



CONTROL OF LANTANA CAMARA

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Lantana camara L., commonly referred to as lantana or tickberry (Figure 1), is of South and Central American origin. Lantana can be controlled by either manual/mechanical or chemical means while biological control provides limited additional control at this point in the form of suppression of growth and reproduction.

Lantana camara L.
lantana
Family Verbenaceae

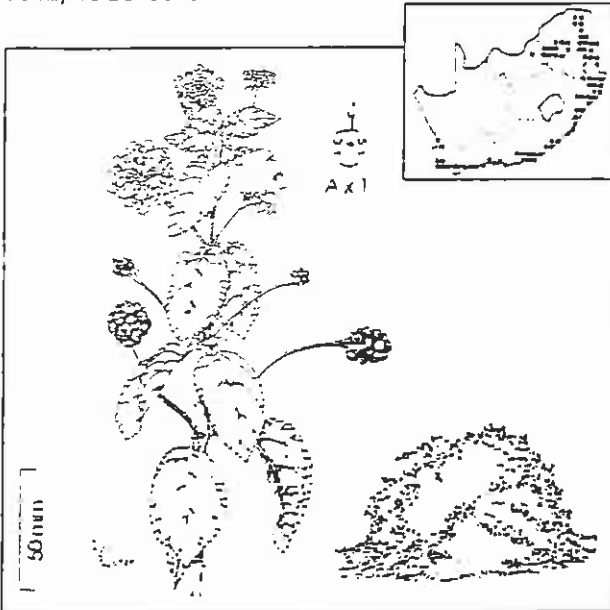


Figure 1: *Lantana camara*

Years of hybridisation between different cultivars of *Lantana camara* have resulted in a complex of cultivars which are extremely difficult to tell apart. Differing flower colour, leaf and stem characteristics help to distinguish between different cultivars.

INTEGRATED CONTROL

Integrated control means mixing and matching all the available methods for lantana control until a

suitable control strategy for your property is arrived at. There are three stages of weed control that must be worked through to achieve any success. Initial control - first control operations, Follow-up control - treatment of any regrowth, missed plants and seedlings. Maintenance control - treatment of the odd seedling that appears. This is the desired level of control.

Generally it is advisable to begin lantana control by treating single plants and small isolated patches scattered in the veld since these will thicken up and cost more later, while dense thick stands can not get any worse and should just be contained until other areas are under control.

METHODS:

1 Biological control

A total of 18 agents have been released in South Africa for the biological control of lantana. Of these two leaf-mining beetles (*Octotoma scabripennis*, *O. Championi* and *Uroplata girardi*), a leaf-sucking bug (*Teleonemia scrupulosa*), a leaf-mining fly (*Calcomyza lantanae*), a seed fly (*Ophiomyia lantanae*), a flower feeding moth (*Lantanophaga pusillidactyla*) and a leaf feeding moth (*Hypena strigata*) have established. At present these insects contribute towards suppression of the growth of pink flowering lantana cultivars on the Natal coast. In the warmer inland areas *T. scrupulosa* defoliates lantana in certain years. Defoliation results in decreased seed production and die-back of leaves and some branches.

Although research into biological control of lantana is still in progress, there is little likelihood that control by biological means only will succeed. Therefore an integrated approach must be implemented.



2 Manual/mechanical control

Lantana is a perennial plant and will regrow after being cut. It is therefore essential to uproot the plant.

a) Seedlings/small plants up to 1m tall -uproot by hand-pulling. In dry clay soils, first loosen the earth with hand-hoe, pick, mattock or fork.

b) Large plants >1m - cut away the top growth to expose the base of plants. Loosen soil (with handhoe, pick, mattock or garden fork). Remove roots by pulling on the remaining stump.

Manual/mechanical uprooting of lantana sometimes results in considerable soil disturbance particularly where large plants are present in dense thickets. This has two major consequences which must be considered before implementing this control method. Firstly, where lantana is virtually the only plant species growing in the area, *removal of the root system and the associated soil disturbance renders such areas susceptible to erosion, especially on steeper slopes.* Secondly, *soil disturbance is conducive to reinfestation and colonization by opportunistic weeds.*

Tools used include handhoe, pick, mattock, garden fork, slashers, cane knives and bush knives. If there is extreme reluctance to use herbicides in large infestations and a comprehensive rehabilitation programme is to follow then bulldozers and cables and winches attached to tractors can be used for uprooting plants. A tractor drawn slasher may be used to cut the plants and the area ploughed with a ridger unit with 68cm x 10mm discs to uproot the stumps (G.C. Tillage).

