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# Protecting Ontario's Christmas Tree Industry from Increasing Climate Change Risks

Waterloo Climate Institute Policy Brief
Authored by the Christmas Tree Lab

UNIVERSITY OF WATERLOO | WATERLOO Climate Institute

CHRISTMAS TREE LAB

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Photos taken at Chickadee Christmas Trees, Cambridge, Ontario, by Alison Clarke.

## ABSTRACT

Christmas tree farming is a culturally significant yet under-represented agricultural industry that faces growing challenges due to climate change. As a long-cycle crop, the years of exposure to the elements and pests have increased the difficulty and workload required to produce quality Christmas trees. Despite this, Christmas tree farms are often excluded from policy support systems that could help them adapt and remain resilient to climate change. To address this gap, we propose five action areas that can be adopted across all three levels of government to support the Christmas tree farming industry: upholding cultural heritage, aligning crop insurance policies to tree farming, addressing climate-driven pests and diseases, integrating Christmas tree farms into climate policy, and promoting post-holiday tree recycling.



**Keywords:** Climate change; Agriculture; Resilience; Christmas trees; Biodiversity.


## KEY MESSAGES:

- **Climate change is already impacting Canada's Christmas tree sector** through increased seedling mortality, shifting growing conditions, and rising pest and disease pressures—yet these risks remain largely unaccounted for in agricultural policy frameworks.
- **Christmas tree farms contribute meaningfully to Canada's climate goals** by sequestering carbon, supporting biodiversity, and sustaining low-impact, perennial agriculture—yet they are excluded from most climate and carbon financing programs.
- Without formal recognition and inclusion in climate adaptation strategies, insurance programs, and carbon markets, **Christmas tree growers lack the tools and resources needed to respond to intensifying environmental challenges.**
- Existing **partnerships between growers, conservation authorities, and research institutions** demonstrate how the industry is already contributing to ecological restoration, circular economies, and local climate resilience, providing a management structure for reform.
- **Protecting the future of Christmas tree farming means supporting it as both a cultural tradition and a climate solution**—one that strengthens rural economies while advancing federal, provincial, and municipal climate commitments.

# INTRODUCTION

## CLIMATE CHANGE IMPACTS ON THE CANADIAN CHRISTMAS TREE INDUSTRY

As climate change impacts rural economies, overlooked sectors like Christmas tree farming—rich in tradition yet increasingly vulnerable—need greater support. This brief identifies five urgent priorities: safeguarding cultural heritage, aligning crop insurance policies with tree farming, addressing climate-driven pests and diseases, integrating Christmas tree farms into climate policy, and promoting post-holiday tree recycling as a contribution to sustainability. Together, these actions can help sustain this vital agricultural sector.

For many households in Canada and beyond, celebrating Christmas with an evergreen tree is a cherished tradition; however, climate change threatens this tradition with rising temperatures and shifting precipitation patterns (Pedlar, McKenney, & Allen, 2023; Man, Lu, & Dang, 2019). As growing conditions near or exceed cold-climate tree limits, growers face increasing challenges in sustaining healthy crops (Taylor et al., 2020; Thiagarajan et al., 2016; Leonard et al., 2025).

> "The trees **are not as healthy as they were in the past**. I don't know why. Soil, weather, even rain, I don't know why. Some trees have become stunted. So they would grow for three or four years and then stop growing. Start to look really ratty. So we just pull them out of the ground. I don't really know why that's happening."
> - Ontario Christmas Tree Grower

Christmas Trees are a long-cycle crop, taking an average of 8-10 years to reach the point of harvesting (Zinati et al., 2016; Seifert, 2015). Throughout this time, the grower must attentively watch and care for the tree (Seifert, 2015; Chastagner and Benson, 2000; Leonard et al., 2025). Because Christmas trees take years to mature, they are vulnerable to various hazards that can reduce crop quality or cause losses, resulting in significant financial impacts for growers (Seifert, 2015; Foster & Cote, 1970; Sellers, 1974; Leonard et al., 2025).

