The OPRAtive Word

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CHEMICAL CONTROL OF LAUREL/TRUMPET VINE *(THUMBERGIA LAURIFOLIA* LINDLEY) IN OIL PALM CROPPING SYSTEMS

Richard Dikrey and Mark Ero

Introduction

Laurel/Trumpet Vine (*Thumbergia laurifolia* Lindley) is a vigorous growing invasive perennial weed that posses threat to natural vegetation and agricultural systems in wet tropical regions. It is native to Northern India, Malaysia and the tropical African regions but has spread to many other pantropical parts of the world including Papua New Guinea (PNG). The vine can grow aggressively up to heights of around 15m climbing and smoothing natural vegetation, shading out and killing understory and pulling down mature trees. In oil palm cropping systems, the weed has been observed growing aggressively sometimes overgrowing palm heights.

Plate 1. Laurel vine growing over mature trees in a buffer zone in West New Britain.

Biology

The weed is perennial and can live for many years. It can potentially germinate from seeds, vines and tubers. The vine has tuberous root system and can keep re-growing when slashed or treated with contact herbicides. Such reproductive habits and the invasive nature of the weed can pose major challenges to control efforts.

The leaves of the plant are broadly elliptic to narrowly ovate, 8 - 15cm long and 2.5 - 6cm wide, grow in opposite pairs along the stem on stalks up to 6cm long.

The trumpet-shape flower has a white or pale yellow throat and opens out with five rounded corolla pale blue to white petals with one larger then the others. Flowers are up to 8cm long and 6 - 8cm in diameter and are borne in clusters on long, dropping branches.

Seed capsule is brown, inconspicuous, oval shaped, with pinched ends about 4 -10mm wide. Capsules usually contain two to four hemispherical seeds which have hollow inner surface.

The plant has a tuberous root system and can regerminate from many dormant buds when cut.

Plate 2. Close up of Laurel vine flowers.

Habit and Control

The aggressive nature of the weed renders it serious threat to native vegetation and agricultural cropping systems. It can rapidly grow over natural vegetation and agricultural crops smoothing and killing them if no control measures are applied to manage it. Its control can be challenging as there are no biological control agents available and the weed keeps re-germinating from the tubers when either slashed or treated with contact herbicides. Effective control can only be attained by treating the re-germinating shoots with systemic herbicides after slashing.

Plate 3. Fleshly slashed Laurel vine plot.

Plate 4. Re-germinating Laurel vine ready for treatment.

The systemic broad spectrum herbicides Arsenal® (Imazapyr) and Roundup® (Glyphosate) have been found to be effective against the weed when applied on re-germinating shoots after slashing. Effective kill has been attained after two to three rounds of treatment. However, due to the current restriction of glyphosate use under SAN guidelines Imazapyr is the only suitable herbicide to treat the weed. The unit price of the herbicide is K13.00/L and is available in either 5L or 20L containers.

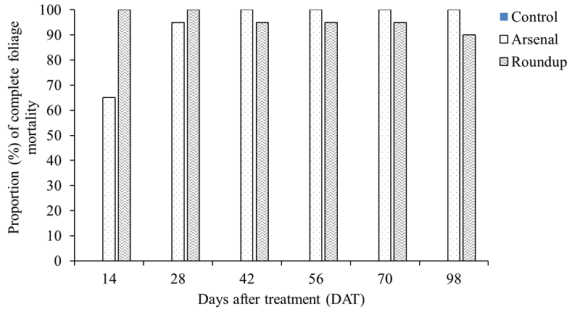

Figure 1. Percentage (%) foliage mortality over time (days after treatment) after the third round of spraying.

Plate 5. Treated fields during the final round of mortality assessment after three spray round regimes (*Left* = Control, *Middle* = Arsenal®, *Right* = Roundup®).

Plate 6. Statuses of tubers after the three rounds of herbicide application for each treatment *Left* = Control, *Middle* = Arsenal®, *Right* = Roundup®).

Control recommendation

1. Slash the weed and wait for at least a month to allow re-growth and foliage establishment. This will allow adequate surface area for chemical absorption.

2. Start the initial round of herbicide application after the establishment of adequate foliage (about 5-10 leaflets). Use the plantation standard rate of 300ml/15L knapsack filled with water and 15ml LI-700 surfactant. Spot spray on re-germinating weed leaflets after mixing.

3. At least two rounds of application should be done on fortnightly basis using the standard application rate to effectively control the weed.

4. In the event of regrowth after the required rounds of treatment, repeated fortnightly applications should be done until the weed is killed.

5. When applying within the oil palm fields avoid the herbicide from coming in contact with the root system and the foliage of palms. Being broad spectrum systemic herbicide, it can translocate and kill them.

After the treatment

1. Return unused chemical (Imazapyr) to designated chemical store shed and lock it away from unauthorised people and out of reach of children.

2. Never transfer Imazapyr into bottles used for drinks (e.g. soda, beer bottles/cans or edible oil can/drums).

3. Make all empty containers unusable (by piercing them) and safely dispose them in designated chemical disposal pits. It is NOT POSSIBLE to clean herbicide containers well enough to make them safe for storing food or water, or distilling alcoholic beverages.

4. Clear up any spillage as soon as possible. If coming in contact with the herbicide, seek medical attention as soon as possible.

5. Remove and wash protective clothing after the treatment round.

6. Wash thoroughly after the treatment and put on clean clothing.

7. Keep an accurate record of the herbicide usage, including details of workers and the number of hours each was exposed to the herbicide during the operation.

For further information contact:

Head of Entomology
Papua New Guinea Oil Palm Research Association Inc.
Dami Research Station
West New Britain
Papua New Guinea.
Tel: +675 7999 9493
e-mail: entomology@pngopra.com