

The Use of Flupropanate Products in the Management of African Love Grass.

Flupropanate products (eg. Taskforce) are an excellent tool for the management of African Lovegrass (ALG). When used skilfully and strategically it is unsurpassed in its long term ability to control ALG. The label directions must be followed, but lower, more selective, less costly rates, can be used to great advantage. Many of the limitations of this herbicide are, conversely, an advantage. When carefully applied it can exploit weaknesses in the life cycle of African Lovegrass.

The ACT Parks & Conservation Service (ACTPCS) uses it extensively, but carefully, to achieve clear goals.

Our experience has shown that it has potential to turn the ALG issue around

Major Limitations

1. Variable Selectivity

Many species are intolerant at label rates. Mature actively growing ALG plants are reliably killed at 1.5 L/ha. At this rate almost all dicots (broad leaved plants) *are not affected*. Notable exceptions are in the following plant families (peas, carrots & lilies)..

Notable too is that younger plants are more severely affected. Mature Themeda (Kangaroo Grass) and Bothriocloa (Red-leg Grass) are resistant but seedlings are killed even at low rates. Recent research has shown that young, (up to 2nd year), vigorous ALG plants, can be selectively removed from Themeda stands with a rate of 500ml/ha. Note that the current off-label permit (PER 9792) with the Australian Pesticides & Veterinary Medicines Authority allows 1.5 to 3.0L of Flupropanate per ha to be used on African Lovegrass.

2. Variably Residual

Clayey soils hold it for a long time. Better drained soils not so well. Reduction of the application rates in clay soils allows higher selectivity and cost savings.

Many species such as Microlaena sp (Weeping Grass) and Stipa bigeniculata (Tall Speargrass) are very sensitive to Flupropanate and take years to recover.

3. There are long grazing withholding periods: 4 months for boom spraying, 14 days for spot spraying. And lactating cows or goats must not be grazed in treated areas.

~~3.4.~~ **Highly water soluble** – heavy rains or overland flow from roads or rocks can leach it out of the root zone too quickly. Behaviour on slopes is unpredictable. It may concentrate at the base of slopes.

~~4.5.~~ **Resistance has been detected in other species.** It may develop in ALG too. Flupropanate is in the highest risk group for herbicide resistance developing – so if a bad result occurs with Flupropanate switch to spot spraying Glyphosate (e.g. Round-up) and ensure the plants are killed.

Major Advantages

1. **Selects ALG out in certain mixed grass pastures/grasslands.** Best *selectivity* in the ACT is achieved by spraying in April. Best control is achieved by spraying in late spring to summer when ALG is actively growing (it is a warm season grass). The difference in the kill on ALG achieved is probably not measurable.
2. **Residual effects keep seedlings down** for up to 800mm of accumulated rain fall at most rates in clays. Less so, in better drained soils. It suppresses many other plants allowing establishment of trees and shrubs in what was dense ALG. Trees subsequently suppress ALG and have other positive effects on fire behaviour, production and natural systems.

Case Study

Murrumbidgee Corridor - Stranger Paddocks (site of many of the 1990's trials by ACTPCS).

Fifty-eight (58) ha of gently sloped sandy clays to clays adjacent to Tuggeranong, locally known as the Stranger Paddocks. A monoculture of ALG with <1% Serrated Tussock, <1% St Johns wort, <1% woody weeds and about 2-5 %remnant patches of native grasses and herbs with some conservation values. About 4ha (8%) is riparian no spray zone or is too steep (> than about 10%).

Serrated Tussock control has been very expensive but not very effective here. Something else needed to be used.

There was almost no bare ground<1%.

The paddocks had a high fuel load and has a high ignition frequency due to the young demographic of the local community area and the fact that the Pine Island picnic area (200,000+ visitors pa) is to the North and West. It is part of the Asset Protection Zone and so must be kept in a low fuel state. Agisted stock kept areas down but were not always available, suffered from poor water supply, were harassed by town dogs and the selective grazing was only advantaging less palatable species (all problems with expensive solutions).

A popular Walking trail and The Bicentennial Horse trail go through the area.

It has a huge population of Eastern Grey Kangaroos.

The isolated plants in the native patches are spot sprayed with Glyphosate in spring or summer.

The slash lines are regularly sprayed with low rates of Taskforce. The walking trail is in the riparian zone, so the trail is kept clear by slashing with a Tow'nMow behind a quad bike and spot spraying of Glyphosate. Selective boom applications of Flupropanate is being considered to cut costs and deliver a more comfortable trail to the many users.

Actions

The entire, complex, 58ha area was carefully boom sprayed, in Summer at 1.5L/ha of Flupropanate in 50L of water by a local contractor for \$4,800.00. After some 40mm of rain it was Hazard reduced

by burning. This HR burn is not a typical treatment. Normally the dead tussocks are left to protect soil, suppress weeds and provide a micro climate for tree seedlings.

Some 120kg of native grass seeds were spread by volunteers and staff after 100mm+ of rain.

Result about a year later.

Fuel load is negligible. The main objective has been achieved.

Excellent, complete kill of ALG and Serrated Tussock. Strangely, *all* Themeda died but much of the Danthonia sp. survived (possibly because it was dormant).

Serrated tussock is not measurable now but small patches in the untreated areas continue to be spot sprayed.

The average is about 35% bare ground but ground cover is increasing quickly.

There has been a marked saving in slashing times.

Germination of native herbs and forbs and annual weeds prolific. In some areas the density of Common and Tall Blue Bells (*Wahlenbergia* sp.) was spectacular.

Little of the sown grasses survived the dry 2009-2010 summer.

Kangaroo Grazing has switched to native species.

Conclusion

Monitoring of the case study site will continue. It is expected that follow-up control will prevent any major re-infestation of the ALG.

It should be remembered that ALG has a relatively short lived seed bank. This is a weakness in its life cycle that can be exploited by the residual effect of Fluproponate.

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See also:

www.dpi.nsw.gov.au/_data/assets/pdf_file/.../herbicide-control-grass.pdf

http://images.wool.com/pub/3D_Weed_Guidelines_AfricanLovegrassJune2009_lowresFINAL.pdf

<http://taskforceherbicide.com/papers/gunning.html>