As of the 2021 census, Canada had 1,364 Christmas tree farms covering 50,803 acres, down from 2,381 farms and 69,968 acres in 2011 (Statistics Canada, 2017; 2022a) (see Figure 1). Christmas trees are used domestically and exported—over 2.4 million fresh trees were exported in 2021, mainly to the U.S. and Caribbean (Statistics Canada, 2022b).

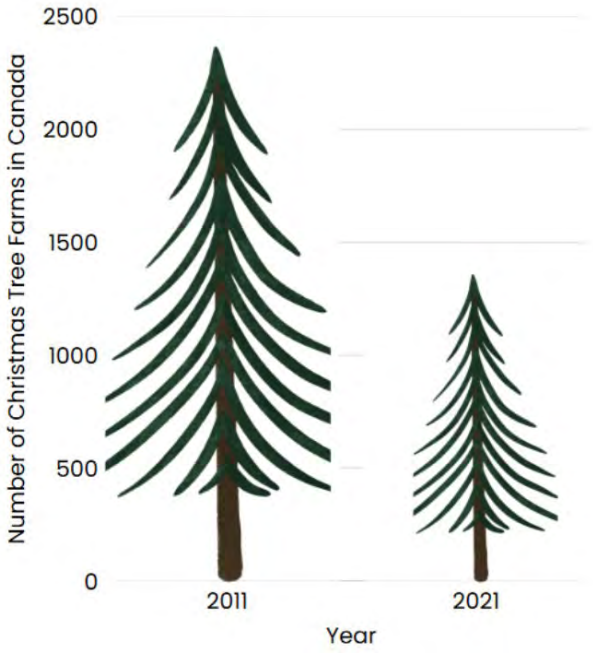


**Figure 1.** Number of Christmas Tree Farms in Canada in 2011 and 2021. Author created. Data collected from: (Statistics Canada, 2017; Statistics Canada, 2022b).

As of 2021, Ontario had the largest number of tree farms, with 418, followed by B.C. (276), Quebec (257), and Nova Scotia (213), with the rest spread across other provinces (Statistics Canada, 2022a). Quebec had the largest acreage at 19,169, while Ontario's farms are generally smaller and focused on local choose-and-cut or pre-cut sales.

Regional associations support Christmas tree growers across Canada. Nationally, the Canadian Christmas Trees Association (CCTA) fosters cross-provincial collaboration and engages with governments (CCTA, 2021). In Ontario, the Christmas Tree Farmers of Ontario (CTFO) supports growers and promotes the next generation of growers through outreach and education (CTFO, 2025a).

Biodiversity enhances climate resilience, and Christmas tree farms contribute directly to this resilience by sustaining wildlife habitat. Christmas tree farms support biodiversity by providing winter shelter for wildlife (see Figure 3). Growers report species such as deer, turkeys, foxes, rabbits, squirrels, bears, and birds using tree stands for insulation during harsh weather (Leonard et al., 2025; McCarthy & Adam, 2013).

Recent research from the University of Waterloo's Christmas Tree Lab highlights climate impacts on southern Ontario growers and the urgent need for policy action (see Figures 2 & 3). Growers reported that the greatest crop loss occurs in the first year after transplanting seedlings (Leonard et al., 2025). Less winter snow reduces spring soil moisture, forcing growers to invest time in irrigation measures for seedlings, or risk crop loss (Leonard et al., 2025). Preliminary results indicate that growers have observed seedlings to be most vulnerable to weather variations, particularly drought and extreme heat (Leonard et al., 2025).