3 Chemical control

The herbicides registered in South Africa for the control of lantana are shown in the table. Before applying any of the herbicides, **IT IS ESSENTIAL THAT THE LABEL ATTACHED TO THE HERBICIDE CONTAINER BE CAREFULLY READ AND UNDERSTOOD.** Any uncertainties must be clarified with the distributors before proceeding. Three application techniques are available for chemical control of lantana. These are soil, stump and foliar application.

Soil application

Soil applied granular and wettable powder herbicides are registered. With the granular formulations (Grazer GG), the required dosage of granules must be evenly scattered, by hand or aerially, throughout the infestation. With the wettable powder formulation (Reclaim WP, Tebusan GG), a specific volume of water containing the herbicide powder is squirted on to the ground at the base of each plant. A dose gun is used for this purpose.

NOTE

- The efficacy of soil applied herbicides is affected by the clay content of the soil. The higher the clay content, the higher the dosage required and therefore the greater the cost.
- Soil applied herbicides are non-selective and will kill other plant species, especially trees and shrubs, whose roots occur in the soil in the region where the herbicide is to be applied. Therefore these herbicides **MUST NOT** be used in timber plantations, indigenous forests or gardens.

Stump application

Stump applied herbicide treatments are recommended where the lantana plants are generally too large (greater than 2 m tall) for foliar application of herbicides. The herbicide mixture (herbicide in water or diesel as specified in the table) is applied to either the freshly cut surface (Access or Chopper in water) or, within hours to the cut surface, bark and exposed roots (Tordon Super in diesel) of approximately 10 cm tall stumps.

The herbicide is applied by either a 25mm paintbrush, a small (0,5 - 1,25ℓ) hand sprayer or a knapsack sprayer. Where spraying of the stump is exercised, it is necessary to use a low pressure coarse spray to ensure, as far as possible, that the herbicide be applied only to the target stump. The advantage of the sprayer over the paintbrush is that in rough terrain no wastage through spillage occurs and application is a lot quicker and less tiring for the labour who do not have to bend down to each stump.



Chopper contains a red dye to mark treated stumps. Add Ecoguard Blue to Access. Tordon Super need not have a dye as the diesel marks the stump.

Foliar application

Application of herbicides to lantana foliage is limited by the density of the infestation and the height of the plants which can be sprayed by knapsack sprayer, unless high volume vehicle mounted sprayers are to be used. For knapsack application, the maximum height of plants to be sprayed is 1.5-2 m to ensure good spray coverage of all the foliage. Taller plants and plants in dense thickets where access for sprayer operators is limited, must be slashed near ground level and left to regrow. The coppice (regrowth) is then sprayed when 0,5 - 1,0m tall. Should it be necessary to first slash, stump application (described above) must be considered as an alternative herbicide application technique.

A number of herbicides are registered for foliar application to lantana. Generally only two are used; i.e. Roundup and Access. Roundup is a non-selective herbicide and will kill sprayed grass. Access is a selective herbicide and will NOT kill grass.

With foliar applications, the following aspects must be considered:

- Spraying in windy conditions must be avoided as spray drift on non-target desirable species can occur.
- A rain-free period of approximately 4-6 hours for Roundup and 2-3 hours for Access is recommended for best control.
- Spraying of drought stressed plants should also be avoided as plants in this condition will not absorb sufficient herbicide for a lethal dosage.
- Care must also be taken to ensure good spray coverage of all the foliage.
- Plants must not be wet.

Cost of control

Slashing is often the most expensive operation as it is labour intensive. Slashing is usually required for both mechanical and chemical control.

Slashing and uprooting is extremely labour intensive and costly. Slashing and the application of herbicides to stumps is more economical. Access and Chopper are cheaper since water is the carrier and not diesel as with Tordon Super. Manual/mechanical control is the most expensive method.

