

## Managing Deep-Rooted Invasions

TEXAS A&M  
**AGRILIFE**  
EXTENSION



## Brush Busters Philosophy

- ③ Treat brush when most vulnerable.
- ③ Use most effective treatment option.
- ③ Be environmentally and user safe.
- ③ Keep everything simple.



## Benefit of Brush Busters

**Early  
control**

**vs.**

**Later  
Control**



**\$10/acre**



**\$200/acre**



## Brush Management Treatment Life

- ③ 1941 - 213 trees removed
- ③ 1945 - 109 seedlings removed
- ③ 1952 - 185 seedlings removed
- ③ 1957 - 75 seedlings removed
- ③ 1964 - 107 seedlings removed
- ③ 25 years
  - ⊖ 689 plants removed
  - ⊖ including 473 seedlings



## Current Brush Busters Species

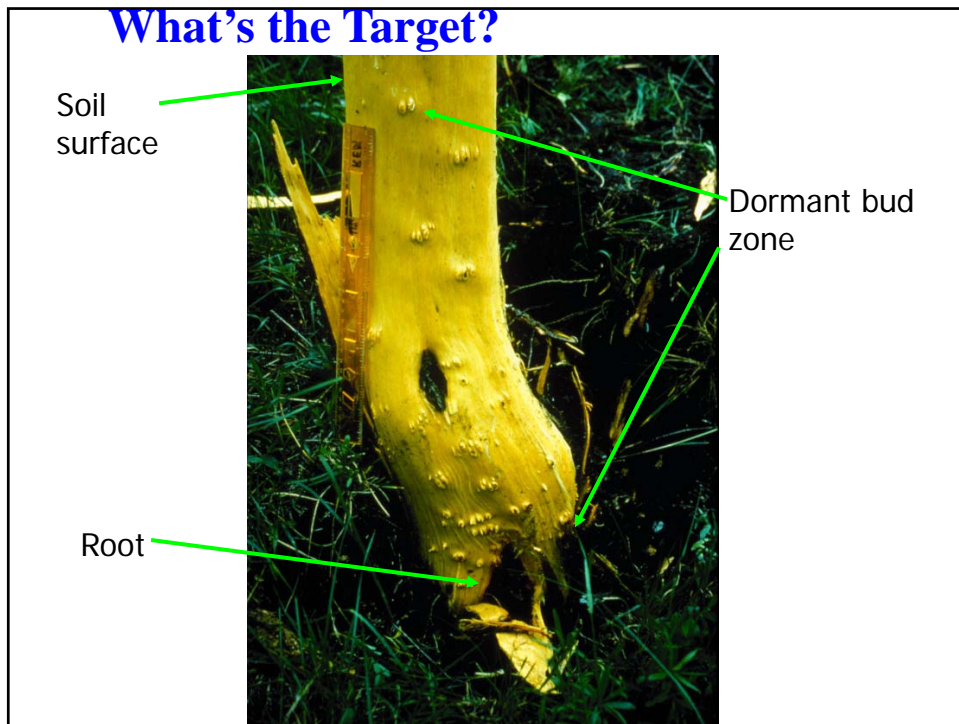
- |                         |                           |
|-------------------------|---------------------------|
| ③ Mesquite              | ③ Yucca                   |
| ③ Cedar                 | ③ Saltcedar               |
| ③ Pricklypear           | ③ Huisache                |
| ③ Chinese<br>Tallowtree | ③ Macartney Rose          |
| ③ Greenbriar            | ③ Cut Stump<br>Treatments |

