Interim Results of Mn/DOT Buckthorn Control Field Trials
St. Croix Travel Information Center Along I-94
Paul Walvatne, Mn/DOT Forester--June 23, 2003

Background--In late fall 2001 Mn/DOT's Office of Environmental Services and Metro Division collaborated with United Agri-Products Timberland in conducting field trials on several stump and basal stem treatments for controlling buckthorn. Common buckthorn (Rhamnus cathartica) totally dominates the understory at this busy Information Center, which receives 1/2 million visitors annually. Past efforts by Mn/DOT to control the infestation have not made a dent in the population.

Purpose for Trials--The field trials serve several purposes including:

1. Determining the effectiveness of commonly used treatments at different times of the year.
2. Engaging Mn/DOT Office of Environmental Services personnel and the Metro Division tree crews and pesticide applicators in completing the trials thereby providing "hands on" education in identifying buckthorn and familiarity with the herbicides commonly used for stump and basal spray treatments.
3. Providing the impetus for a concerted effort to control buckthorn at this site.
4. . Providing an educational walk through experience for "field tour" attendees at the combined Vegetation Management Association of Minnesota (VMAM), North American Weed Manager's Association (NAWMA) and the Minnesota Association of County Agriculture Inspectors (MACAI) conference in July 2002.

Methods--The closed loop concrete trail through the woods served as the access and frame for our work. We set up 20' wide by 65' long plots on both sides of the trail. We divided each plot into three 20' x 21' segments such that each had an A, B, & C segment representing the three treatment dates (time periods). Treatment season and dates included fall (11/28-12/6/02), early spring (4/12/02) and late spring (6/13/02). Treatments included glyphosate (1 part of a 43% AI for 3 parts of water), Brush-B-Gone™ (8% triclopyr straight from the container), Pathfinder II™ (Ready to use triclopyr), Garlon 4™ [25% Garlon 4 (triclopyr) & 75% bark oil blue] and BK 800™. Each treatment was replicated three times during each date. Crews received instructions on the importance of treating all cut stems nearly immediately after cutting. Each crew had at least one chain saw operator, one recorder, a licensed pesticide applicator with a hand sprayer, and at least one brush puller. Applicators applied chemicals in accordance with the label and a written instruction on the recording sheet.

Results & Discussion--Table 1 shows the results from our counts at the plots on June 13, 2003. All treatments provided 95% or better control during the fall season. Glyphosate treated plots showed more re-sprouting than any other treatment during the early spring and late spring treatments. Brush-B-Gone™ performed surprisingly well, although the percent sprouting jumped to 11% for the late spring treatment. This evaluator believes a good share of the sprouting stumps were not sprayed based upon a comparison with non-sprouting stumps in the same plot.

Disclaimer--This field trial involved different crews and sprayer operators, different dates. For example one crew would complete all three BK 800™ replications for the December 6, 2001 treatment date but a different crew would complete the April 12, 2002 replications for BK 800™. The data is subject to error due to the many uncontrolled variables—maybe more real world but our results must be viewed with guarded enthusiasm.

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ST. CROIX TRAVEL INFORMATION CENTER
BUCKTHORN CONTROL RESEARCH PLOTS
JUNE 13, 2003 EVALUATION RESULTS

TREATMENT	TREATMENT DATE	TOTAL STEMS TREATED(3 PLOTS)	# STEMS RE-SPROUTED % RE-SPROUTED
Cut stem/Glyphosate	11/28/01	294	11 -- **3.70%**
Cut stem/Glyphosate	4/12/02	228	24 (6) -- **10.50%**
Cut stem/Glyphosate	6/13/02	85	31 -- **36%**
Cut stem/Brush-B-Gone™	12/03/01	189	1 (1) -- **0.50%**
Cut stem/Brush-B-Gone™	4/12/02	266	4 (2) -- **1.50%**
Cut stem/Brush-B-Gone™	6/13/02	179	20 (13) -- **11.10%**
Dormant Basal/Pathfinder II™ RTU	12/06/01	127	0 -- **0.00%**
Dormant Basal/Pathfinder II™ RTU	4/12/02	164	0 -- **0.00%**
Dormant Basal/Pathfinder II™ RTU	6/13/02	72	3(3) -- **4.00%**
Cut stems/Garlon 4™	11/28/01	97	3 (1) -- **3.00%**
Cut stems/Garlon 4™	4/12/02	79	2 (2) -- **2.50%**
Cut stems/Garlon 4™	6/13/02	90	0 -- **0.00%**
Cut stems/BK 800™	11/28/01	392	7 (4) -- **1.80%**
Cut stems/BK 800™	4/12/02	241	5 (2) -- **2.00%**
Cut stems/BK 800™	6/13/02	290	24 (2) -- **8.20%**

** The mention of trade names or companies does not constitute endorsement.

(#) = This number represents the number of stems that the evaluators believe re-sprouted because they were not sprayed during the application process.

“Interesting Sidebar” – We also took random 1-foot square plots and counted all the Buckthorn seedlings coming up after the cutting and stem treatments. The average number of seedlings per square foot = ***15.15*** = ***675,800*** seedlings per acre.