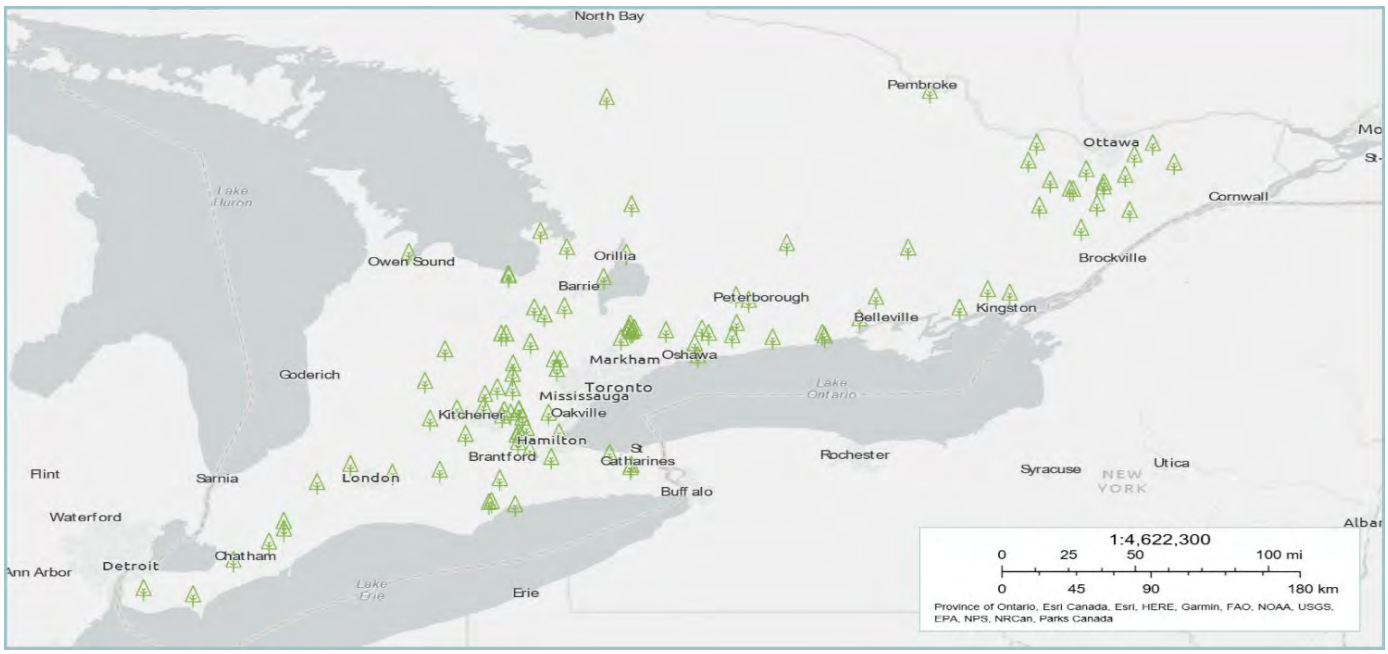


**Figure 2.** Map of Christmas Tree Farms in Southern Ontario. Sources: Author created (Leonard et al., 2025).


**Figure 3.** Christmas Tree Farm Seasonal Biodiversity, illustrated by Sophia Bos.

Growers interviewed by the Christmas Tree Lab report crop losses from extreme weather, including stronger storms, high winds, and temperature swings (Leonard et al., 2025; see Figure 4). Shifting frost patterns, especially late-spring frosts, can stunt bud growth and delay development (Man, Lu, & Dang, 2019).

Climate change is expanding the range of pests and diseases affecting Christmas tree farms globally (Morgan, 2011; Darr et al., 2022; McCarthy & Adam, 2013). In Canada, pests such as balsam twig aphids, spruce spider mites, white pine weevils, and spongy moths are spreading, along with diseases including Phytophthora, needle rust, Armillaria, and Fusarium (CFIA, 2024; Leonard et al., 2025; McCarthy & Adam, 2013). Growers are increasingly concerned about how to monitor and manage these threats amid growing workloads.

