



Response of Invasive and Interfering Shrubs and Trees to Flame Control

Peter J. Smallidge

Cornell University Cooperative Extension

Department of Natural Resources

www.ForestConnect.info

pjs23@cornell.edu

607/ 592 - 3640



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Issues with Invasive and Interfering Shrubs

- Reduce biodiversity
- Inhibit desirable regeneration
- Impede access
- Reduce productivity
 - Maple syrup
 - Hunting and recreation
 - Future tree production
- Increase costs of management
- Increase health risks (barberry, U Conn)



The Landowner's Perspective

- Does a problem exist?
- Resources for management?
 - Time, equipment, finances, physical capacity
- Willingness to apply various tools?
 - Herbicides vs. Organic



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Examples of Woodland Vegetation Management Options

<i>Method</i>	<i>Mode</i>	
	Selective	Broadcast
Physical / Mechanical	Cutting, flame	Mowing, goats
Chemical	Cut-stump, low-volume foliar, basal bark	Mistblower
Biological	Some available	



Flame Weeding to Manage Undesirable Woody Plants

- Why

- Organic, non-chemical approach
- Proven effectiveness (Cornell, U. Conn)
- Low cost, accessible, user-friendly

- Objectives

- Evaluate response of common species to flame weeding
- Develop extension demonstration sites and materials



Flame Research Methods

Expt. 1 - Double Flame Spring Treatments

- a. Dormant season + 6 weeks post leaf out
 - b. 2 weeks + 6 weeks after leaf out
- Autumn olive, bush honeysuckle, multiflora rose, buckthorn, and striped maple (n = 409 clumps)

Expt. 2 - Single Summer Treatment

- One treatment, early August
- Autumn olive and multiflora rose (n=121 clumps)



Flame Research Methods

- Flamed at ground level for full circumference (2008)
- Flame duration averaged 45 to 60 seconds per plant at each treatment
- Measured vigor of treated clump & sprouting potential (2009)
- PPE



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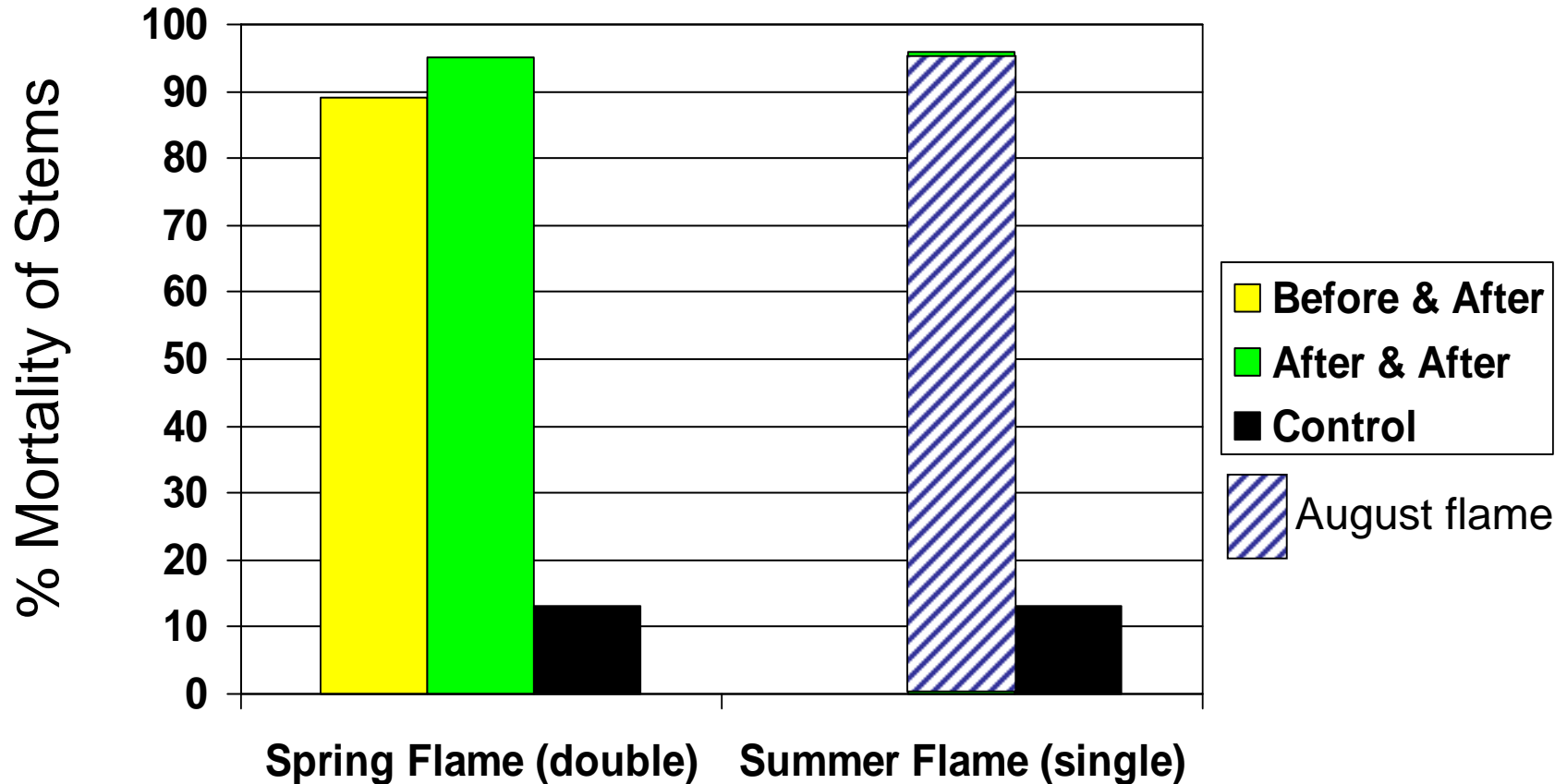
Flame Results



