Downy Rose Myrtle Herbicide Field Trial
by Elroy Timmer

Cooperators
SFWMD

Funding
By
BASF
DOW

Aquatic Vegetation Control, Inc.
Vanquish and Krenite
The Best Two Treatments in 2007

Vanquish 2 qt.
Krenite 6 gal.
2007 Twenty Acre Treatment

- Vanquish at 2 quarts per acre
- Treatment by AVC for SFWMD
- Below is a before and after photos
- The next 7 photos are 2 years after application
- Less than 5% Downyrose myrtle remains
Best Three Treatments on Downy Rose Myrtle at 13 Months in 2009

- Arsenal: 24
- Garlon 4: 64
- Vanquish: 32
- Overdrive: 4
- Vista: 42
- Garlon 4: 128
Arsenal at recommended use rate of 48 oz per acre

- Arsenal 1% = 37.5 gpa (needs about 100 gpa for control)
- Arsenal 2% = 18.75 gpa
- Arsenal 3% = 12.5 gpa
- Arsenal max label rate 96 oz
Garlon 4 Ultra 15%
Cut Stump Treatment

- Treated 1/100 Acre
- Equivalent to 37.5 gal per acre of oil and Garlon mix or 5.625 Garlon 4 Ultra per acre
- That is almost 3x label rate
- One acre would take at least 60 hours labor plus supervisors = approximately $1,400.00
- Approximately $900.00 herbicide
- Control 80 - 85% after one year
- Immediate results in sensitive areas
Calibration

- At least 3 methods of calibration can be used, depending on the situation and need for precise accuracy
- All methods should be used by applicators
- “Field Calibration” is very quick and easy
CALIBRATION 101
CROMWELL–VANDIVER METHOD

1. Best, most accurate method
2. Critical for boom types of treatment
3. Most effective for large scale uniform treatments
4. Requires calibration of tips and ability to spray at a uniform speed
5. It may take a couple of hours to get equipment calibrated
6. Once calibrated, large areas can be treated accurately and efficiently
Calibration 101 involves:

- Measuring a known distance
- Measuring volume at set speed or engine rpm
- Measuring all tips. When using a boom, replace tips above 10% from average
- Treating test area at selected speed
- Calculating amount of water used in test area
- Adjusting tip size, pressure or speed as needed
- Calculating rate needed in one acre
- Math skills
Applicators should use this method every day.

Once an acre has been treated, back calculate the treated area to verify the area is an acre. Continue back calculating, adjusting the speed of application or tip to assure accuracy.

An acre equals

- $208.7 \times 208.7$ feet
- 1 mile $\times 8.25$ feet
- $\frac{1}{4}$ mile $\times 33$ feet
- 100 feet $\times 434$ feet
Field Calibration

- Technique for managers to quickly determine rates
- Technique for applicators to check on the accuracy throughout the day
- Technique for land managers to check accuracy and project progress of contractors
- Takes only minutes to check accuracy of treatment
In the above slide, how does one calculate rate using Calibration 101?

It is difficult to measure distance or treat at a select speed so calibration is difficult.

The One Minute Rule

- The Optimum time required to treat an area of (20.8’ x 20.8’) (1/100 acre) (435 sq. ft.) is one minute.

- Any treatment that varies from this significantly will:
  - lead to poor coverage
  - take too much time to treat an acre.
# The One Minute Rule

**Tip size in GPM**

<table>
<thead>
<tr>
<th>GPA (GPM)</th>
<th>.25</th>
<th>.5</th>
<th>1.0</th>
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<th>2</th>
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Seconds to treat 1/100 acre (20.8 x 20.8 feet)
Simple Field Guide to Determine Rate Per Acre

1. Determine output of spray tip in gal per minute
   (How is that determined?)
   
   A. Spray into container for one minute
   B. Be familiar with tip rating and pressure

2. Understand the role pressure plays in tip calibration
Understanding tips
Spraying systems:

- The first 2 numbers denote the angle
- If the angle is over 100 degrees the first 3 numbers denote the angle
- The next two numbers indicate the gal/min

Example 1505

- 15 degree angle
- .5 gallon per minute at 40 psi
How does pressure affect volume?

- Four times any pressure will double volume

Example - Tip 1505

- The rate (gallons per minute) of this tip at 40 psi is 0.5 gallons per minute
- The rate at 160 psi is 1 gallon per minute
- The rate at 10 psi is 0.25 gallons per minute
Tip Selection

- For treating with a hand gun one normally uses the same number tip (last two numbers plus 0) as the total gallons per acre

Example: 1505 tip is used with 50 gal per acre
A 0020 is used with 200 gallons per acre
A 0010 is used with 100 gallons per acre
# The one minute rule

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Seconds to treat 1/100 acre (20.8 x 20.8 feet)
What does this mean to managers?

- Manager can look at or measure tip
- Watch to see how long it takes to spray a \(\frac{1}{100}\)ths of an acre
- Look at the chart and calculate the rate
- Estimate the time for bidding
- Land managers should be able to estimate the time contractors should take to complete work
Example

- If it takes 1 minute to treat $\frac{1}{100}$ of an acre it will 100 minutes to treat an acre and 3-4 acres per day depending on water supply and mixing time.
- If it takes .5 minutes then one can treat 6-8 acres per day. If mixing time is not a factor then one could treat 10 or 11 acres per day.
# Quick Guide for Hand Tanks

## Tip Size in GPM

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Seconds to treat 1/1000 acre (6.6 x 6.6 feet)
Aquatic Vegetation Control

Thanks you for attending Aquatic Weed Short course

Are there any questions?