> "You know, in the spring-time when we should have the rain, **we have the drought.** So the seedlings, **I would lose about 40% of the seedlings.**"
> - Ontario Christmas Tree Grower

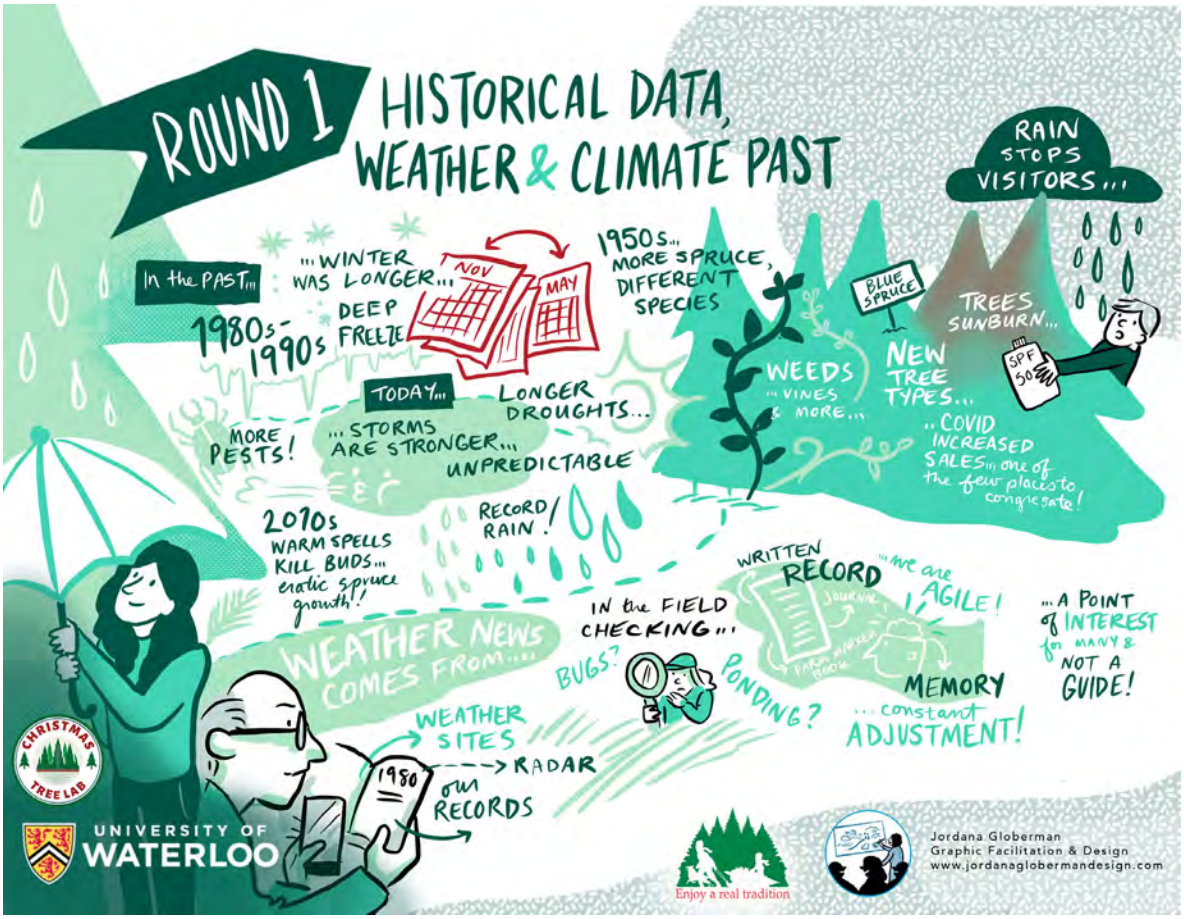


**Figure 4.** Workshop Visual Note from session led by the Christmas Tree Lab on historical and current climate experiences for Christmas tree growers (Leonard et al., 2025). Visual note illustration created by Jordanna Globerman.