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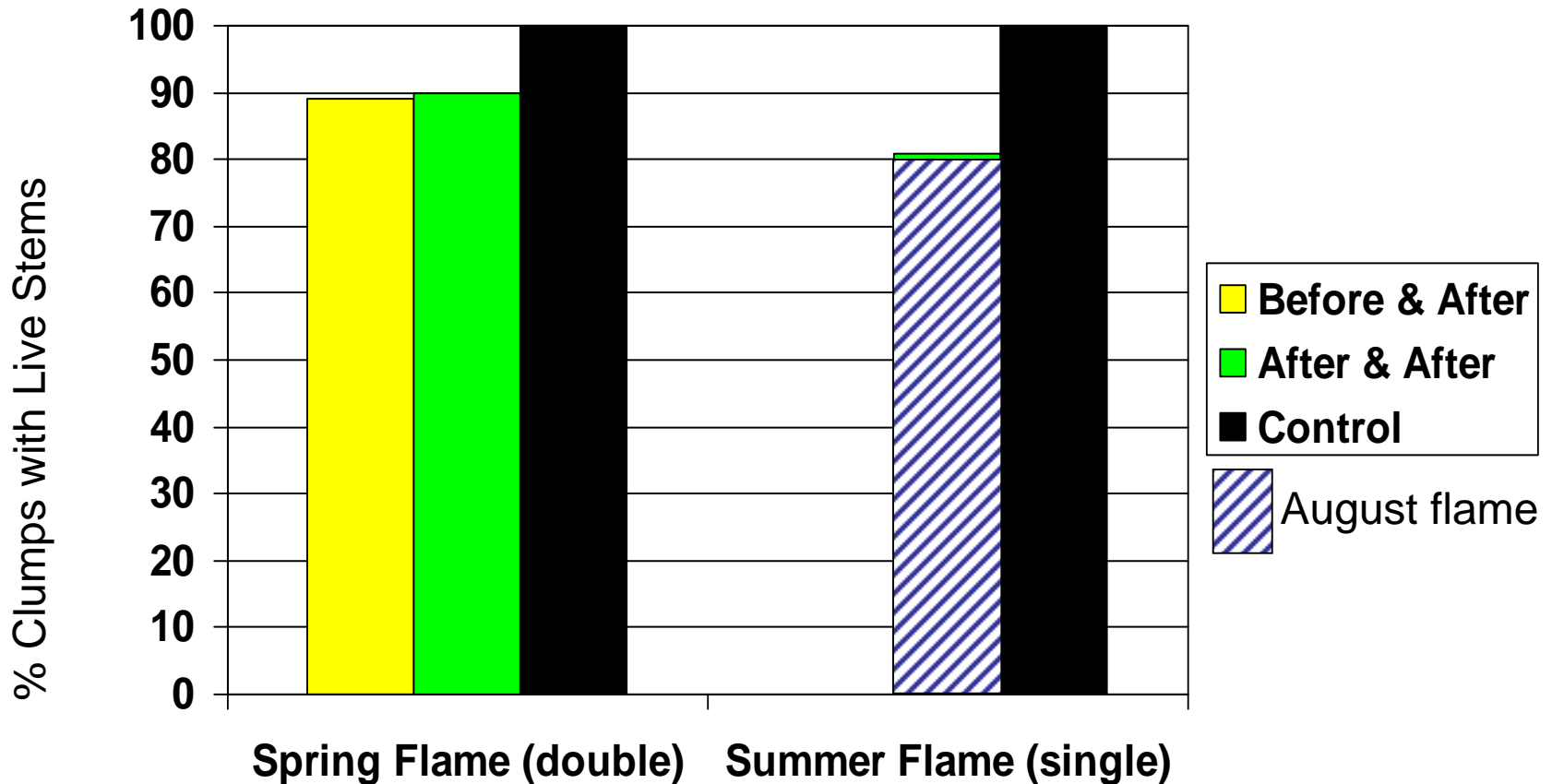
Multiflora Rose

