



English Holly (*Ilex aquifolium*) Herbicide Treatment Study

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Symposium on English Holly in Pacific Northwest Forests
Friday June 06, 2014



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Holly Treatment Study

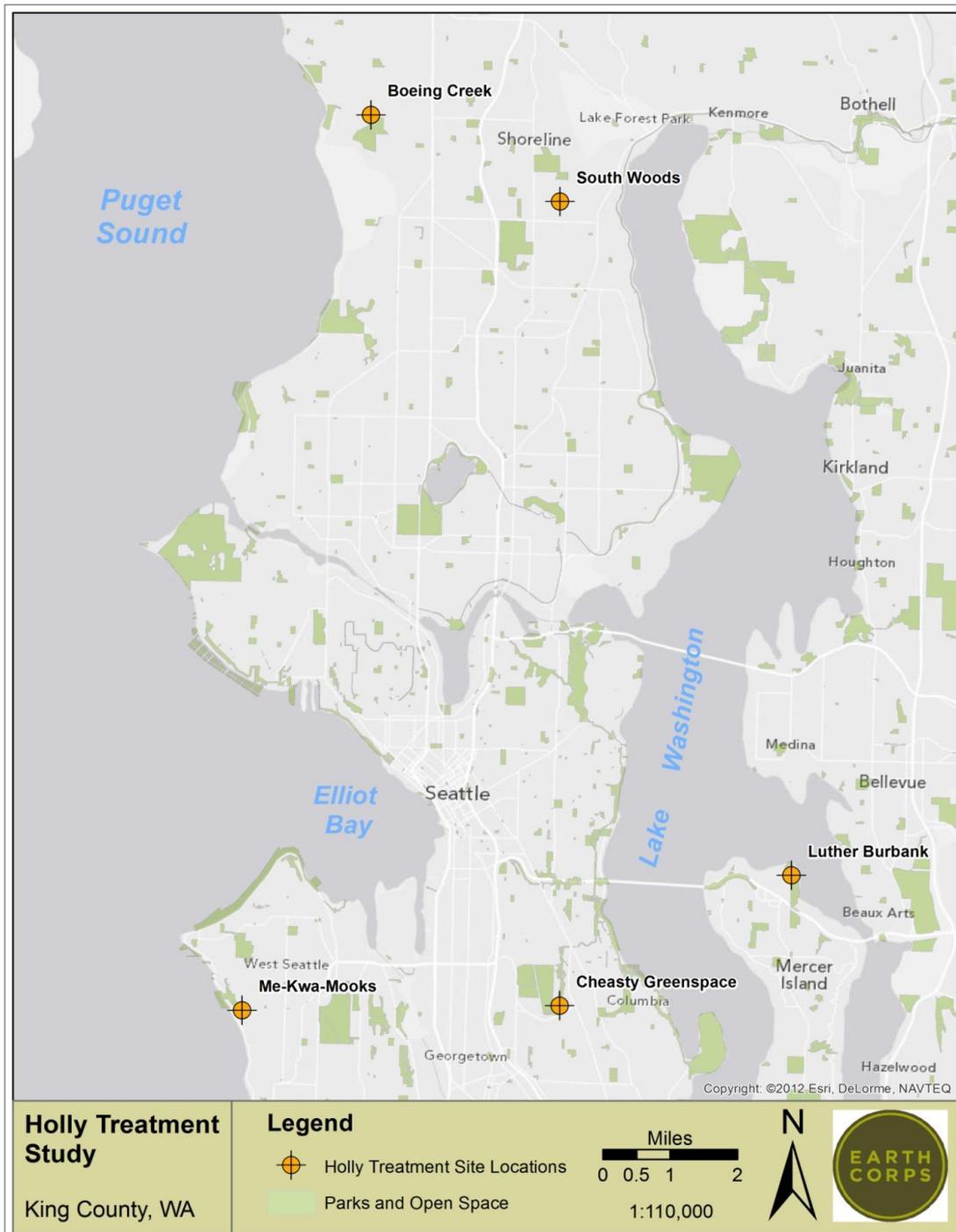
Questions Addressed:

- The type of **treatment** that is most effective for control of English holly
- The type of **herbicide** that is most effective for control
- The **season** (spring or fall) in which chemical control is most effective
- The type of treatment that is most **time efficient** to apply



5 Treatment Locations:

- **Seattle** (Me-Kwa-Mooks and Cheasty Greenspace)
- **Shoreline** (Boeing Creek and South Woods)
- **Mercer Island** (Luther Burbank Park)





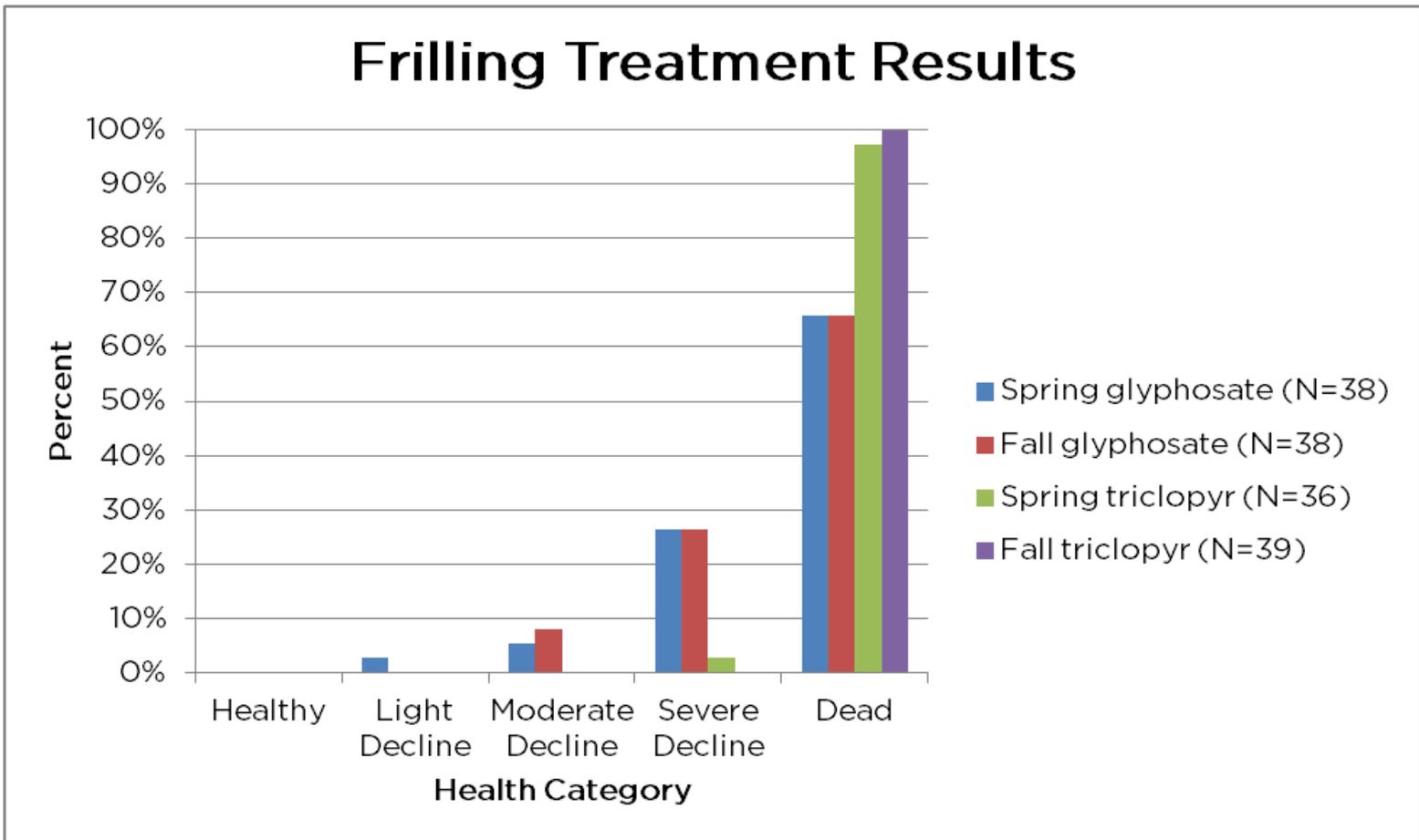
Sample Size

Treatment and Herbicide	Fall 2010	Spring 2011	Total
Frilling with glyphosate	38	38	76
Frilling with triclopyr	39	36	75
Cut Stump with glyphosate	39	39	78
Cut Stump with triclopyr	38	39	77
Injection with glyphosate	16	16	32
Injection with imazapyr	22	22	44
Control			37
Total	192	190	419