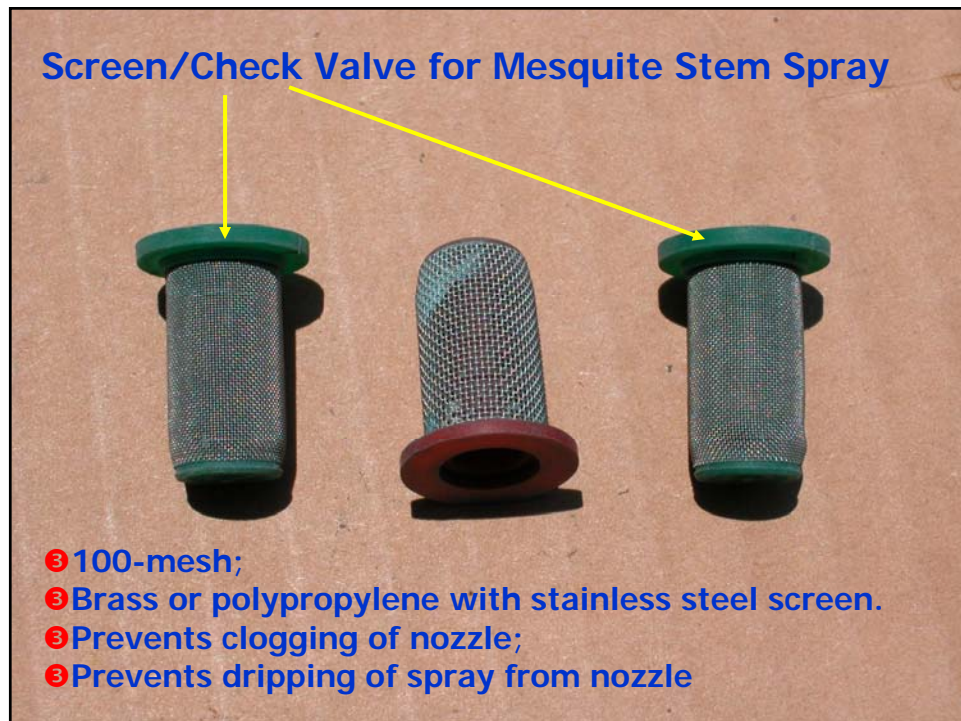
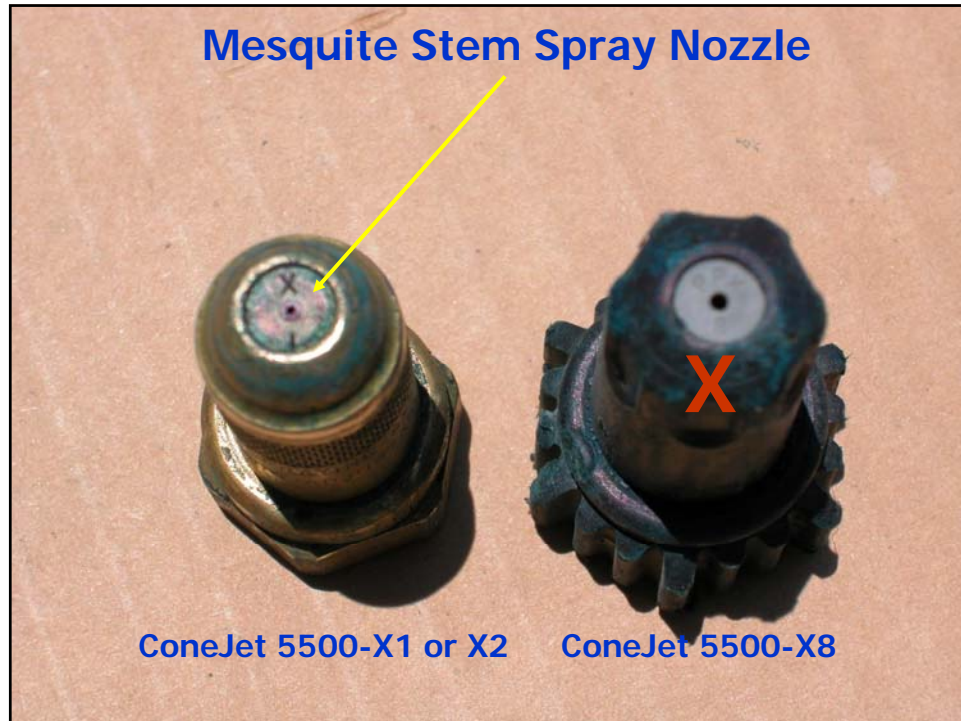
## Brush Busters: How to Beat Mesquite





## What's the Target?









## Triclopyr



## Brush Busters Stem Spray

- ③ 15-25% triclopyr + 75-85% diesel or vegetable oil.
- ③ Lightly wet all stems, all way around, from ground line to height of 12".
- ③ Works anytime of the year.
- ③ No soil activity.