Classified as ornamental crops, Christmas trees are excluded from key agricultural supports like crop insurance, climate adaptation programs, and publicly funded agricultural research and development (Alvord, 1957; Wei et al., 2023; Mou et al., 2025; Prentiss, 2018; Raszap Skorbiansky et al., 2022; Vaughan & Gunson, 2023). Yet, despite similar climate risks, Christmas tree farms receive far less structural support than food-producing farms (Taylor et al., 2020).

The Christmas tree industry has been largely overlooked in government policy, missing key opportunities for climate adaptation and economic growth. **This brief examines the climate risks facing the sector and calls for policies that recognize Christmas tree growers as essential to climate-resilient agriculture, deserving equal access to long-term sustainability supports.**

> " We **lose about a third on average of the seedlings that we plant.** There's different reasons for it, but number one is definitely irrigation, for sure, and **warmer temperatures**. We've had some pretty rough years, some pretty dry years that definitely have affected the seedlings, for sure."
> - Ontario Christmas Tree Grower

ANALYSIS

## MORE THAN TRADITION: A CLIMATE-RESILIENT HERITAGE WORTH PROTECTING

Choosing a real Christmas tree is a cherished holiday tradition, and for many, its loss would feel like losing Christmas itself. In Ontario, reduced snowfall in November and December has affected customer experiences (Hutchinson-Rogers, 2024), yet demand remains high, with many choose-and-cut farms selling out each season (Dangerfield, 2024). For choose-and-cut farms, tree farming is often a family tradition, making the potential loss culturally significant for Canadian national heritage.

At the federal level, support for maintaining the heritage of growing real Christmas trees remains limited. The Department of Canadian Heritage is the lead federal department whose mandate includes "fostering and promoting Canadian identity and values, cultural development, and heritage" (Canadian Heritage, 2023). Funding opportunities exist to help preserve other aspects of Canadian culture; however, maintaining the availability of real Christmas trees is absent from the list (Canadian Heritage, 2024).

In Ontario, programs exist to encourage the support of local farms by choosing local products (OFA, 2024; Ontario Wood, 2022). For example, Ontario's Ministry of Natural Resources encourages the local consumption of Ontario wood and wood products, recognizing its involvement in Ontario's heritage, including Ontario grown Christmas trees (Ontario Wood, 2022; Ontario Wood, 2016). Similarly, the Ontario Federation of Agriculture raises awareness of the importance of protecting and preserving Ontario farmland, including Christmas tree farms (OFA, 2024). While these programs encourage awareness of local Christmas tree farms, greater support could come from the provincial level to safeguard the tradition.

Municipalities can support Christmas tree farming by considering how zoning and bylaws affect farms, particularly as land-use regulations change (OFA, 2025). Tree farms are well-positioned to help meet municipal tree-planting goals and should be supported accordingly (OFA, 2025).

Federal, Provincial and Municipal governments should **establish a National Heritage Agriculture and Legacy Farm Program through Canadian Heritage and Agriculture and Agri-Food Canada, allowing Christmas tree farms, especially choose-and-cut farms, to receive funding and recognition as culturally significant landscapes while supporting municipal climate and tree-planting goals.**

# FROM ORNAMENT TO ASSET: ALIGNING INSURANCE WITH CLIMATE-RESILIENT FARMING

Despite their role in rural economies and carbon sequestration, Christmas tree farming in Canada is often excluded from federal insurance and climate risk programs due to its classification as an ornamental crop (Prentiss, 2018; Raszap Skorbiansky et al., 2022; Vaughan & Gunson, 2023). Yet growers face similar climate risks as other crops and have limited access to public insurance tools that can buffer financial risk and incentivize adaptation. Recognizing Christmas trees as a climate-exposed agricultural commodity is essential to creating a more equitable and resilient farm support system.

