

Buffer Installation and Maintenance: One Approach

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Stroud's Typical Methods*

With thanks to many dedicated peers and co-workers

* Methods may be about to shift

Our context: SE PA's formerly pastured areas,
many invasives, rich soils, (too) rapid growth





Our context:

Container seedlings:

- Longer planting window
- Hard to plant wrong
- Drought tolerance
- Rapid take off

- Only 20% of project cost
- 125-150 tubed trees/ac

Planting

- Many planting methods can work
- We use 6” auger on track machine
- Most failures due to poor maint.
- So...

Plant w/ maintenance in mind:

Use 5' shelters to help...

-find, protect, spray

-use center-hole net method

- which shelter? (we're testing)



Plant w/ maintenance in mind:

Use rows

- allows mowing (control options)
- curving, parallel to stream
- distance between rows to fit mower
(2 or 3x mower width)

Main threats to seedlings:

Deer

Voles

Invasives esp. vines

Neglected shelter maintenance

Competing vegetation

(bears?! lantern fly?!)



The “Green Death”

Photo: Chesapeake Bay
Foundation

The “Brown Death”





Photo: Chesapeake Bay
Foundation

Learn from others: Clean Culture

Nurseries

Christmas tree farms

Orchards

Research

All point to “clean culture”



four-year old trees:
herbicide strips + mowing = “clean culture”

Photo: Chesapeake Bay
Foundation



typical herbicide:

3' diameter spot
Rodeo™
(glyphosate)

An Early Study:

Riparian Forest Restoration: Increasing Success by Reducing Plant Competition and Herbivory

Bernard W. Sweeney

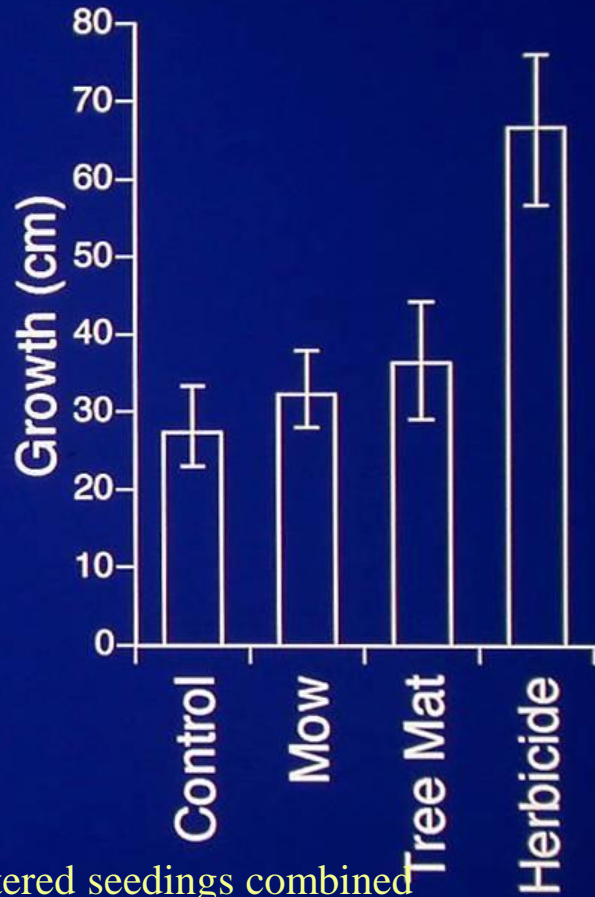
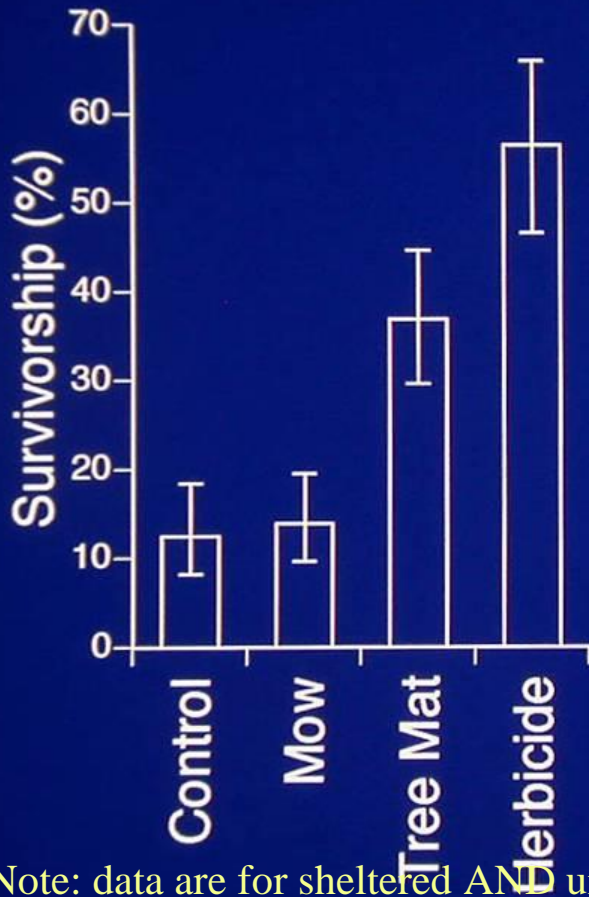
Stephen J. Czapka

