

Invasive Shrub Management Field Day- McGaw Park 2022

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Objective: Demonstrate effective invasive woody shrub management techniques using herbicides on invasive, large multi-stemmed bush honeysuckle (*Lonicera* spp.) shrubs.

Site Description: Management demonstrations (cut surface, foliar, and foliar to resprouting shrubs after forestry mowing) were applied in a portion of McGaw Park consisting of degraded woodlands heavily invaded with bush honeysuckles (*Lonicera* spp.) growing on silt loam soils (19.5% clay, 0.91% organic matter, 7.4 pH, 2% slope). In areas with no recent management, honeysuckle shrubs were multi-stemmed and ranged from 1 to >2m tall. In areas with recent forestry mowing, honeysuckle shrubs were multi-stemmed and resprouted to 0.5 – 1 m tall, depending on the time of year.

Application: All herbicide applications were made with a CO₂ pressurized single nozzle sprayer with a Teejet 8002 E nozzle that delivered approximately 50 gallons per acre.

TREATMENT DETAILS AND RESULTS

Foliar Herbicide Treatment: Shrubs in the flowering stage, were treated with herbicide on 5/20/2021 at a cost of \$1.00-1.25 per shrub. At 406 days after treatment (~13 months), Method, Arsenal, and Roundup PowerMax provided acceptable control ($\geq 90\%$), while Escort and Vastlan did not provide acceptable control.

Foliar Herbicide Treatments to 1-2 m tall, multi-stemmed Bush Honeysuckle					
Treatment	Rate	% Control 406 DAT (June 2022) ¹	Labor cost per shrub	Product cost per shrub ²	Total cost per shrub
Vastlan MSO	3% v/v 1% v/v	40% b	\$0.21	\$0.15	\$0.36
Method 240SL MSO	0.5% v/v 1% v/v	100% a	\$0.16	\$0.16	\$0.32
Arsenal Powerline MSO	3% v/v 1% v/v	100% a	\$0.11	\$0.15	\$0.26
Roundup PowerMax NIS AMS	3% v/v 0.25% v/v 8.5 lb / 100 gal	95% a	\$0.13	\$0.02	\$0.15
Escort MSO	1.5 oz wt / 100 gal 1% v/v	80% ab	\$0.11	<\$0.01	\$0.12

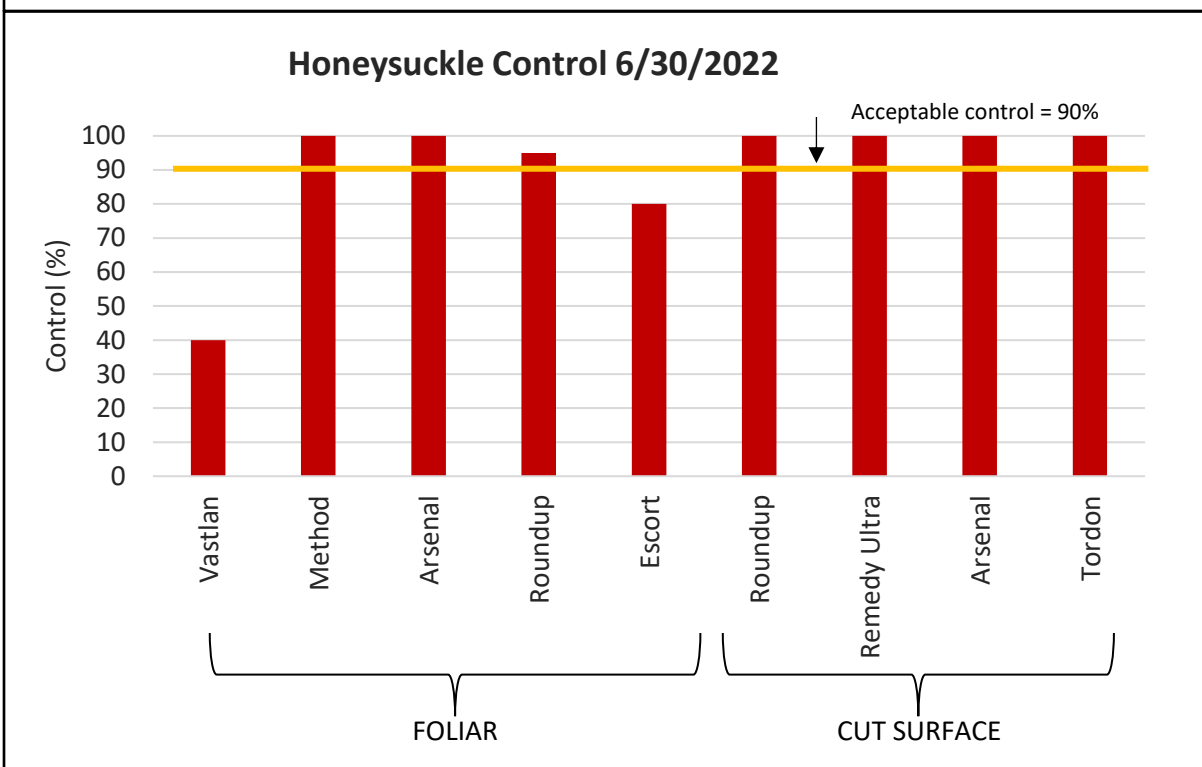
¹ Within each table column, values followed by the same letter do not significantly differ ($P > 0.05$, LSD).