Unlike in Canada, U.S. Christmas tree farms are eligible for federal support through the Non-insured Crop Disaster Assistance Program (NAP), which covers climate-related losses for crops not insured under the Federal Crop Insurance Program (Raszap Skorbiansky et al., 2022). NAP affirms Christmas trees as an agricultural commodity and helps growers manage climate risks (Collins, 2025). In Canada, the lack of a comparable program leaves growers exposed to comparable risks without safeguards, highlighting the need for parity in national and provincial risk management frameworks that support climate-exposed, non-food agricultural sectors (Prentiss, 2018).

In Ontario, crop insurance is managed by Agricorp (see Table 1) in partnership with Agriculture and Agri-Food Canada; however, Christmas tree growers have limited access to coverage, restricting their eligibility for disaster assistance and climate adaptation support. While Ontario's Risk Management Program supports edible horticulture through matched self-directed accounts (Agricorp, n.d.-a), production insurance does not cover Christmas trees (Agricorp, n.d.-b). This gap presents an opportunity to pilot insurance for long-cycle, non-edible crops and gather climate impact data to inform fair risk-sharing models.

Governments should **include Christmas tree farms in federal and provincial crop insurance and disaster risk programs by reclassifying them as climate-vulnerable agricultural assets and piloting targeted coverage models.**

**Table 1.** Agricorp Programs Listed as Available for Christmas Trees

| Available programs | Key benefits |
|---|---|
| AgriStability | Covers margin declines caused by production loss, increased costs, or market conditions. |
| Farm Business Registration | Fulfills one of the requirements for the Farm Property Class Tax Rate Program. |
| Farm Property Class Tax Rate Program | Provides a reduced property tax rate to eligible farmland owners. |
| AgriInvest | Offers matching government contributions in a savings account. |

*Source: Agricorp: Find programs for your operation (Agricorp, n.d.-c).*

## SILENT SPREAD: CLIMATE-DRIVEN PEST AND DISEASE RISKS

Climate change is accelerating the spread and severity of pest and disease outbreaks in forest-based agricultural sectors, and Christmas tree farms are no exception. Warmer winters and altered precipitation patterns allow invasive species to expand their range and thrive in new regions, while native pests may become more persistent or destructive (Taylor et al., 2020; Morgan, 2011; Darr et al., 2022; McCarthy & Adam, 2013). These risks not only reduce yields and increase management costs but also threaten the long-term viability of farms already operating on narrow margins (Darr et al., 2022; McCarthy & Adam, 2013). A coordinated pest and disease response tailored to the unique needs of Christmas tree producers is needed as part of broader climate adaptation strategies.

Provinces are primarily responsible for responding to pest outbreaks on agricultural lands, yet Christmas tree growers in Ontario and other provinces often lack consistent access to extension services, monitoring tools, and financial support for pest-related losses (Ontario, n.d.; AAFC, 2023; McCann & Lika, 2023). Provincial ministries of agriculture and natural resources can strengthen adaptive capacity by integrating Christmas tree farms into invasive species action plans and climate change risk assessments. Government funding for research and diagnostics on climate-driven pests is essential, and partnerships with municipalities and conservation authorities can support community-based monitoring, public awareness, and grower resilience.

At the federal level, pest and disease response programs tend to focus on large-scale forestry or food crop protection, missing the unique needs of non-food, long-cycle crops like Christmas trees (CFIA, n.d.-a; NRCan, 2025). Furthermore, these efforts are commonly taken in response to an outbreak, and limit proactive measures to prevent spread before it starts (AAFC, 2023; McCann & Lika, 2023; Venette et al., 2021). While the CFIA does administer

export certification programs for Christmas trees, including pest monitoring, sanitation, and export inspection requirements, these protocols are designed to protect foreign ecosystems rather than support domestic growers in adapting to climate-driven pest risks (CFIA, n.d.-b; Venette et al., 2021).