Results - Frilling

Herbicide: **Triclopyr** more effective than glyphosate





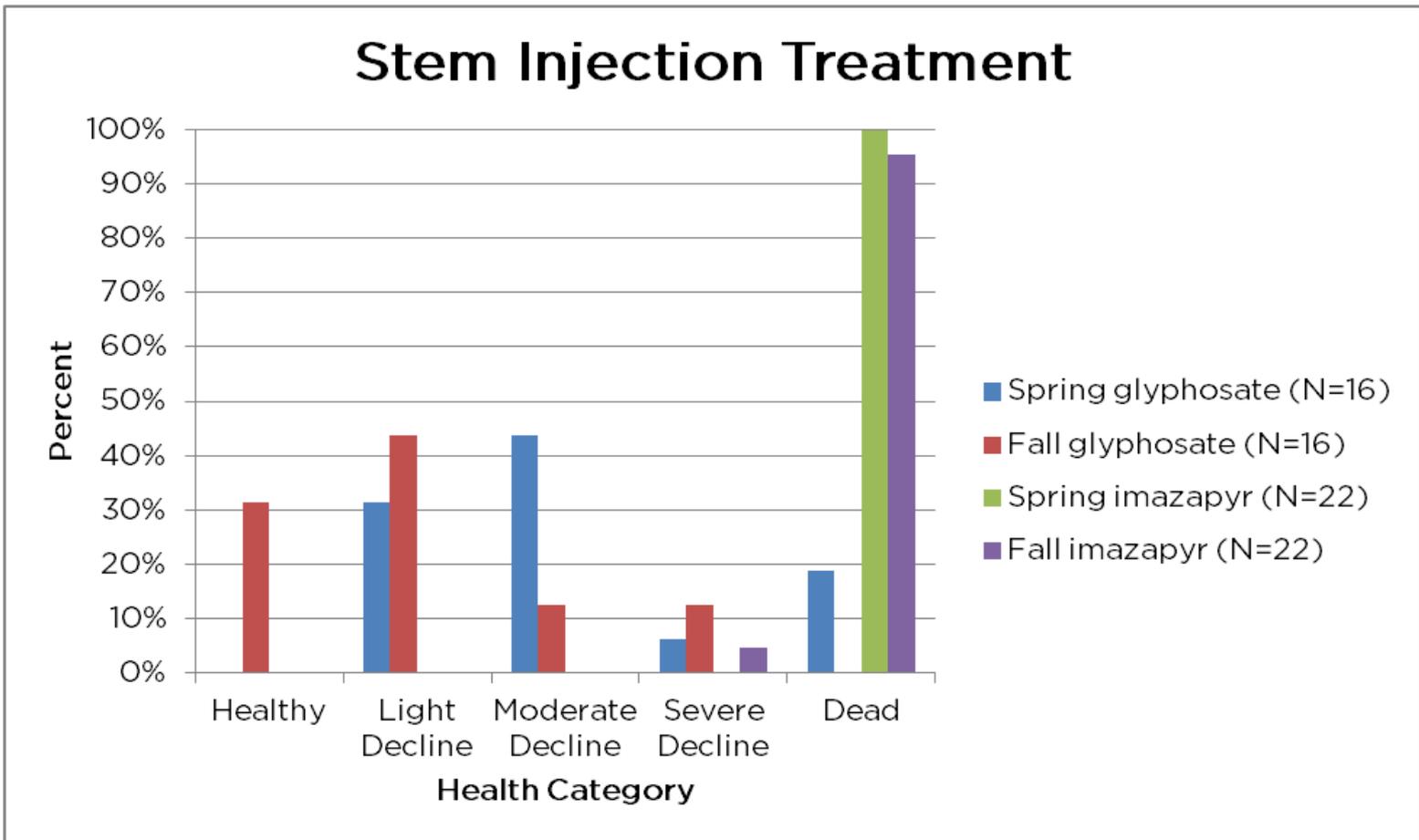
Results: Frilling

		Health Category			
Site	N	Dead	Severe Decline	Moderate Decline	Light Decline
Frilling Glyphosate Fall 2010					
Boeing Creek	4	50%	25%	25%	
Cheasty Greenspace	9	67%	33%		
Luther Burbank	8	50%	38%	13%	
Me-Kwa-Mooks	7	43%	43%	14%	
South Woods	10	100%			
Frilling Glyphosate Spring 2011					
Boeing Creek	4	75%		25%	
Cheasty Greenspace	9	33%	44%	11%	11%
Luther Burbank	9	78%	22%		
Me-Kwa-Mooks	6	67%	33%		
South Woods	10	80%	20%		
Frilling Triclopyr Fall 2010					
Boeing Creek	4	100%			
Cheasty Greenspace	9	100%			
Luther Burbank	9	100%			
Me-Kwa-Mooks	7	100%			
South Woods	10	100%			
Frilling Triclopyr Spring 2011					
Boeing Creek	4	75%	25%		
Cheasty Greenspace	9	100%			
Luther Burbank	8	100%			
Me-Kwa-Mooks	5	100%			
South Woods	10	100%			



