# Spray Misting

## *Rubber Vine*

## Improving the efficiency of spray misting

Spray misting using horticultural mist blowers for the foliar application of herbicides to control prickly acacia was tested under permit number PER855964 under project funded by the Australian Government, administered by the Department of Agriculture and Water Resources and run by Desert Channels Queensland.

Under the right conditions, this technique has been effective; however, some limitations have been identified and when using this technique consideration needs to be given to overcoming these limitations to maximize the control of Rubber Vine

This project has been designed to test the application of the aminopyralid and metsulfuron-methyl based herbicides for the control of Rubber Vine using misters to increase efficiency over traditional techniques.

## Field Test

- A one (1) kilometre section of riparian vegetation was treated with the test chemicals.
- Each trial area was 400 m long.
- Chemical application occurred throughout the day and tested the relative effectiveness of the chemicals under variable temperature and humidity levels.
- Mortality was measured in bands of 10 m from the mister.
- The plants were in good condition when sprayed and densities varied from sparse to vary high and target plants ranged from less that 1 m to more than 5 m in height.
- The majority of plants were less than 3 m high.
- The nozzle angle of the mister was set to protect larger native trees and was not varied throughout the trial areas.
- Misting began as 7:30 am and was concluded by 3:30 pm.
- A trailer-mounted spray mister pulled by an MUV was used to allow close access to the target plants.

For further information, contact:
Desert Channels Queensland – 4658 0600
Charters Towers Tropical Weed Research Centre – 4761 5700
Southern Gulf NRM – 4743 1888

## Where to use spray misting

Spray misting can be used for:

1. control of sparse and immature rubber vine infestations, particularly along creek lines and depressions and open flats bordering riparian areas;
2. secondary control supporting an initial treatment by mechanical or hand spraying; and
3. flower suppression of mature trees to stop seed production.

## Maximising control with spray misting

The following established rules of thumb will help maximise control with spray misting:

1. Only use chemicals in accordance with directions on registered labels.
2. Plants need to be healthy and vigorously growing as occurs after rain.
3. Unhealthy plants won't absorb the chemical and mortality will be reduced.
4. A slight wind of between 3 km/hr and 15 km/hr will help chemical penetration of the infestation without dispersing the chemical over excessive areas.
5. Evaporation of mist needs to be minimised – excessive temperature and low humidity are to be avoided.

## Field Trial Results

1. Field trials showed that maximum mortality occurred within 20 m of the mister, and for plants under 2 m – overall mortality of larger trees was very low.
2. The mortality rate declined slowly for distances in excess of 20 m from the mister for immature plants, but quickly for plants over 2 m in height
3. Germinating seedlings were found throughout the treatment area post treatment, reinforcing the need for follow-up control.

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# Misting Operational Checklist

To optimise safety and effectiveness all fields should be answered yes before commencing misting.

| Question | Yes | No | Rationale | Resolution |
|---|---|---|---|---|
| Do you have the correct safety equipment? | ☐ | ☐ | PPE will reduce exposure to chemical while mixing and applying. | Consult chemical Safety Data Sheet and obtain the correct safety equipment before commencing. |
| Are you able to get within 20 m of the target plants at all times? | ☐ | ☐ | Staying as close as practical to target trees will ensure maximum penetration of mist into the infestation and minimise the risk of spray drift to non-target species. | Remove obstacles where possible or consider other treatment options. |
| Can you apply the chemical from the mister at between 1 and 2 km/hr? | ☐ | ☐ | Application speed significantly influences the kill rate within a given strip width by altering the spray volume and leaf coverage of the herbicide. The recommended application speed of 2 km/hr applies twice the spray volume of an application speed of 4 km/hr, therefore providing more thorough coverage of foliage and increased kill rate within a 20 m strip. | • Recalibrate equipment to match an achievable speed.<br>• Apply mist at 4 km/hr in two passes.<br>• Consider other control methods. |
| Have you calibrated your mister and checked chemical mix rates? | ☐ | ☐ | Information on calibration and rates is available and needs to be followed to maximise effectiveness of the technique | Calibrate mister and check rates. |
| Have you marked out the treatment strip lengths? (a 400 L tank will be fully used in 400 m) | ☐ | ☐ | This is a method of operation that has been suitable in certain circumstances. It may not suit all circumstances. | Consider how to best undertake misting operations to ensure the greatest application efficiency. |
| Have you taken monitoring photos? | ☐ | ☐ | This provides a record of before and after reporting purposes. | Setup photo monitoring points as per DCQ monitoring point guidelines. |
| Are prickly acacia plants actively growing? | ☐ | ☐ | If plants are not actively growing, or leaflets are closed, herbicide uptake will be reduced, resulting in lower mortality. | Wait for plant conditions to improve before misting. |
| Are weather conditions suitable for misting?<br>• Wind between 3-15 km/h<br>• Air temperature less than 32°C<br>• Relative humidity above 30% | ☐ | ☐ | If weather conditions are not suitable, herbicide uptake will be reduced (through evaporation of mist or spray drift) resulting in lower mortality. | Wait for weather conditions to improve before misting. |