To ensure national resilience and trade sustainability, the federal government must expand its investment in domestic pest risk forecasting, support research into climate-resilient tree varieties, and formally recognize Christmas tree growers as stakeholders in Canada's plant health and climate adaptation frameworks. **Develop a coordinated, multi-level pest surveillance and response strategy that includes Christmas tree farms as a priority sector in federal, provincial, and municipal climate adaptation and invasive species management plans.**

## BUY REAL, GROW LOCAL: REAL CHRISTMAS TREES FOR REAL CLIMATE SOLUTIONS

Canadian Christmas tree farming offers untapped opportunities for climate mitigation, biodiversity stewardship, and local economic development. Despite their contributions to carbon sequestration and low-impact land use, Christmas tree farms are often overlooked in formal climate plans and greenhouse gas accounting frameworks (Reinhardt & Emanuel, 2009; Chapman et al., 2012; DCTA, n.d.; Climate Risk Institute, 2023; Gaboury et al., 2009; Timmons, 2021). As a result, growers remain excluded from policy tools, funding opportunities, and data reporting systems that could enhance climate resilience and environmental co-benefits. Without explicit inclusion in federal, provincial, and municipal climate strategies, their role in carbon cycling, biodiversity resilience, climate education, rural agritourism, and ecosystem services remains unmeasured and therefore unsupported.

Provincial governments play a key role in implementing climate adaptation and mitigation policies at the regional level, yet Christmas tree farming is often absent from forestry and agricultural climate programming (Ontario, 2022; Climate Risk Institute, 2023). In Ontario, these farms are rarely featured in climate impact models, carbon sequestration inventories, or land-use adaptation plans (Ontario, 2022; Climate Risk Institute, 2023). Provincial climate strategies should explicitly include managed evergreen cultivation as a land-use category, with both mitigation (carbon sink) and adaptation (resilience-building) value. This would measure how Christmas tree farms absorb carbon and contribute to biodiversity, helping to meet the province's climate goals, while also making these farms eligible for incentive programs, data collection efforts, and climate-smart funding opportunities (Timmons, 2021).

Christmas tree farms could also be incorporated into municipal climate change action/adaptation plans as they could influence both the carbon and nitrogen cycles (OFA 2025; City of Guelph, 2023). Local "Buy Real" campaigns, holiday markets, and agritourism initiatives can also reinforce community investment in sustainable agriculture. By integrating Christmas tree farming into climate adaptation and circular economy plans, municipalities can link seasonal practices with long-term environmental resilience.

Christmas tree farms offer overlooked climate and ecological benefits that deserve formal recognition and support. **Christmas tree farming should be integrated into climate plans and carbon accounting protocols at all levels of government to ensure their measurable contributions are valued and supported through appropriate funding, incentives, and planning tools.**

## A SECOND LIFE AFTER THE HOLIDAYS

The life cycle of a Christmas tree extends beyond the holidays through recycling efforts that support restoration and biodiversity. While the federal government does not directly manage post-holiday waste, it plays a vital role in setting national sustainability priorities and funding innovation through Environment and Climate Change Canada (ECCC, 2024). Federal support could help scale innovative reuse models across provinces and municipalities. Federal grant programs that support wetland and shoreline rehabilitation could expand to include Christmas tree reuse initiatives, creating a pathway for community-based restoration efforts and cross-jurisdictional collaboration (DFO, 2023; CWA, 2025).

Provinces oversee waste diversion

frameworks, recycling regulations, and composting programs that directly shape what happens to post-holiday Christmas trees (Ontario, 2023; Ontario, 2021). Yet in most provinces, Christmas tree disposal is managed inconsistently across municipalities, with limited incentives for ecological reuse (Ontario, 2021). By standardizing post-holiday collection and promoting restoration-based reuse, provinces can lead. Partnering with conservation authorities and NGOs, they can also fund infrastructure and public education to support ecological recycling.