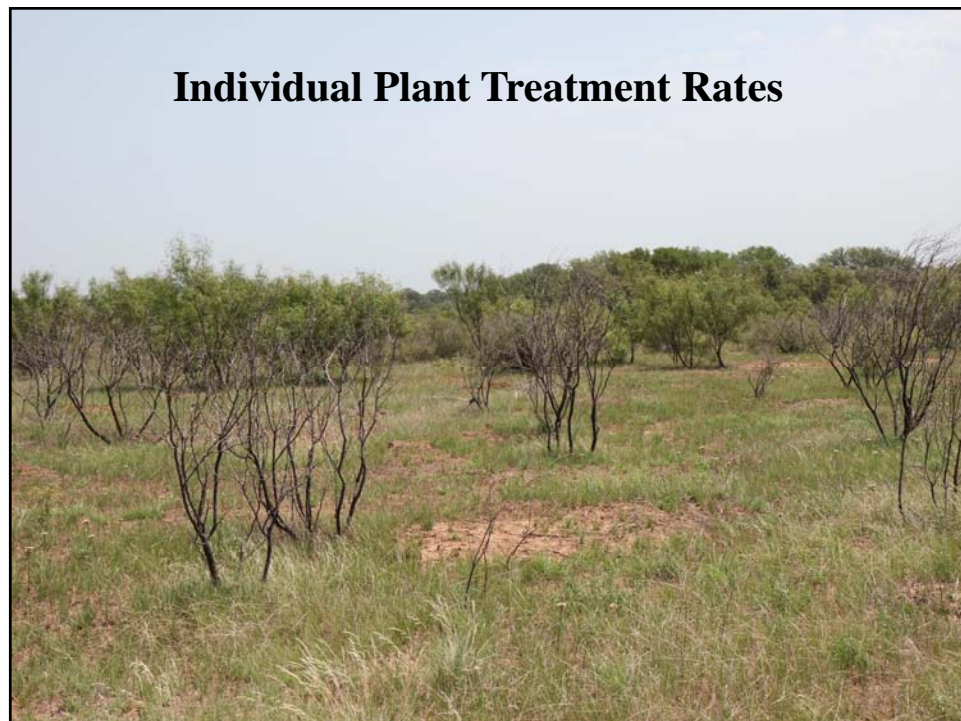
















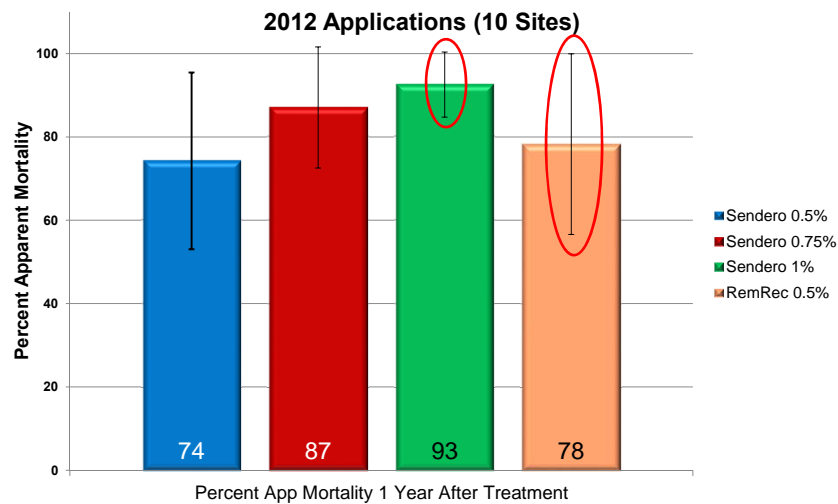
## Sendero™

New herbicide label from Dow AgroSciences targeting primarily mesquite.

