

Herbicide Wipers for Grass and Broadleaf Weed Control

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INTRODUCTION

The control of grass and broad leaf weeds in legume and mixed legume/grass pastures is an ongoing problem. With the use of selective herbicides, the control of various grasses and broad leaf species can be achieved in pure grass or legume stands. However, the control of weeds in mixed legume/grass pastures is more difficult with few available selective herbicides that we know of that are economically justifiable.

Woody and other broadleaf weeds usually invade pastures when they are overgrazed and/or as soil fertility declines over time. They may also actively respond to increased nutrient availability. As commercial cattle producers sow more improved pasture species, there is a need to apply fertilisers to maximise returns. The improved cattle carrying capacity of these pastures has led in some cases to overstocking. This in turn leads to conditions which favour broadleaf and woody weed invasion. The presence of these weeds reduces productivity of the pasture as the proportion of weeds increases. Such a situation makes weed control essential.

Retaining good ground cover (careful grazing management) will greatly assist in maintaining good weed control. Biological control is another highly desirable method but it is often not available. Chemical control is often the only other option which involves the use of registered herbicides. However, it must be stressed that weed control needs a combination of management systems, as a single solution in isolation will usually be ineffective in the long term. An integrated management plan of chemical use, grazing management, biological control and physical treatment is usually the best method of achieving long term control.

HERBICIDE WIPERS

Herbicide wipers are a useful tool in controlling weeds taller than the desired species. The herbicide is applied to the weeds via a carpet roller, carpet wiper, wick wiper, rope wick applicator or a similar device. Different types of wipers have been used on research and commercial farms for several years in the Top End.



Herbicide carpet rollers (see Figure 1) are simple and relatively cheap machines for wiping tall erect weeds above the crop or pasture, without applying herbicide to the desired plants. This type of machine has been found to be effective for the control of many of the Top End's broadleaf, woody and taller grass weed species.



Figure 1. Carpet rollers – (a) multiple and (b) single roller designs

ADVANTAGES

The advantages of using herbicide wipers compared to spraying equipment include the following:

- Wipers are more economical since the herbicide is applied to weeds only.
- Wipers are environmentally more acceptable as the herbicide contacts weeds only but not the soil.
- There is no spray and no wind drift.
- Wiper can be of a simple construction and relatively inexpensive.
- A range of chemicals can be used.
- Wipers can be operated using a small tractor, as they require very low power.
- Wipers come in a range of sizes, from small hand held wands to units 10 metres wide, or more.
- Wipers use smaller amounts of more concentrated chemical solution, thereby requiring fewer solution refilling during operations.

DISADVANTAGES

- Wipers are useful only where weeds are taller than the desired pasture species. It may be necessary to graze the pasture before wiping.
- Wipers only affect the weeds they contact; shorter plants may be missed.
- Many producers own boomsprays but not wipers.

CHEMICALS USED AND WEEDS CONTROLLED

Past trials and observations have shown Glyphosate (registered for use with wipers by a number of chemical companies) to be the most commonly used chemical as it controlled most grasses and many broad leaf weeds. These include *Sida* sp. (*S. acuta* and *S. rhombifolia*) *Hyptis*, (*H. suaveolens*) *Crotalaria* spp. (*C. goreensis*), *Senna* (*S. obtusifolia* and *S. occidentalis*) and *Pennisetum* (*P. pedicellatum* and *P. polystachion*).

Grazon® is also registered for use with wipers. It has been successful in controlling a number of woody weeds (*Sida* and *Crotalaria* spp. *Hyptis* and *Senna*). Sucker regrowth species were also controlled including some *Eucalyptus* and *Acacia* spp.

APPLICATION RATE

The application rate (litres of solution per hectare) depends on weed density and type, the type of applicator and the operator's experience. Observations at the Douglas Daly Research Farm indicate 30 to 50 litres of mixture per hectare as appropriate for wiping 100% of broad leaf weeds (Sida/Senna/Hyptis at 70-120 cm high).

The effectiveness of the wiping operation will depend on weed species and age, weed size, growth, weed density and the extent of chemical contact with the foliage. Large perennial Sida and Senna plants will often look yellow and sick for months; however some may recover, suggesting a sub-optimal dose.

In thick, dense patches wiping in the opposite direction may prove more effective in killing weeds.



(1)



(2)



(3)

Figure 2. A herbicide wiper in action (Picture 1). A close up of the wiping action (Picture 2) and the end result (Picture 3). The roller drum rotates in a forward and upward direction against the weed.

For more information on current practices, please contact your local DPIFM Agricultural Extension Officer.

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