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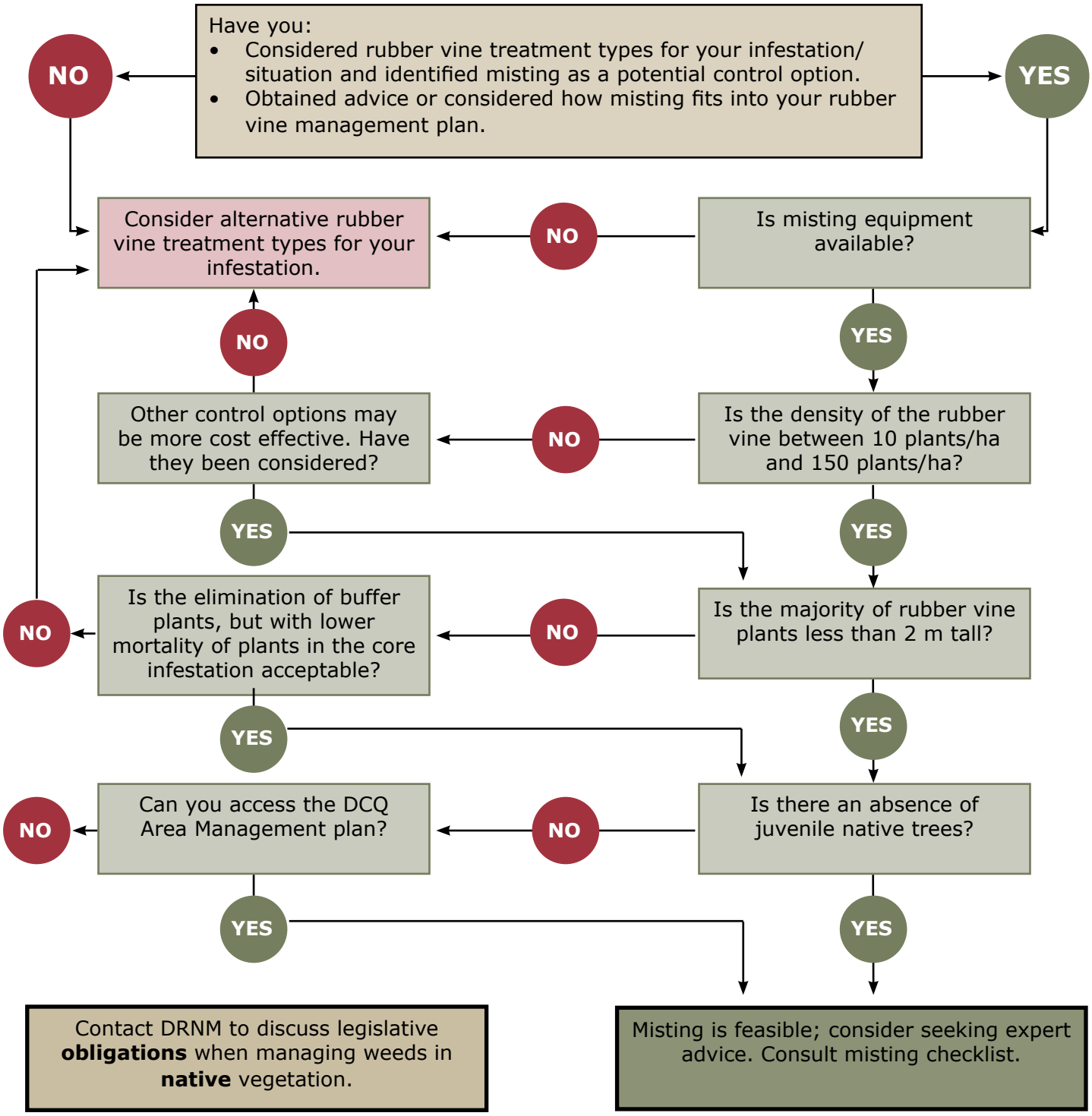
# Spray Misting Rubber Vine Decision Tree




## Acknowledgments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It has been a collaborative effort between Desert Channels Queensland, Department of Agriculture and Fisheries (DAF), Southern Gulf NRM and participating landholders.

The contribution of all participants is recognised and appreciated, and their substantial commitment in time and resources continues to refine and improve these control techniques.


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