Tina Yerkes

Restoration Ecology

June 2002

Year 4



Note: data are for sheltered AND unsheltered seedings combined

Survival at 4 years (all sheltered):

NO herbic.

~16%

WITH herbic*.

~90%

*Glyphosate 2x/year for 4 years
Sweeney et al 2002 in Restor. Ecol.

Herbicide has BEEN our standard M.O.

GROWTH rate with herbicide*:
More than doubled vs. NO herbicide

*2x/year for four years

Sweeney et al 2002 in Restor. Ecol.



Typical Maint. Schedule in SE PA Using of 3' Herbicide Spots (vs. stone)

Late Feb/Early March:

- Fix tubes/stakes (cost variable)
- If invasives are an issue:
 - Sprinkle pre-emergence herbicide (ex. Snapshot™) INSIDE shelters
 - Cost: ~\$80/acre (mostly labor)

Late April: (\$120/acre by contractor)

- Spray 3' herbicide spots
- Want grass active, conveniently short
- Remove nets if tree <12-18" of net

May: Mow

- Usually by landowner (~\$150/ac if hired)

Late May/June: If problem invasives in tubes:

- 2nd dose of Snapshot™ (easy after mowed)
- Or lift tubes, weed by hand (yr 1 by hand)
- Remove nets for any tree within 12-18"

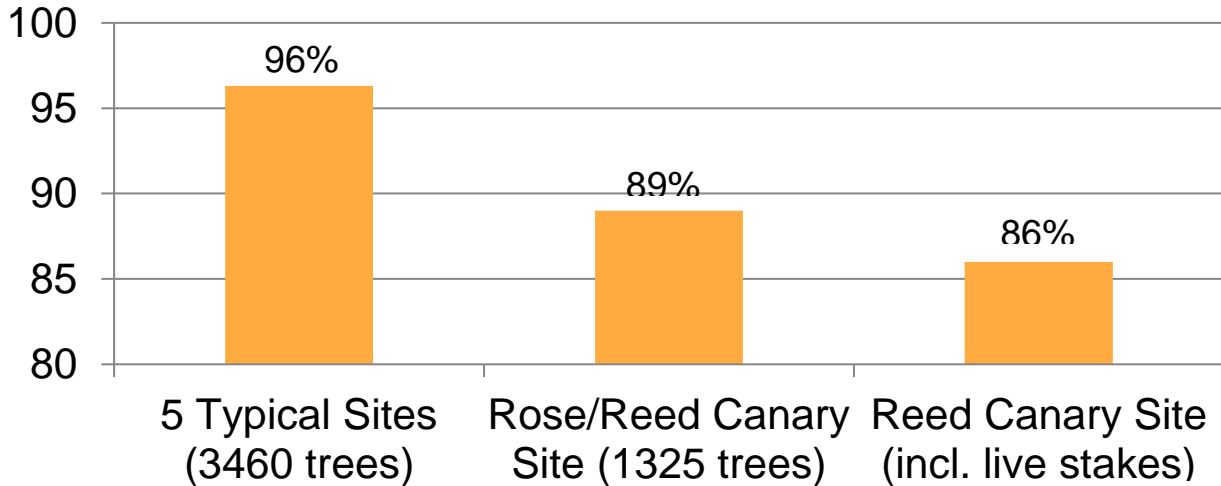
July/August:

- Mow first, then...
- 2nd applic of 3' herbic. spot (needed?)
- Add'l net checks ?

Late fall: final mowing (esp. if voles)

Survival Rates for Current Methods:

**3-Year % Survival using 2x/yr herbicide,
2-4x/yr mow and annual maintenance**



Other Thoughts:

Budget \$350/ac/yr (Add \$300-450 if hiring mowing)

Have a reserve for needier sites/invasives

Do maint for 3-4 yr minimum

Use a written, signed maint plan w/ roles defined

Can't mow? Use 5-6' herbicide spots

Visit site 2-3x/year; ID/fix issues early

Site prep is key – more options BEFORE trees are planted

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