% Mortality of Original Stems



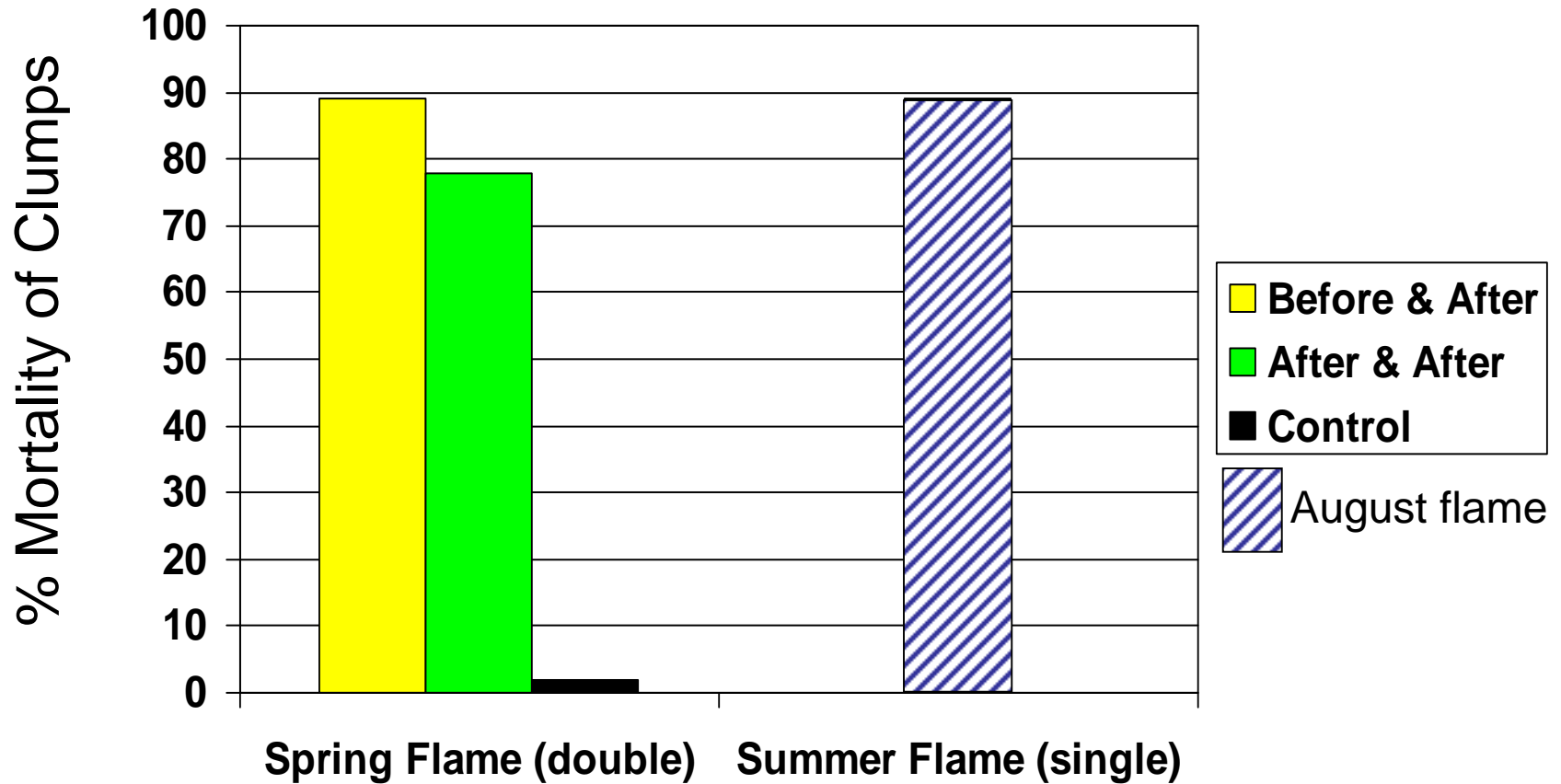
Multiflora Rose

% Clumps With Live Stems