- ③ Stand alone product, no mixing of herbicides
- ③ Clopyralid + Aminopyralid
- ③ IPT leaf-spray suggested rate is 1% □ 1.28 oz/gallon
- ③ Have investigated lower & higher rates

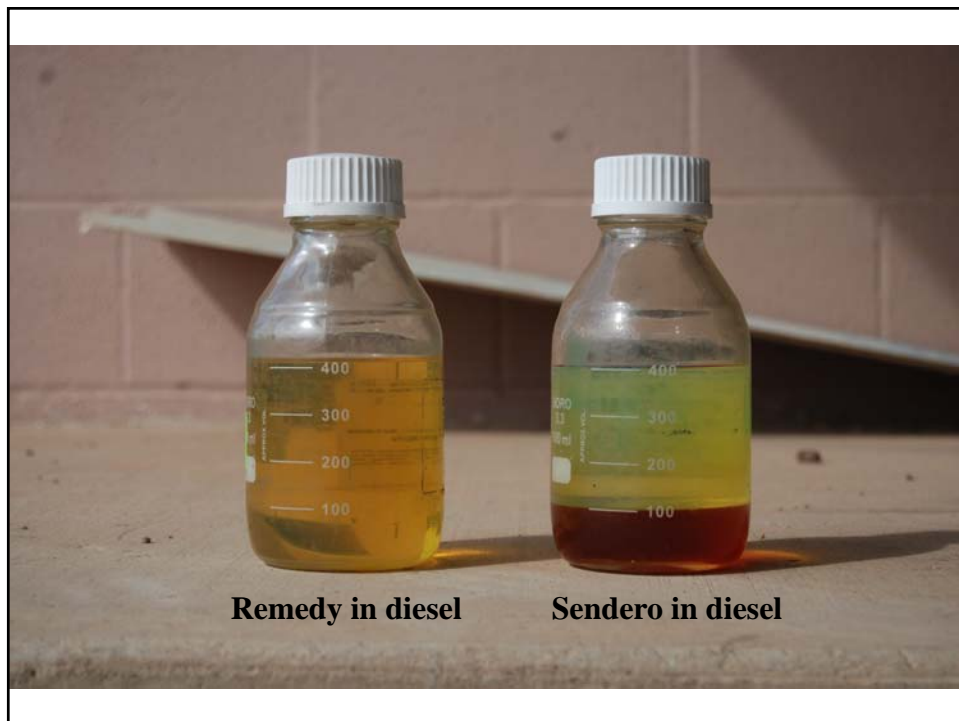


## Sendero® IPT Research



Research conducted by Texas A&M AgriLife Extension

**Can Sendero be mixed with diesel for stem-sprays or cut-stump treatments?**

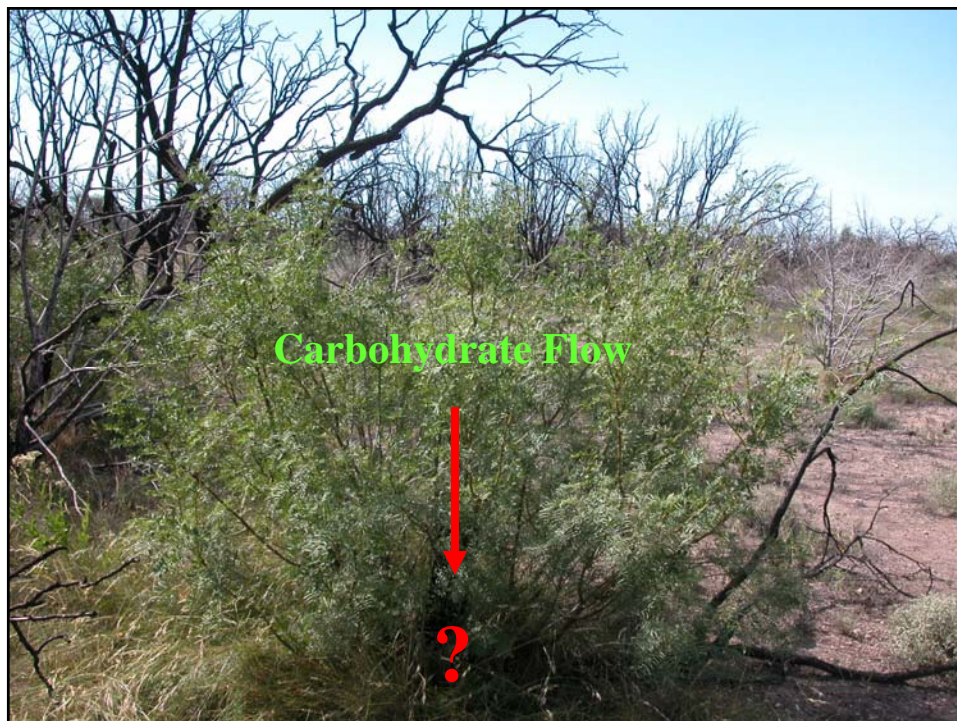






## Brush Busters Leaf Spray

- ③ 1% Sendero or
- ③ ½% Triclopyr + ½ % Clopyralid
- ③ ¼% Surfactant
- ③ ¼% Dye
- ③ Spray to wet after leaves turn dark green.
- ③ Spray window – 45 days after bud break through **September??**





