

Roadside Woody Vegetation Management



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NCDOT's Roadside Woody Vegetation Management Program

Presentation Components

1. Current Program
2. Application Placement Research
 - Non-brush (2003)
 - Brush (2006)
3. C-ZIP
4. Permit Issues



1) NCDOT's Current Program

- Mowing is primary veg. mgt. method
 - Temporary and Expensive
- Traditional Alternatives:
 - Broadcast Herbicide Applications
 - Environmental Concerns
 - Stump-cut and Basal Applications
 - Expensive
- VM Manual



2008 NCDOT spent \$30 Million
Controlling Brush

Includes: Mechanical and Herbicidal Applic.

DURING

> 8" brush: Shinn Cutter - \$300/Hr.

4-8" brush: Super Trac - \$250/Hr.

< 4" brush: Dav-Co Mower - \$125/Hr.

4 man crew (chipper, pick up, flatbed, chainsaws)
- \$150 - \$200/Hr.

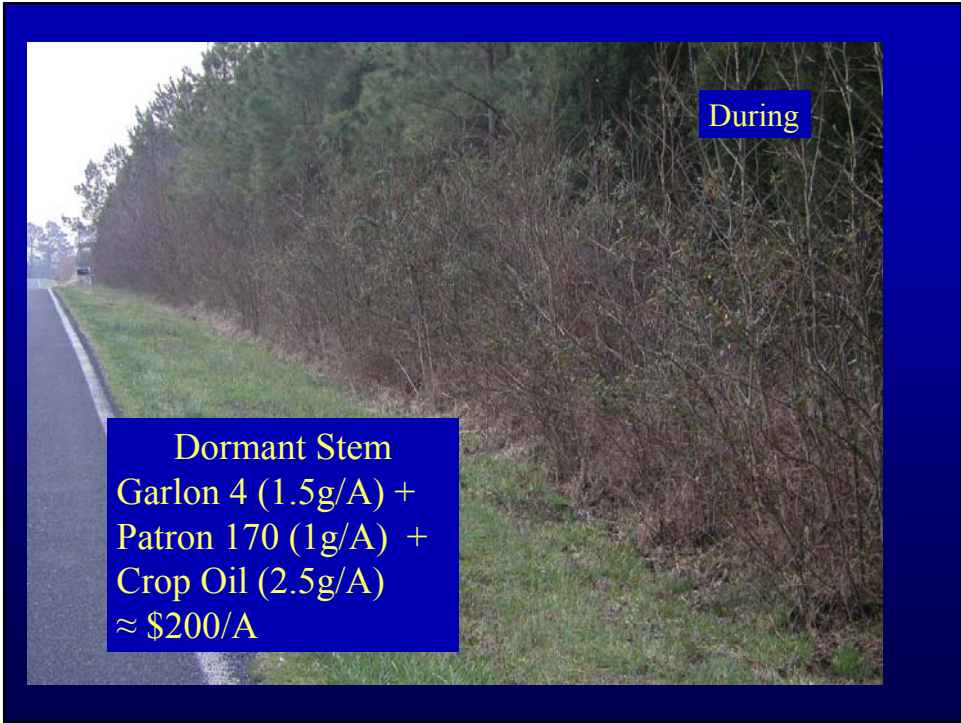
Stump Treatments: \$80/A & Initial Stem Treatment: \$180/A

