Growing resilience together: Establishing riparian buffer zones and shelterbelts on farms through Living Labs, Nova Scotia

Shauna Forrestall[1], Alexandre Loureiro[2], Carolyn Marshall[2], Cheryl Ritz[2]

[1]*Clean Annapolis River Project, Annapolis Royal, Nova Scotia*
[2]*Nova Scotia Federation of Agriculture, East Mountain, Nova Scotia*

Living Labs are collaborative, real-world research environments where farmers, researchers, and community organizations work together to develop, implement, and evaluate practical solutions to agricultural and environmental challenges. This approach integrates scientific research with farmers' knowledge and experience, ensuring that proposed beneficial management practices are relevant to local conditions and feasible for agricultural producers. Through the Living Labs initiative, we have collaborated with farmers and research partners to establish forested riparian buffer zones (FRBZs) and shelterbelts on six farms across Nova Scotia. FRBZs and shelterbelts can protect waterways, stabilize soils, reduce nutrient runoff, increase on-farm biodiversity, and strengthen resilience of agricultural ecosystems. However, financial, operational, and knowledge-related barriers may limit their adoption. Over the past five years, we have supported site preparation by planting native trees and shrubs, ecological monitoring, and ongoing engagement with participating farmers. Our role has helped connect research activities with on-farm implementation, facilitated collaboration among project partners, and ensured that farmers' priorities and considerations informed the research process. Through monitoring, we have assessed soil conditions, greenhouse gas dynamics, invertebrate communities, and water quality at each site. As the project enters the results phase, these findings will be integrated with socio-economic data to identify implementation barriers, evaluate benefits and potential trade-offs, and determine where additional support is needed. By combining scientific evidence, farmer experience, and community-based organizations, this Living Labs project will produce practical recommendations to support adoption and long-term success of riparian buffers and shelterbelts in Nova Scotia's agricultural landscapes.

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