## Brush Busters Mesquite Leaf Spray



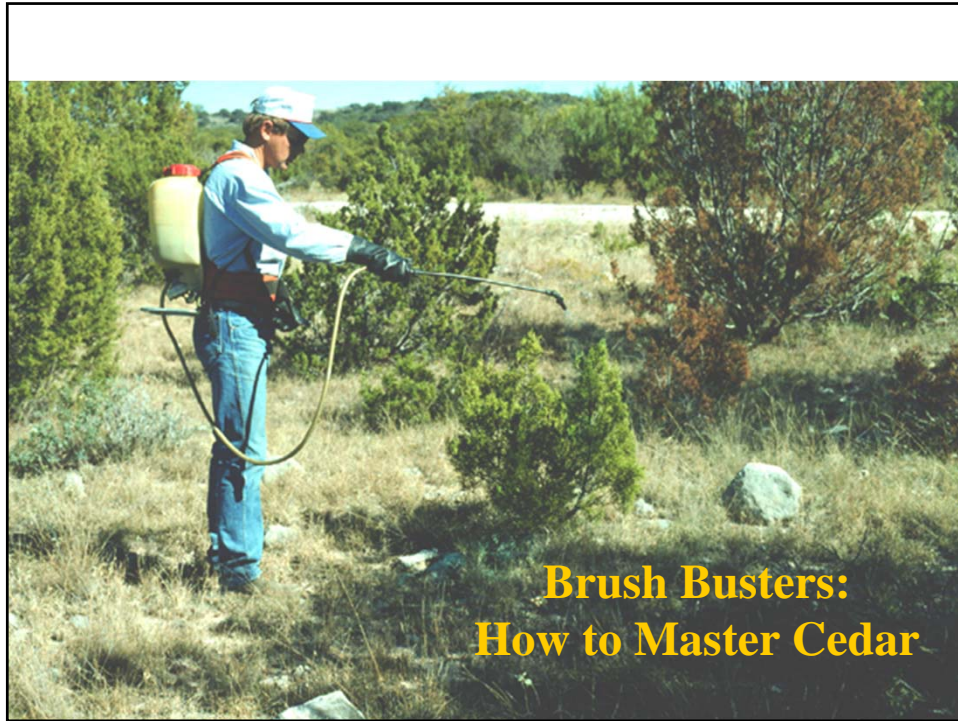
**Don't spray if:**

- ③ leaves are wet,
- ③ foliage has >25% damage due to hail, insects, or disease,
- ③ there is new growth evident in twig tips.

## Brush Busters Mesquite Leaf Spray

**Wait until 3<sup>rd</sup> growing season after mesquite top killed/damaged by fire or mechanical disturbance before using leaf spray.**









## Soil Spot Sprays



**1 Power Pellet = 2 cc Velpar L**



## Brush Busters Soil Spot Spray

- ③ Ashe - 2cc/3 ft. ht.
- ③ Redberry <6 ft. - 2 cc/3 ft. ht.
- ③ Redberry >6 ft. - 4 cc/3 ft. ht.
- ③ Add 2 ounces dye/gallon spray mix.
- ③ Apply to soil under drip line.