Follow up: \$100/A & 3-4 year cycle: \$130/A



AFTER





2) Application Placement Technologies for N.C. Roadsides



•2003 Dr. Fred Yelverton:
Broomsedge Trial in Centipede



•2006 Dr. Joe Neal:
Woody Plant Species Control



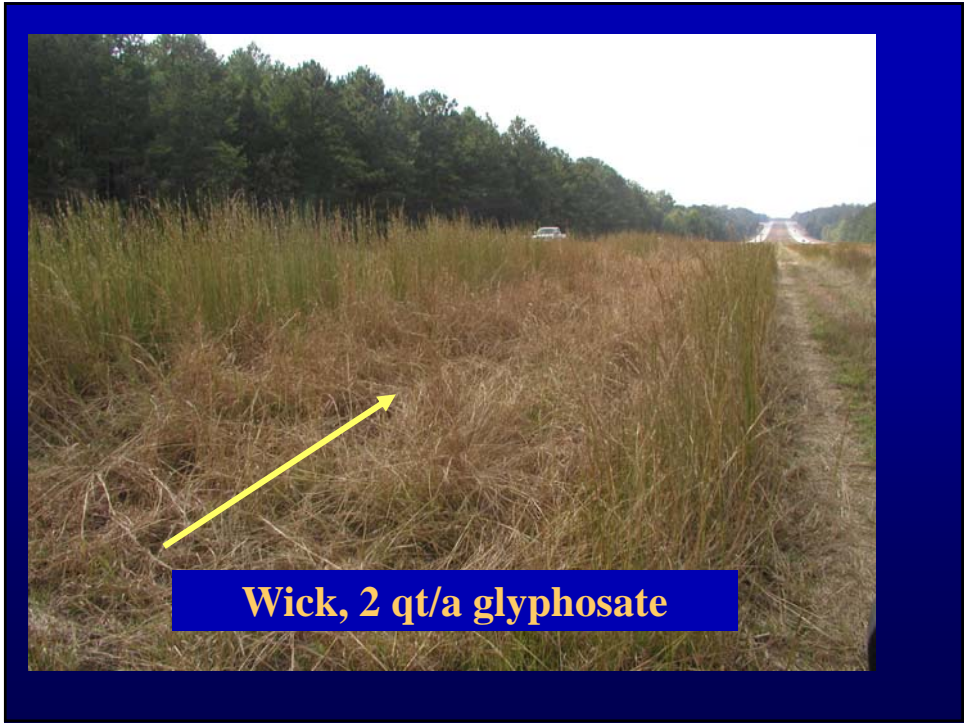




Weedbug, 2 qt/a glyphosate



**Canvas Wick
Applicator**







Roadside Brush Mowing with Wet Blade System

Brush Research - Objectives

1. Evaluate the effectiveness of an endemic biological control agent, *Chondrostereum purpureum* (Chontrol), applied with Wet Blade
2. Better understand the mechanistic basis of Wet Blade application and limitations
3. Herbicide and dose comparison & Optimal season of treatment
4. Field comparisons of the Diamond Wet Blade, Brown Brush Monitor, cut stem sprays, and mow then foliar applications to re-growth

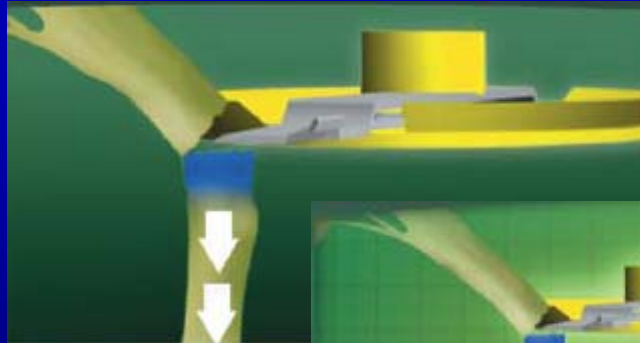


Wet Blade Technology, How does it work?

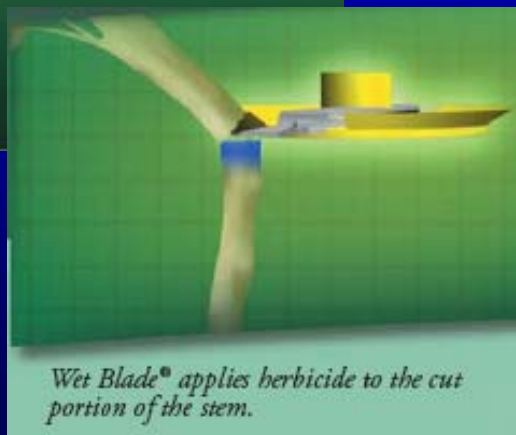
- Mechanized "Stump-Cut"
- Utilizes the severed vascular system in plants to gain entry
 - Phloem moves sugars from leaves to roots
 - Xylem moves water and nutrients from soil to leaves:
- Phloem is under positive-pressure
- Xylem is under negative-pressure

Wet Blade/Cut Stem Mechanism

- As the cutting blade is severing the stem, a vacuum is created in the xylem.
- The xylem sap retreats into the cut stem.
- As the xylem is pulled down into the stem, the herbicide
 - is pulled by negative pressure into the stem tissue ?
 - diffuses into the previously occupied space?
 - adhesion/cohesion to the xylem cell wall matrix?



Courtesy,
Diamond
Wet Blade





Wet Blade Data:

1. Rapid absorption into the plant: 73 to 80% immediately upon application.
2. Greater than 90% absorbed after 60 min.
3. Herbicide detected in the roots by 12 HAT.
4. 48 HAT, 6% in the roots and 8.5% exuded into the soil.

3) C-ZIP Program

Handout

Clear Zone Improvement Program (C-ZIP)

A Safety Clear Zone Initiative

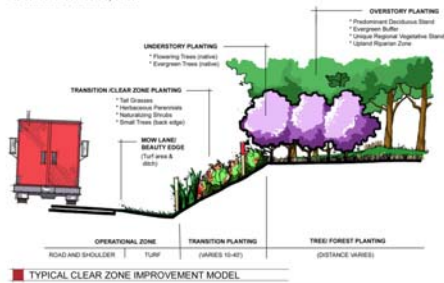
A highway rights-of-way project for North Carolina consisting of clear recovery zones, sustainable native roadside vegetation for soil stabilization/erosion control and ecologically friendly transition zones.

The primary goal of this roadside development program is to find a viable solution to the regeneration of over-story trees on multi-lane routes that encroach upon the roadway corridor and create safety and nuisance hazards. Over the next few years, the Department plans to "let to contract" approximately 100 construction projects that would be applicable for this type of improvement, with an estimated 800 associated miles. The C-ZIP concept will be evaluated for inclusion where appropriate.