² Product cost per shrub represents cost of the herbicide applied.

Cut Surface Herbicide Treatment: Shrubs (all >2 m tall) were cut and treated with herbicide on 4/20/2021 at a cost of \$6 per shrub. At that time, shrubs were leafed out but not yet flowering. At 436 days after treatment (~14 months), all treatments provided 100% control of the shrubs.

Cut Surface Herbicide Treatment to >2 m tall, multi-stemmed Bush Honeysuckle					
Treatment	Rate	% Control 436 DAT (June 2022) ³	Labor cost per shrub	Product cost per shrub ⁴	Total cost per shrub
Roundup PowerMax AMS	33% v/v 8.5 lb / 100 gal	100% a	\$3.38	\$0.37	\$3.75
Remedy Ultra Bark Oil Blue	25% v/v 75% v/v	100% a	\$3.38	\$0.58	\$3.96
Arsenal Powerline	8% v/v	100% a	\$3.38	\$0.30	\$3.68
Tordon 22K	75% v/v	100% a	\$3.38	\$0.64	\$4.02

Figure 1: Comparison of effectiveness of foliar and cut surface applications 6/30/22 (13-14 MAT)



³ Within each table column, values followed by the same letter do not significantly differ ($P > 0.05$, LSD).

⁴ Product cost per shrub represents cost of the herbicide applied and the fuel used in a brush cutter.

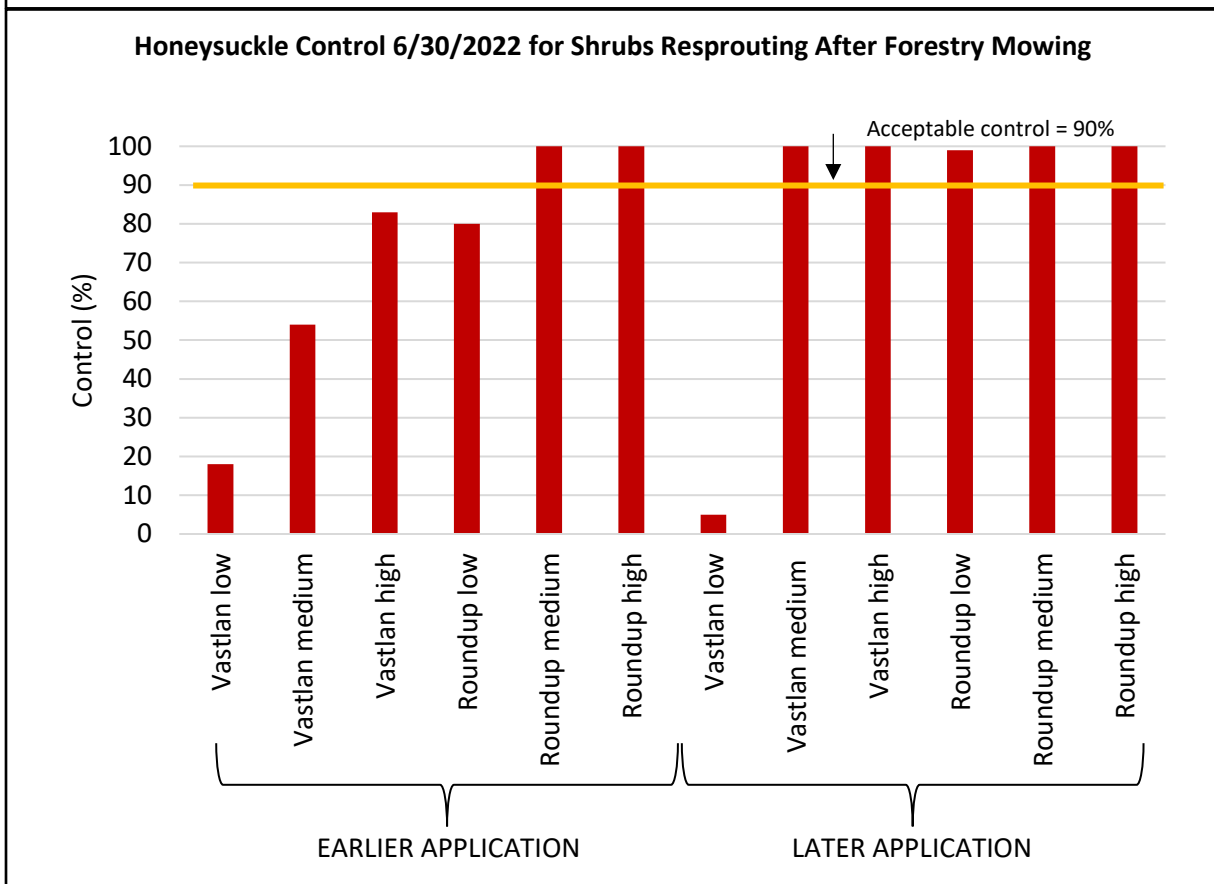
Foliar Herbicide Treatment to Resprouting Shrubs After Forestry Mowing: Foliar herbicides were applied to shrubs that resprouted following forestry mowing in late 2020 – early 2021 at a cost near \$1 per shrub. The herbicides, Vastlan and Roundup PowerMax, were each applied at three different rates: low, medium, and high. The herbicides were also applied at two different timings: “Earlier” on 6/28/2021 to resprouting shrubs < 1 m tall and “later” on 9/29/2021 to resprouting shrubs 1 m tall. In the earlier application, Roundup PowerMax at medium (3% v/v) and high (5% v/v) rates provided acceptable control as of June 2022. In the later application, all treatments except Vastlan at low (1% v/v) rate provided acceptable control as of June 2022.

