
Class B	Management Zone - Growth and spread to be controlled by targeting outlier plants and preventing spread into clean areas. Infestations should be contained and reduced.	
Class C	Not to be introduced into the Northern Territory. All Class A and B areas are also classified as Class C.	

Weed Management Branch

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