A key component of the program will be to develop partnerships with University specialists, members of the NC Green Industry Council, NC Nurseryman's Association, and environmental organizations to share technical knowledge and expertise in the selection, establishment and management of native plant species.

Objectives:

- Identify areas that readily succumb to severe weather damage or areas that are a result of clearing operations and are potential C-ZIP sites. Also, identify areas that already exhibit elements of the prescribed safety transition zone and preserve them.
- Delineate areas along selected routes with regard to established turf and mowing patterns and develop effective vegetation management plans.
- Utilize native vegetation (ColorCanopy) to improve the natural environment along these select routes. The safety transition zone is defined as area of varying widths, located behind the "clean-up" mowing limits, that combines colorful low-growing trees and native plants within an area that is managed to control undesirable species.



I-40 Wake County at US70
following storm clean up

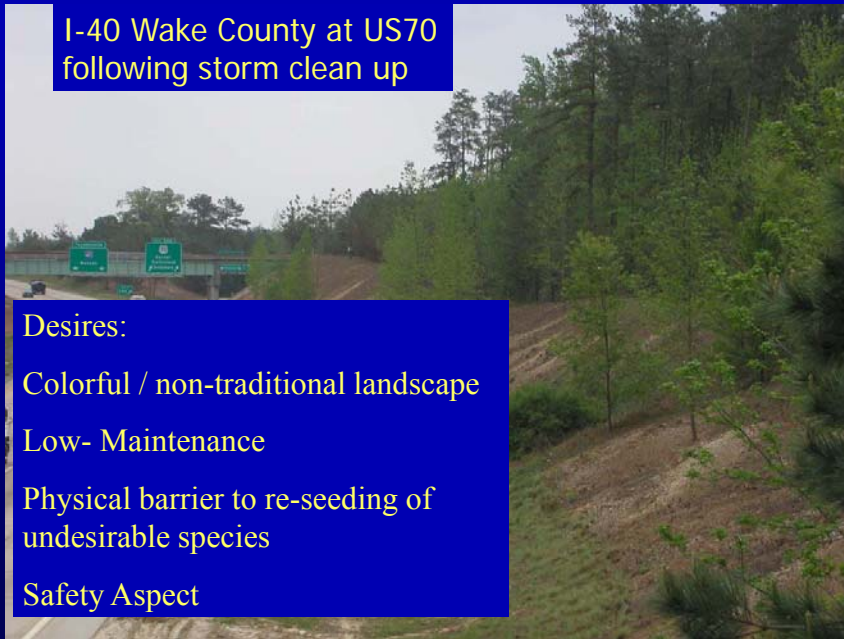
Desires:

Colorful / non-traditional landscape

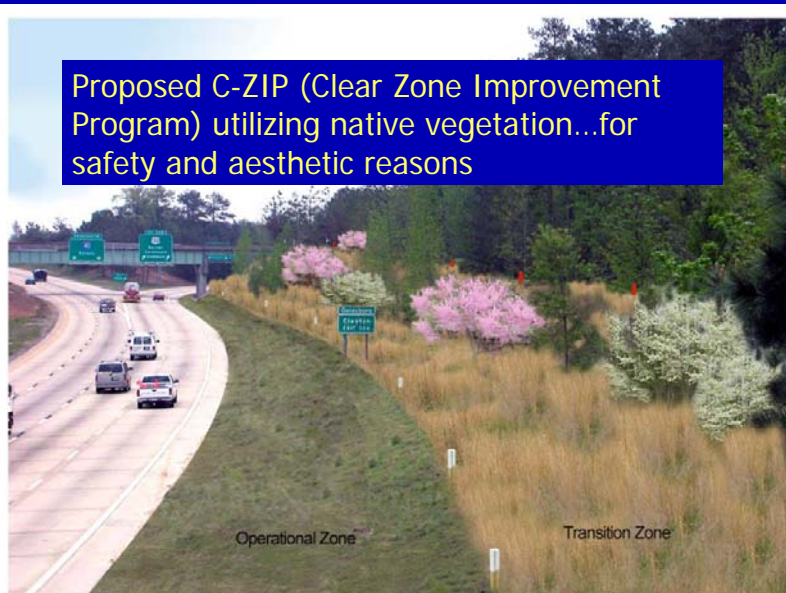
Low- Maintenance

Physical barrier to re-seeding of
undesirable species

Safety Aspect



Proposed C-ZIP (Clear Zone Improvement
Program) utilizing native vegetation...for
safety and aesthetic reasons





2,500 acres of annual,
perennial and native
Most popular Program
Group Support

Daylily Program
Caledonia Prison
Over 2 million Plants
@ savings of \$4 million



4) Permit Issues

In 1996, NCDOT and Utility Companies jointly developed a permitting process that allows Utilities to apply for a DOT Permit for contract herbicide applications on the rights-of-way

It is your responsibility to secure the appropriate permit, well in advance, of anticipated needs

Handout of DREEs

Questions and/or Discussion

Thank you

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