Foliar Herbicide Treatment to Resprouting Forestry Mowed Shrubs – Earlier Application					
Treatment	Rate	% Control 367 DAT (June 2022)⁵	Labor cost per shrub	Product cost per shrub	Total cost per shrub⁶
Vastlan (low) MSO	1% v/v 1% v/v	18% c	\$0.59	\$0.04	\$0.63
Vastlan (medium) MSO	3% v/v 1% v/v	54% b	\$0.59	\$0.13	\$0.72
Vastlan (high) MSO	5% v/v 1% v/v	83% a	\$0.59	\$0.21	\$0.80
Roundup PowerMax (low) NIS AMS	1.5% v/v 0.25% v/v 8.5 lb / 100 gal	80% a	\$0.59	\$0.01	\$0.60
Roundup PowerMax (medium) NIS AMS	3% v/v 0.25% v/v 8.5 lb / 100 gal	100% a	\$0.59	\$0.02	\$0.61
Roundup PowerMax (high) NIS AMS	5% v/v 0.25% v/v 8.5 lb / 100 gal	100% a	\$0.59	\$0.03	\$0.62
Foliar Herbicide Treatment to Resprouting Forestry Mowed Shrubs – Later Application					
Treatment	Rate	% Control 274 DAT (June 2022)	Labor cost per shrub	Product cost per shrub	Total cost per shrub
Vastlan (low) MSO	1% v/v 1% v/v	5% c	\$0.59	\$0.04	\$0.63
Vastlan (medium) MSO	3% v/v 1% v/v	100% a	\$0.59	\$0.13	\$0.72
Vastlan (high) MSO	5% v/v 1% v/v	100% a	\$0.59	\$0.21	\$0.80
Roundup PowerMax (low) NIS AMS	1.5% v/v 0.25% v/v 8.5 lb / 100 gal	99% a	\$0.59	\$0.01	\$0.60
Roundup PowerMax (medium) NIS AMS	3% v/v 0.25% v/v 8.5 lb / 100 gal	100% a	\$0.59	\$0.02	\$0.61
Roundup PowerMax (high) NIS AMS	5% v/v 0.25% v/v 8.5 lb / 100 gal	100% a	\$0.59	\$0.03	\$0.62

⁵ Values followed by the same letter do not significantly differ (P>0.05, LSD).

⁶ Product cost per shrub represents cost of the herbicide applied.

Figure 2: Comparison of effectiveness of foliar applications applied to resprouting shoots in summer (6/28) or fall (9/29). Control was estimated on 6/30/22, which was 12 MAT for the early timing and 9 MAT for the late timing.



Abbreviations used in report:

AMS = Ammonium Sulfate

NIS = Non-Ionic Surfactant

MAT = Months After Treatment

MSO = Methylated Seed Oil

DAT = Days After Treatment