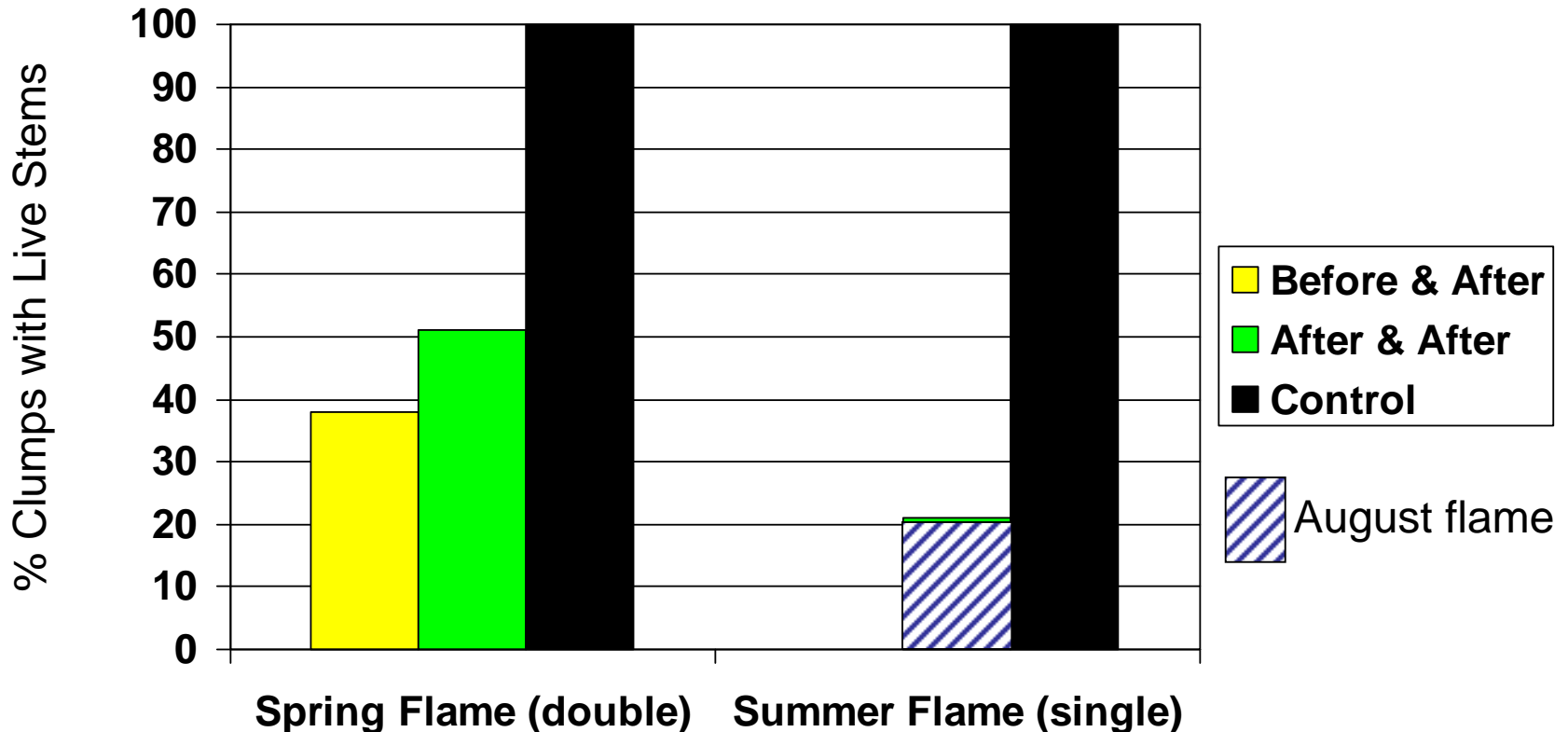
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Autumn Olive % Mortality of Clumps