## Brush Busters Cedar Leaf Spray

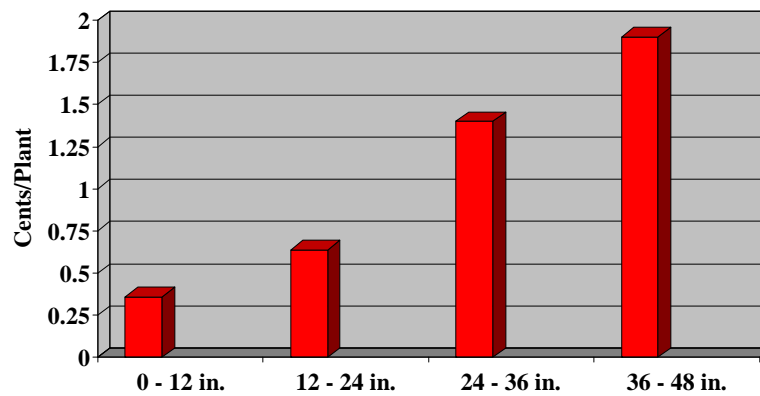


1% Picloram + ¼% Surfactant + ¼% Hi-Light Dye



- ③ Apply spring through summer.
- ③ Do not spray if cedar foliage is wet.
- ③ Do not spray within 100 ft of known sinkholes or soil fractures.
- ③ Ashe juniper may have endangered species protection.
- ③ Picloram requires pesticide applicators license.

### Herbicide Cost to Individually Foliar Spray Various Size Classes of Juniper



### Hand Grubbing











**Brush Busters  
Pad Spray**

## Surmount

- ③ **Fluroxypyr (.96 lb/g) +  
picloram (1.19 lb/g)**
- ③ **Restricted-use**
- ③ **Replaces Tordon 22K  
for IPT pricklypear**



## Brush Busters Pad Spray

- ③ 1% Surmount
- ③ 1/4% Surfactant
- ③ 1/4% Dye
- ③ Spray all pads to wet.
- ③ Spray anytime of year, but **best before expected rainfall and above 60° F.**



## New “High Load (HL)” Herbicide Formulation

### PastureGard

- ③ 1.5 lb/gal triclopyr ester
- ③ 0.5 lb/gal fluroxypyr

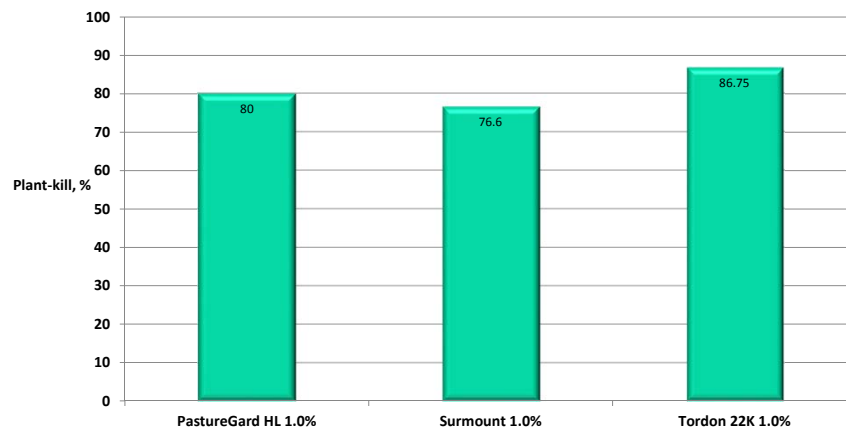
### PastureGard HL

- ③ 3.0 lb/gal triclopyr ester
- ③ 1.0 lb /gal fluroxypyr



## 2013 PastureGard HL Pricklypear Trials 5 Counties

2 Years After Treatment



## Brush Busters: Cut Stump Treatments

- ③ Certain herbicide treatments highly effective when applied to recently cut stumps.
- ③ Brush Busters: two 3-step methods.