Municipalities and organizations often run tree collection programs in January to gather used Christmas trees for processing into mulch (CTFO, 2025b; Trees for Tots, 2025; Royal Botanical Gardens, 2024). Ontario's Conservation Authorities and other organizations run their own tree collection programs, utilizing the trees in in-stream restoration projects to strengthen riparian zones (See Figure 5) (Ontario Streams, n.d.; Bowman, 2024). Through these programs, the tree is successfully diverted from landfills and continues to have a sustainable purpose.

**Figure 5.** Stream restoration event using donated Christmas trees led by Conservation Halton on August 1, 2024. Photo by Alison Clarke.

**There is a need to establish coordinated, multi-level Christmas tree reuse programs that prioritize ecological restoration and circular economy outcomes through partnerships between municipalities, provinces, and federally supported climate and biodiversity initiatives.** A sustainable future for Christmas tree farming in Canada requires this approach to policy action, grounded in recognition of its cultural value, environmental contributions, and climate resilience.

# POLICY RECOMMENDATIONS

| Recommendation Impact Area | Federal Recommendations | Provincial Recommendations | Municipal Recommendations |
|---|---|---|---|
| **More Than Tradition: A Climate-Resilient Heritage Worth Protecting** | Create a National Heritage Agriculture and Legacy Farm Program recognizing Christmas tree farms as culturally significant landscapes (via Canadian Heritage & AAFC). | Develop provincial heritage farm initiatives for Christmas tree growers that provide intergenerational farm support mechanisms. | Align land-use zoning and tree-planting by-laws to protect Christmas tree farms as contributors to local cultural and climate resilience. |
| **From Ornament to Asset: Aligning Insurance with Climate-Resilient Farming** | Expand federal crop insurance eligibility to include Christmas tree farms as long-cycle agricultural commodities vulnerable to climate impacts. | Pilot targeted Production Insurance for Christmas trees under Agricorp, incorporating weather, pest, and disease-related risks. | Advocate for inclusion of local Christmas tree farms in provincial and federal risk assessments and data collection for insurance program design. |
| **Silent Spread: Climate-Driven Pest and Disease Risks** | Include Christmas tree growers in national pest risk surveillance programs and fund R&D for climate-resilient evergreen species through CFIA and Natural Resources Canada. | Integrate Christmas trees into provincial invasive species and pest management plans, with dedicated funding and extension services for affected growers. | Partner with conservation authorities and local growers to support early detection, public education, and climate-informed pest management in rural-urban transition zones. |
| **Buy Real, Grow Local: Real Christmas Trees for Real Climate Solutions** | Include Christmas tree farming in federal climate mitigation and adaptation plans, and recognize its value in carbon and nitrogen cycling. | Include Christmas tree farming in provincial climate mitigation and adaptation plans, and recognize its value in carbon and nitrogen cycling. | Embed Christmas tree farms in municipal climate action plans and support "Buy Real" campaigns that connect local trees to seasonal festivals and agritourism initiatives. |
| **A Second Life After the Holidays** | Fund national biodiversity and restoration programs that integrate Christmas tree reuse into shoreline stabilization and habitat regeneration projects. | Standardize post-holiday tree collection protocols across provinces with incentives for ecological reuse and composting partnerships. | Launch post-holiday Christmas tree recycling and habitat restoration programs in partnership with local conservation authorities and community groups. |

## CONCLUSION

Christmas tree farming in Canada is more than a seasonal tradition—it is a living legacy of rural culture, environmental stewardship, and climate-conscious agriculture. As the sector faces growing climate risks, there is an urgent opportunity to align policies with the strengths and sustainability contributions of growers. From crop insurance reform and pest surveillance to climate adaptation, cultural heritage protection, and recycling programs, there is a clear path forward. By recognizing and supporting the existing role of Christmas tree farms in carbon sequestration, biodiversity enhancement, and green economies, policymakers at all levels can help ensure these farms continue to thrive, bringing ecological and cultural benefits to future generations.

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