Follow-up

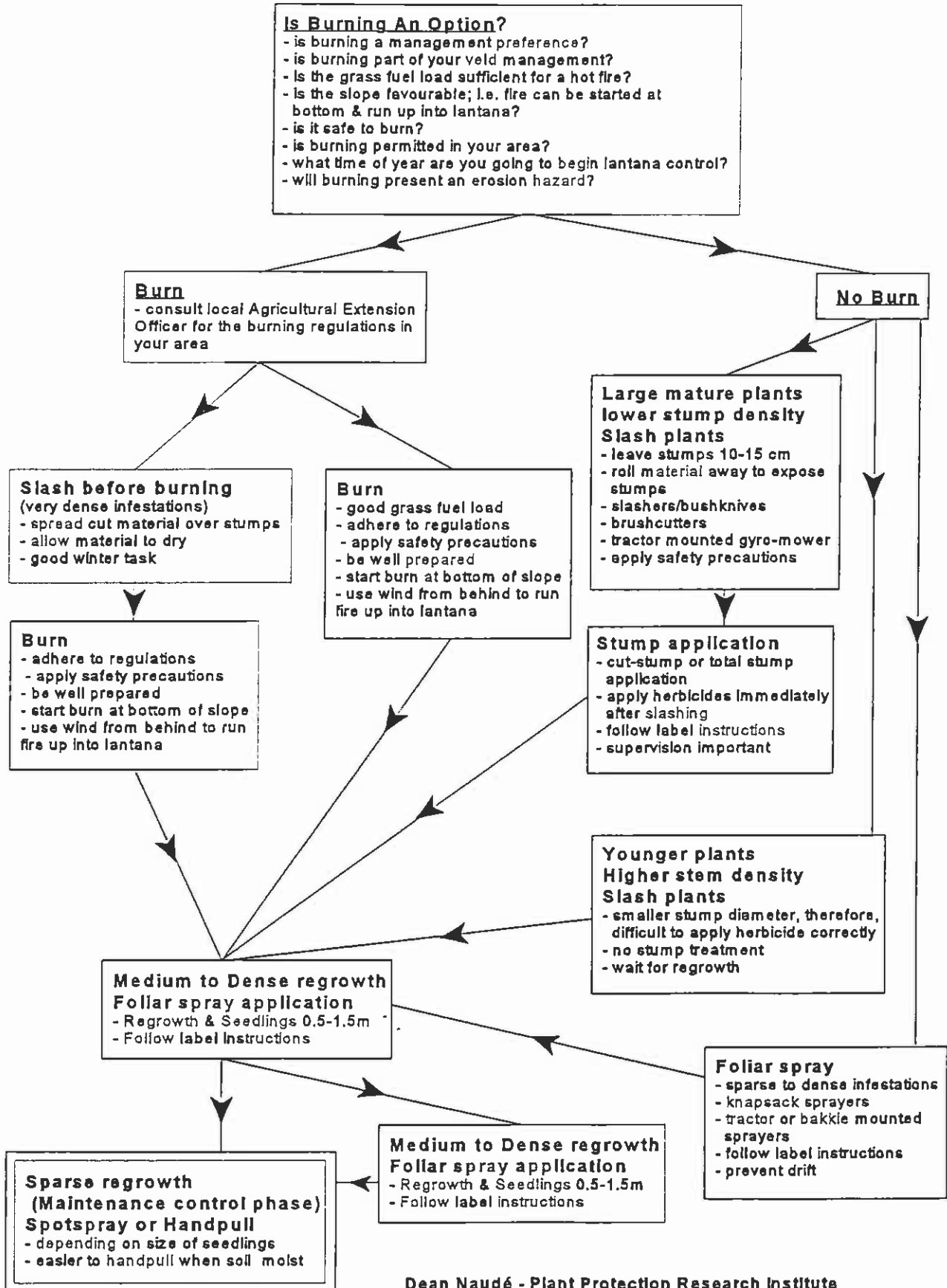
It is imperative that in the planning stage provision be made for follow-up measures. Many lantana seeds fall to the ground during periods of seed production and these germinate and reinfest cleared areas. In addition, removal of dense thickets provides suitable conditions for establishment of other weeds. Failure to control reinfesting plants and other weeds results in wasted effort as reversion to the formerly undesirable state occurs rapidly. The cost of the initial control measures is far greater than the that of the follow-up treatments. It is therefore an economically sound practice to maintain cleared areas free of weeds.