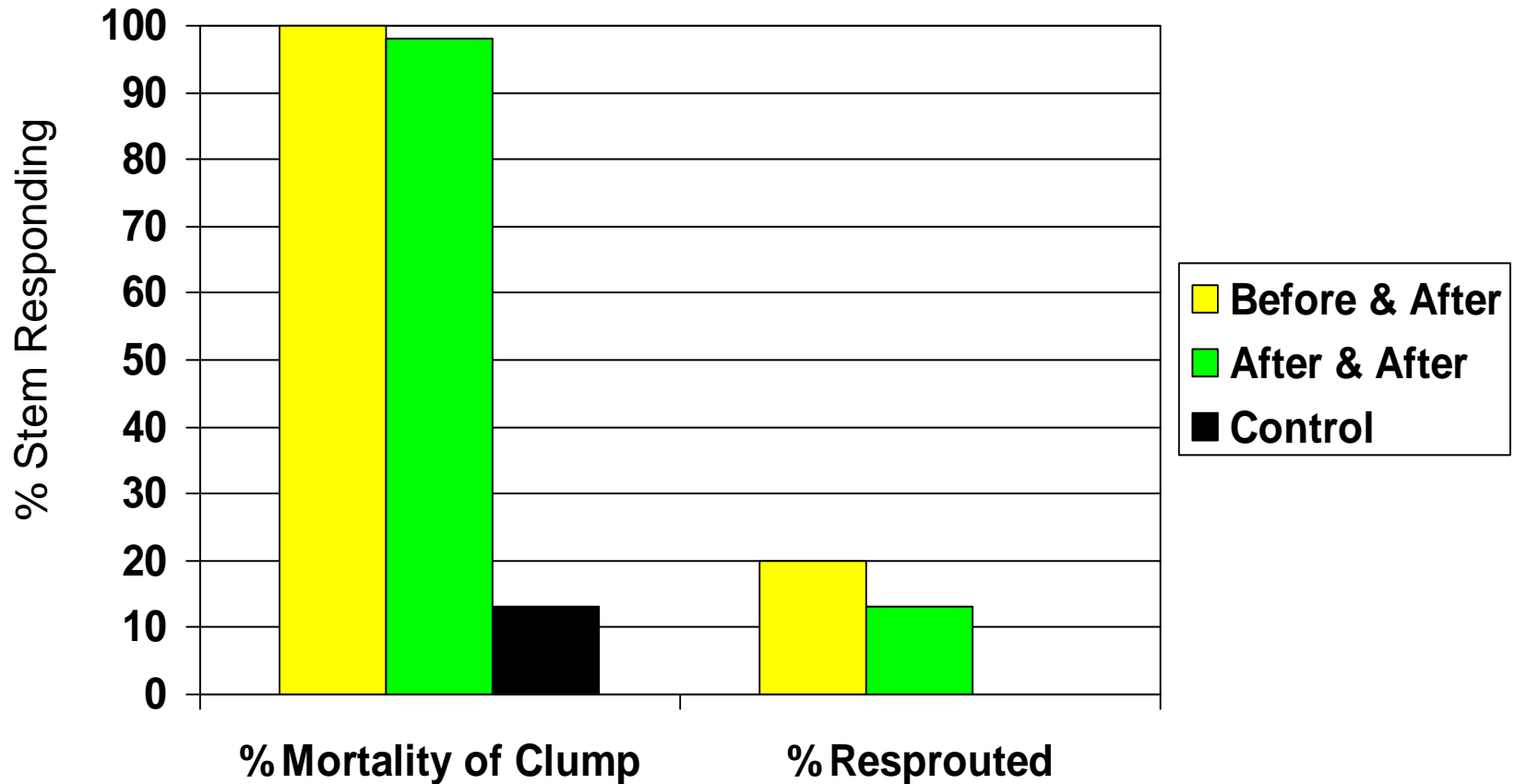
Autumn Olive

% Clumps With Live Stems



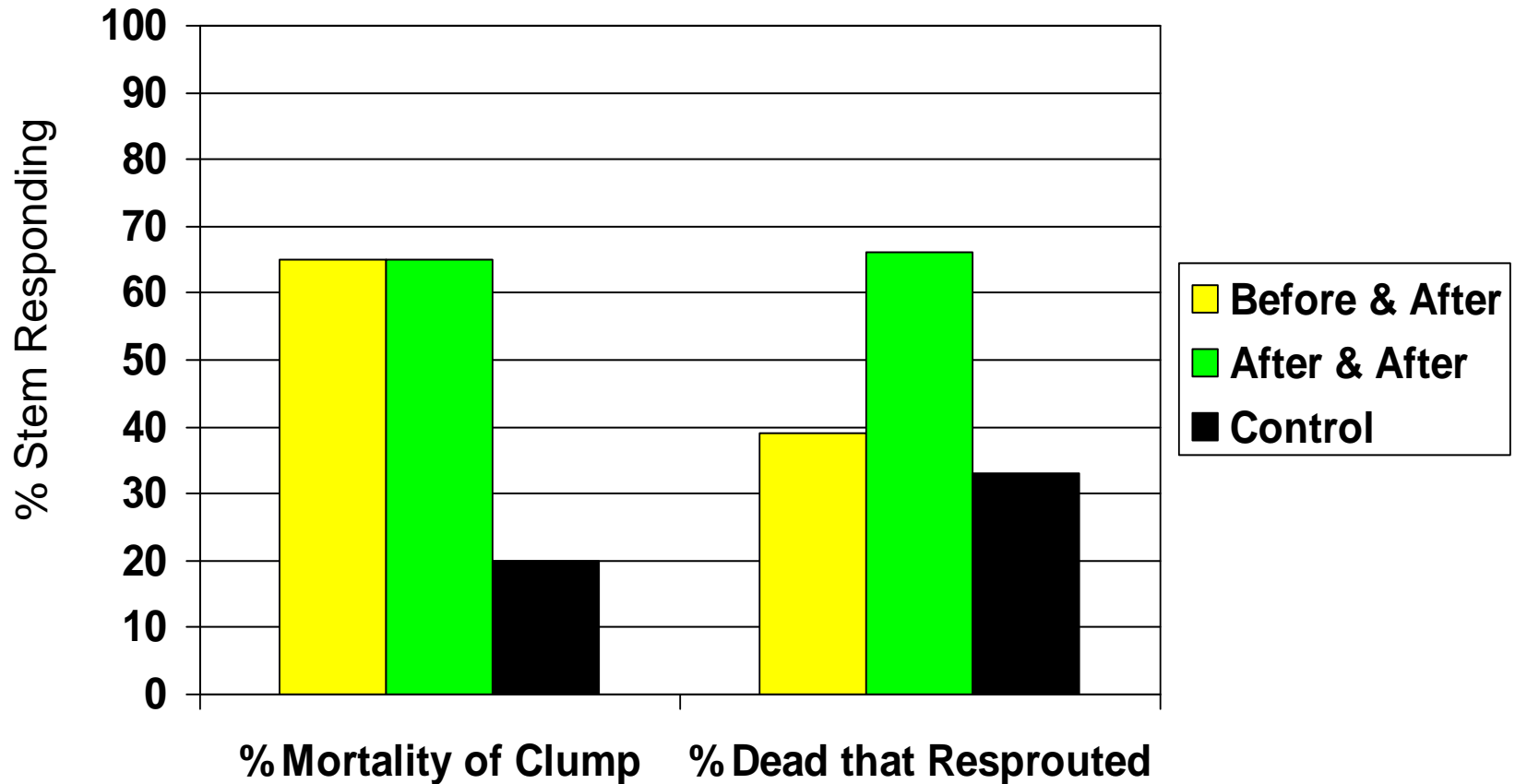
Bush Honeysuckle

% Mortality and Resprouting



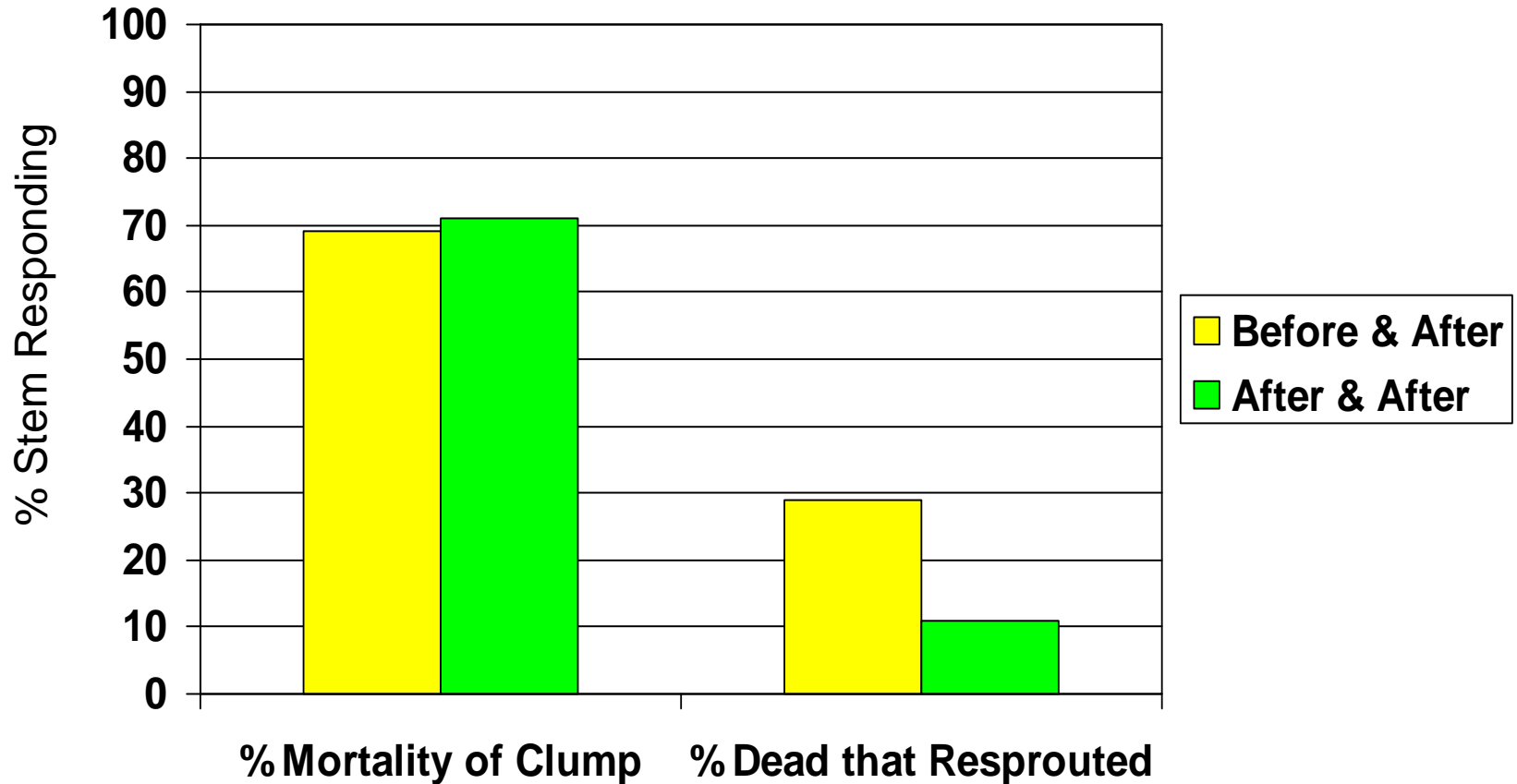
Buckthorn

% Mortality and Resprouting

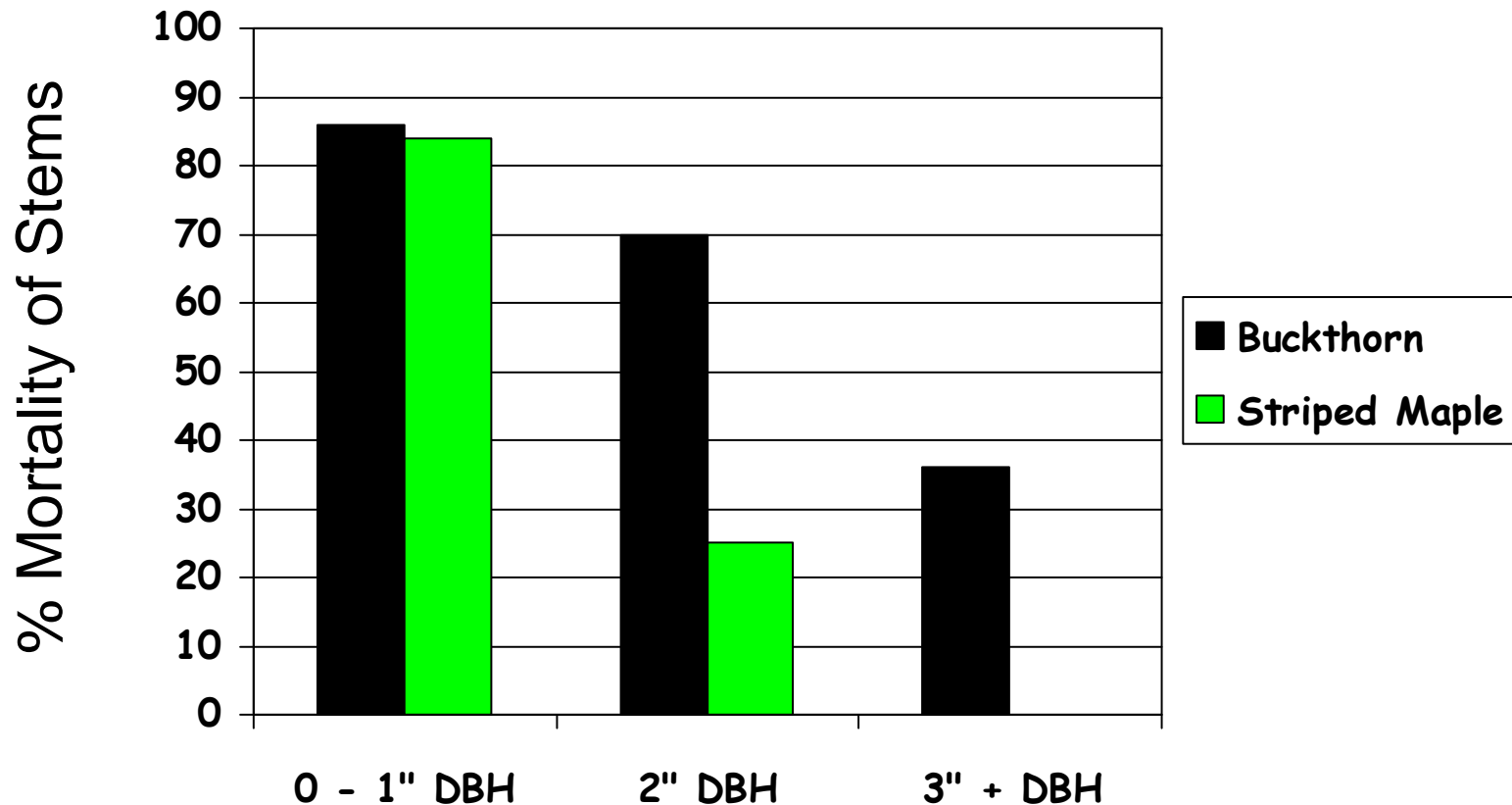


Striped Maple

% Mortality and Resprouting



Diameter Influence on % Mortality of Buckthorn and Striped Maple



Extension Activities & Audiences

- CCE and Partners
 - NY Forest Owners
 - NY Society American Foresters
 - Master Forest Owner Volunteers
 - County Park



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Flame Weeding Conclusions

- Flame weeding was effective for some species.
- Species that responded were unaffected by season.
- Summer flame required less labor.
- Larger stems of trees less affected by flame.
- Canopy exposure to sun may increase the potential to resprout.
- Flame treatments probably not feasible in dense shrub communities.
- IVM - Potential to herbicide sprouts.
- Latent pyromaniac tendencies in audiences.



Flame Weeding Management Recommendations

- **Multiflora Rose**
 - Not effective
- **Autumn olive**
 - Effective, especially with single August treatment
- **Bush Honeysuckle**
 - Effective
- **Buckthorn**
 - Marginally effective; significant potential to resprout
- **Striped Maple**
 - Marginally effective, limited success for stems > 1" DBH

