

Trico Spray Cuts Deer Browse by 70% Improving Early Growth in Douglas-fir Seedlings: Results from a Vancouver Island Woodlot Trial

By Tyler Pond

Abstract

Deer and elk browsing pose a major threat to the early development of Douglas-fir seedlings in coastal British Columbia. This trial evaluates the efficacy of Trico, a commercial deer and elk repellent, in improving early seedling performance. Conducted in spring 2024–2025 on Woodlot 1678 near Campbell River, the study used 30 circular plots to compare height growth and browsing damage in treated versus untreated blocks. Results showed that Trico-treated seedlings were, on average, 10.5 cm taller and experienced a 70% reduction in browsing compared to controls—both statistically significant outcomes. These findings suggest that Trico may offer a cost-effective tool for enhancing plantation success during the vulnerable early years of establishment.

Introduction

Deer and elk browsing is a widespread challenge for woodlot owners across coastal British Columbia. In regenerating Douglas-fir stands—particularly during the first few years after planting—ungulate pressure can severely impact tree form, survival, and long-term value. Terminal leader loss caused by browsing often results in stunted growth, multi-stemmed trees, or even stand failure.

To address this challenge, I tested the effectiveness of Trico, a commercial repellent designed to deter deer and elk browsing. The goal was to determine whether Trico provided a measurable benefit in terms of both reduced browsing and improved height growth. The trial was conducted on woodlot 1678 just outside of Campbell River on Vancouver Island.

Trial Design and Methodology

In spring 2024, Trico was applied to Douglas-fir seedlings in a replanted cutblock during their second growing season—a time when seedlings are tall enough to be consistently targeted by deer but remain highly vulnerable. The repellent was sprayed at a target rate of 5 L/ha, applied directly to the terminal leaders of all planted fir trees. A nearby cutblock was left untreated and served as a control, with the close proximity helping to minimize environmental variability between the two sites.

To assess treatment effects, I established 30 circular sample plots in spring 2025—15 in the Trico-treated block and 15 in the untreated control block. Each plot had a radius of 3.99 m, corresponding to an area of 0.005 hectares. This standard plot size provides a

reliable balance between capturing localized variation and maintaining operational efficiency.

Plots were laid out in a randomized pattern within each block to minimize site bias and ensure each plot functioned as an independent sampling unit. Within each plot, I recorded tree height and evidence of browsing, scored as:

- 0 – no browsing observed
- 1 – browsed

All trees were measured once, during their third growing season, to evaluate early growth and browse protection outcomes.

In total, 164 Douglas-fir seedlings were assessed: 78 in the untreated control plots and 86 in the Trico-treated plots. This provided a robust sample size to detect meaningful differences in browsing incidence and growth performance between treatments.

Results: Reduced Browsing, Increased Height

The trial revealed a strong and statistically significant difference between the treated and untreated trees.

Height Growth

- Untreated trees averaged 51.6 cm in height.
- Treated trees averaged 62.1 cm, a 10.5 cm increase—over 20% taller.
- The difference was statistically significant ($p = 0.0006$), with non-overlapping 95% confidence intervals.

Browsing Pressure

- 78.1% of untreated trees showed browsing damage.
- Only 23.4% of Trico-treated trees were browsed.
- This represents a 70% reduction, confirmed by a z-test ($p < 1e-11$).

Because each tree was measured once and plots were randomized, these results reflect true treatment effects—not just microsite variation or measurement error.

Visual Comparison

Below are two representative trees from the trial:



Browsed Tree (1) (Control Block)



Unbrowsed Tree (0) (Trico-Treated Block)

Typical form loss from terminal leader browse. Reduced height and lateral competition from ground vegetation is evident. Healthy, unbrowsed seedling from treated block showing strong vertical growth and form.

Why This Matters for Small-Scale Forestry

Early seedling performance is a critical predictor of long-term stand success. Height growth in the first few years influences how quickly trees outcompete brush especially bracken, resist snow press or wildlife damage, and rise above the reach of ungulates.

Even a modest gain of 10–15 cm in year three can result in:

- Earlier free-growing status, reducing the need for brushing or replanting
- Shorter rotations, as early growth gains accumulate over time

In high-pressure areas where deer or elk are active, early protection of terminal leaders can dramatically improve stand establishment. This trial suggests that Trico may be a cost-effective solution, particularly when applied to vulnerable seedlings or high-risk microsites.

Considerations and Recommendations

While these initial findings are promising, several considerations should be kept in mind:

- Short-term scope: This study captures only the first year after treatment. Continued monitoring in years four and five will be necessary to determine whether the observed height advantage and browse reduction persist over time.
- Limited geographic scope: The trial included only two cutblocks within a single

woodlot. Broader trials across a wider range of site conditions, elevations, and microclimates would help confirm how generalizable the results are.

- **Species specificity:** The study focused solely on Douglas-fir. It remains to be tested whether Trico could provide similar protection for other vulnerable species, such as western redcedar, potentially reducing the need for cones and associated maintenance costs.
- **Cost-effectiveness:** Treating every seedling may not be economically feasible on a large scale. However, targeted application in high-risk areas (e.g., near game trails, edges, or known browsing corridors) may provide a practical and economical middle ground.
- **Timing of application:** There may be merit in considering Trico application pre-planting—either as a nursery treatment or immediately prior to field planting. This could help reduce labor costs and potentially alter ungulate browsing habits, discouraging animals from returning even after the product’s direct efficacy wears off.

That said, the scale of difference observed—a 10 cm increase in average height stemming from a 70% reduction in browsing—strongly suggests that even a single application of Trico can produce a meaningful improvement in early plantation success.

Final Thoughts

Woodlot managers are constantly balancing long-term goals, budgets, and ecosystem dynamics. This small-scale field trial adds to the growing body of practical forestry knowledge showing that low-intensity treatments like Trico can yield real, measurable results—especially during the fragile early years of plantation development.

Whether your goal is timber production, climate resilience, or wildlife stewardship, ensuring seedling survival and growth in the first three years is foundational. Based on these results, Trico appears to be a valuable tool in the silviculture toolbox for any manager facing moderate to high browse pressure.