Results – Stem Injection

Herbicide: **Imazapyr** more effective than glyphosate





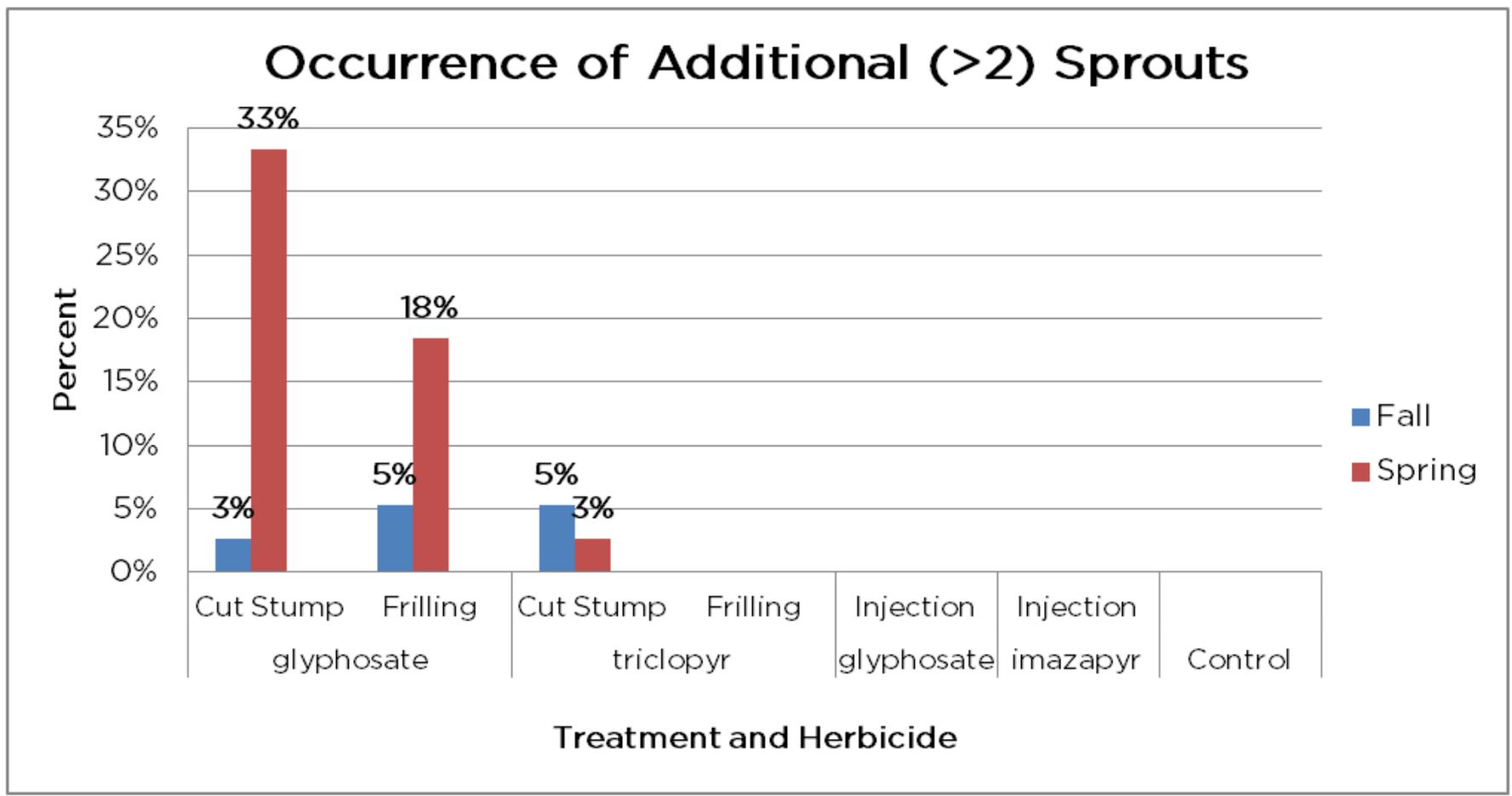
Results: Stem Injection

		Health Category				
Site	N	Dead	Severe Decline	Moderate Decline	Light Decline	Healthy
Stem Injection Glyphosate Fall 2010						
Cheasty Greenspace	9		11%	11%	44%	33%
Me-Kwa-Mooks	7		14%	14%	43%	29%
Stem Injection Glyphosate Spring 2011						
Cheasty Greenspace	9	11%	11%	56%	22%	
Me-Kwa-Mooks	7	29%		29%	43%	
Stem Injection Imazapyr Fall 2010						
Boeing Creek	4	100%				
Luther Burbank	9	100%				
South Woods	9	89%	11%			
Stem Injection Imazapyr Spring 2011						
Boeing Creek	4	100%				
Luther Burbank	9	100%				
South Woods	9	100%				