## Brush Busters Cut Stump Spray for Hardwood Species

③ 15% triclopyr + 85% diesel fuel or vegetable oil.

③ Works best on:

☺ Algerita	☺ Huisache
☺ Baccharis	☺ Lotebush
☺ Blackbrush	☺ Mesquite
☺ Bois d'arc	☺ Oaks
☺ Bumelia	☺ Pricklyash
☺ Catclaw acacia	☺ Saltcedar
☺ Catclaw mimosa	☺ Texas persimmon
☺ Chinese tallowtree	☺ Winged elm
☺ Elm	☺ Yaupon
☺ Hackberry	

## Brush Busters Cut Stump Spray

- ③ Cut every stem close to soil surface.
- ③ Avoid leaving soil on the cut stump.
- ③ Spray stump **immediately** after cutting.
- ③ Adjust nozzle to deliver coarse mist.
- ③ Spray entire cut surface, especially outer edges.
- ③ Spray bark from cut to ground level.
- ③ Use Hi-Light spray dye to assure good coverage.



## **Brush Busters Cut Stump Spray**

- ③ Hand spraying: use ConeJet 5500-X1 to X3 nozzle.
- ③ Hydraulic shears: use ConeJet 5500-X12 nozzle.

**Cut Stump Treatments Can Provide Almost  
100% Plant Mortality  
If Done Properly**



## Brush Busters Cut Stump Treatments

Spray every cut stem.

One stem on this tree was not sprayed.



Spray entire cut surface & bark from cut to ground.

Part of this cut stem was not sprayed.



## Brush Busters Cut Stump Spray for Redberry Juniper

③ 4% Tordon 22K

③ 1/4% surfactant

③ Water carrier

*Redberry Juniper:  
Multi-stemmed from ground.  
Flecks of white resin  
on leaves and twigs.*











## Triclopyr + Oil Whorl Spray

X1 Nozzle



2 second spray/whorl



15% Triclopyr + 85% Diesel





## Yucca Mortality 2YAT Averaged Across 16 Locations

	Triclopyr		
	2cc/whorl	4cc/whorl	15% + 85% diesel
Average	61%	71%	71%
Range	17%-89%	49%-100%	51%-94%

## Treatment Cost/Whorl

Triclopyr		
2cc/whorl	4cc/whorl	15% + 85% diesel
4.3 cents	8.6 cents	2.0 cents

## Baccharis

③ Stem spray: 25% Remedy + diesel

③ Leaf-spray

☹️ 0.5% PastureGard HL

☹️ 1% Triclopyr (Remedy Ultra, generics)

☹️ 1% Surmount

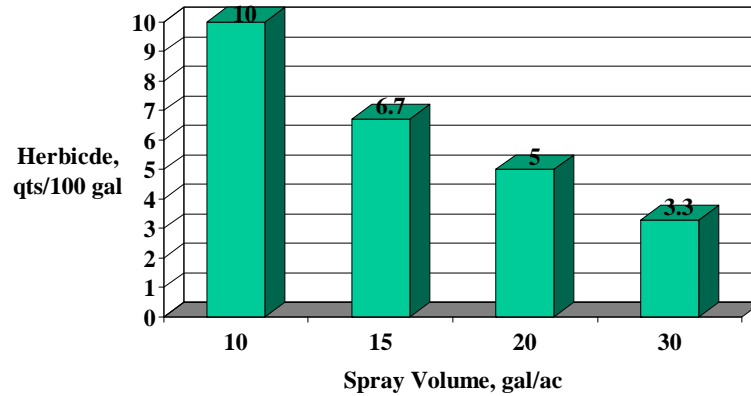
## Broadcast Spray Rules of Thumb

- 20 to 30 psi
- 10 to 30 gpa
- CALIBRATE!



## Sprayer Calibration Example

*Recommended Herbicide Rate: 1qt/ac*



## Importance of Sprayer Calibration

*Recommended Herbicide Rate: 1qt/ac*