Follow-up measures include hand-pulling of seedlings and spot spraying with Access or Roundup. Follow-ups must be done at least annually and forever!!!

Figure 1 from: Henderson, Lesley. 1995 Plant invaders of Southern Africa, Plant Protection Research Institute, Private Bag X134, Pretoria.



Integrated Control Strategy for *Lantana camara*





HERBICIDE TREATMENTS REGISTERED FOR CHEMICAL CONTROL OF LANTANA CAMARA - 1996

Trade name	Active ingredient	Site of application	Herbicide mixture (% conc.)	Further information
Grazer GG	tebuthiuron 200g/kg	soil	granular ready-to-use 4 - 6 g/m ²	Distribute evenly through infestation. Not next to or in crops, plantations. Dosage dependent on soil clay content; refer to label.
Reclaim WP, Tebusan GG	tebuthiuron 752g/kg	soil	1kg powder in 5ℓ water	Apply as a spot treatment with an automatic vaccinator. Not next to or in crops, plantations. Dosage dependent on soil clay content and size of plant; refer to label.
Roundup, Glifogarde, Glyphogan 360SL, Glyphosate 360, Clear Out, Mamba 360 SL, Profit 360, Ridder Weed Killer	glyphosate 360g/ℓ	foliage	300mℓ to 10ℓ water (3.0%)	Plants taller than 2m should be slashed and the coppice sprayed when 0,5-1,0m tall. Ensure good coverage of all foliage. Avoid run-off & spray drift onto non-target plants.
Stirrup	glyphosate 144g/ℓ	foliage	15ℓ/ha	Apply to regrowth from slashed plants when 0,5-1,0m tall. Ensure good coverage of all foliage. Avoid run-off & spray drift onto non-target plants
Roundup (small pack), Glyphosate 360 Acid, Sunup 360 SL, Tumbleweed	glyphosate 240g/ℓ	foliage	2.25-3ℓ/ha	Plants taller than 2m should be slashed and the coppice sprayed when 0,5-1,0m tall. Ensure good coverage of all foliage. Avoid run-off & spray drift onto non-target plants.
Sting, Clear Out 180, Coora 180 SL, Wins 180, Glyphofix 180 SL, Glyphosate 180, Spuiker 180 SL, Swift 180 SL	glyphosate 180g/ℓ	foliage	300mℓ/10ℓ water (3%)	Apply to seedlings & regrowth from slashed plants when 0,5m tall. Ensure good coverage of all foliage. Avoid run-off & spray drift onto non-target plants
Touchdown	glyphosate trimesium 720g/ℓ	foliage	2ℓ/100ℓ water (2%)	Spray onto actively growing plants
Access	picloram 240g/kg	foliage	75-100mℓ/10ℓ water (0.75-1.0%)	Plants taller than 2m should be slashed and the coppice sprayed when 0,5-1,0m tall. Apply to point of run-off. Not next to or in crops, plantations.
Access	picloram 240g/kg	stumps	100mℓ/10ℓ water (1.0%)	Slash plants 10-15cm above ground. Apply as low pressure coarse spray to freshly cut surface & bark of stump. Not next to or in crops, plantations.
Tordon Super	picloram/triclopyr 120/240g/ℓ	stumps	100mℓ to 10ℓ diesel (1,0%)	Slash plants 10-15cm above ground. Apply by paintbrush or low pressure coarse spray to freshly cut surface, bark and exposed roots of stump. Not next to or in crops, plantations.
Chopper	imazapyr 100g/ℓ	stumps, foliage	200mℓ to 10ℓ water (2,0%)	Slash plants 10-15cm above ground. Apply by paintbrush or low pressure spray to freshly cut surface of stump. Avoid run-off onto soil. Apply as full cover spray to the foliage. Coppice should be 0.5-1,0m tall. Avoid run-off & spray drift onto non-target plants Not next to or in crops, plantations.