Results – Stump Sprouts

Treatment: **Stem Injection** resulted in least stump sprouting

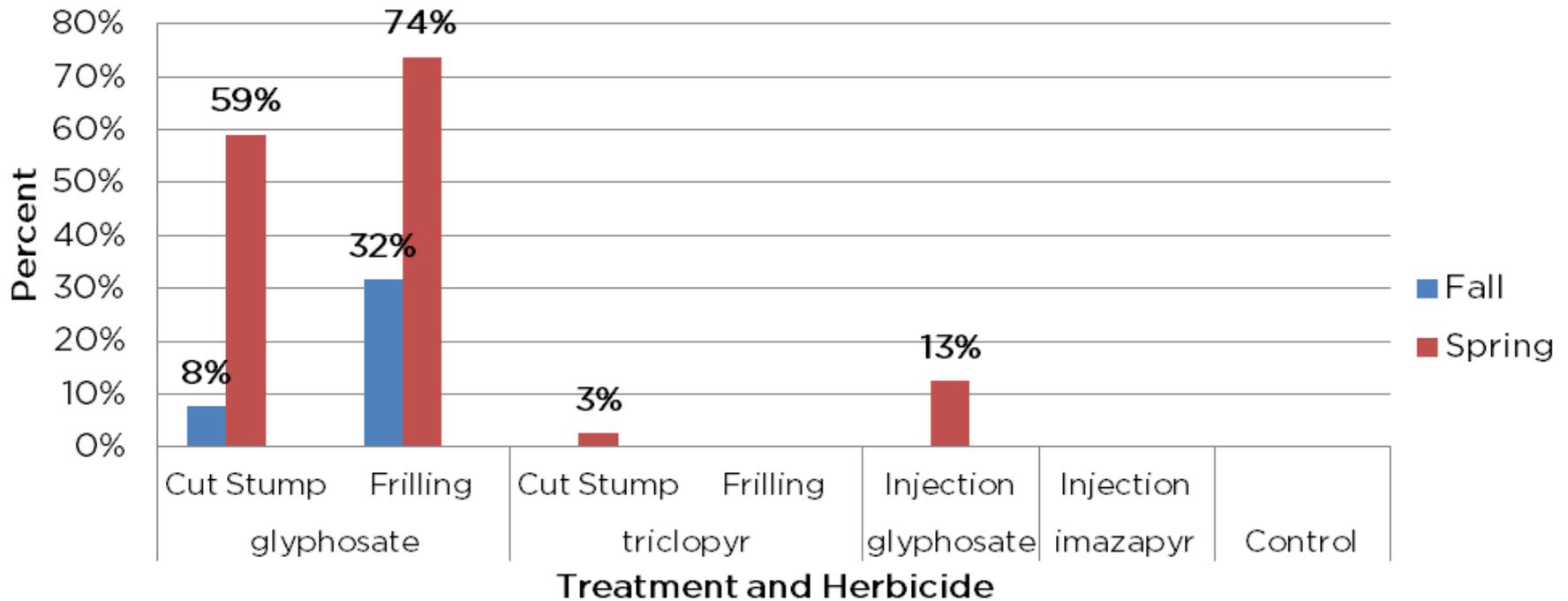




Results – Stem Enations

Treatment: **Injection w/ imazapyr** or **frilling with triclopyr** resulted in fewest stem “buds”

Occurrence of Stem Enations

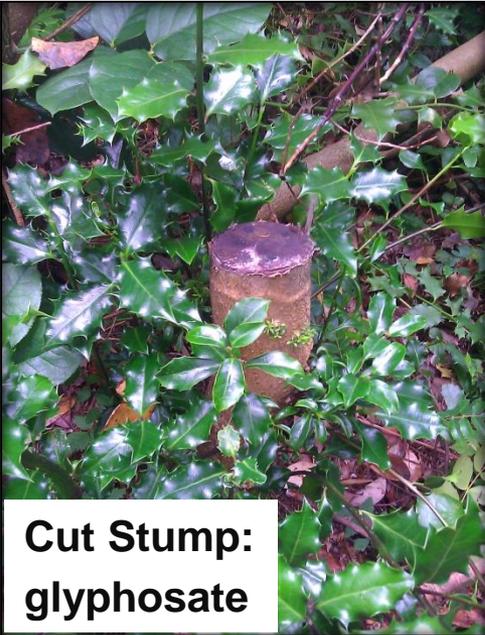




**Frilling:
glyphosate**



Frilling: glyphosate



**Cut Stump:
glyphosate**



**Cut Stump:
triclopyr**



Results – Time Efficiency

Time: **Stem Injection** was the fastest

- Stem injection was 7 to 8 times faster than other methods
- No need to mix, clean, handle and store liquid chemicals



EZ-Ject Lance stem injection





Summary

- Stem injection with imazapyr was the fastest and most effective method of control
- Frilling and/or cut stump with triclopyr was also effective, but may result in more stump sprouting
- Either method is effective in both the fall or spring seasons





Project Funding Provided in Part by:





Thank You! Questions?

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