SUMMARY

Forage & Feed Production

Introduction

Forage and feed production is a central driver of cost control, resilience and environmental performance in the Canadian beef industry, making it a critical focus of this five-year strategy. Forage and feed production research and knowledge mobilization efforts are focused on developing improved annual and perennial forage varieties and management strategies that increase yields, maintain or enhance nutritional value and improve the economic competitiveness of cow-calf, backgrounding and feedlot operations.

Feed accounts for 63% of cash costs associated with raising beef cattle, making forage and feed productivity one of the most important determinants of profitability and economic stability across the sector. Agronomic, management or plant genetic factors that reduce the cost of producing feed or increase the amount of feed produced per acre translate directly into improved margins, reduced exposure to input price volatility and greater resilience for beef producers.

See page 20 of the 2026 Canadian Beef Research and Knowledge Mobilization Strategy for more forage and feed production information.

Key Issues

- Feed costs (increased productivity for hay/pasture)
- Canadian forage varieties/cultivars
- Barley yields
- Hay yields
- Native grassland conservation (slow/stop conversion)
- Cost-benefit evaluations of recommended practices and research that is nearing commercialization or adoption

Find the full Five-Year Canadian Beef Research & Knowledge Mobilization Strategy at
www.BeefResearch.ca/strategy

Research Outcomes

Outcome 1: Annual feed and forage: Improved agronomic performance, yield, nutritional quality and palatability of annual species for grazing, feed grains or stored forage

1. Develop new, high-yielding feed grain and silage varieties with superior agronomic performance and disease resistance, consistent kernel size, longer silage and greenfeed harvest window, reduced lodging and improved nutritional quality
2. Investigate promising international and domestic annual species, varieties and mixtures through independent comparisons on a meaningful scale (interprovincial collaboration is encouraged) to inform producer seed selection decisions under a wide range of environmental conditions and soil types
3. Investigate agronomic and harvest practices (e.g., fertilization rates, harvest timing) to optimize yield, lengthen the silage and greenfeed harvest window, reduce lodging, produce consistent kernel size and improve nutritional quality of annual species for storage and extended grazing
4. Investigate harvest timing and agronomic recommendations for silage production, including optimum fertilizer rates and inoculant use
5. Evaluate the impacts of ensiling on changes in nitrate levels
6. Evaluate how soil compaction caused by cattle grazing influences subsequent crop performance and develop practical, cost-effective mitigation strategies

Outcome 2: Tame perennial forages: Improved management and productivity of tame pastures and hay stands

1. Develop and evaluate new forage varieties with improved germination, emergence, yield, nutritive value, salinity, disease resistance, drought and flood tolerance, reduced fall dormancy, improved grazing tolerance, improved seed production, improved winter hardiness and improved plant persistence
2. Investigate promising international and domestic perennial species, varieties and mixtures through independent comparisons on a meaningful scale (interprovincial collaboration is encouraged) to inform producer seed selection decisions under a wide range of environmental conditions and soil types
3. Investigate cost-effective agronomic practices (e.g., optimal fertilization rates) that improve forage yield, stand longevity, germination, emergence, yield, nutritive value, stockpiled forage quality, as well as salinity, drought and flood tolerance
4. Investigate optimum fertilization rates to improve forage yield and performance
5. Investigate grazing management practices, including the interaction between rest period and utilization rate, to improve forage yield, resilience, stand longevity and animal health and performance
6. Reinvestigate recommendations for rest period requirements of tame pastures in high-moisture climates

Research Outcomes, cont.

Outcome 3: Native/naturalized forage: Improved management and productivity of native/naturalized pastures to enhance profitability and discourage land conversion

1. Identify grazing practices to optimize the utilization and resilience of native/naturalized pastures and restore degraded rangeland
2. Identify and develop cost-effective management strategies to control the spread of invasive plant species, shrubs or woody plants on rangeland
3. Develop recommended rest periods for native/naturalized pastures in response to changes in grazing pressure, timing of grazing, drought, flood or fire
4. Investigate the long-term economic impacts of maintaining native grasslands on marginal soils versus conversion to annual crop production

Outcome 4: Optimize the balance between livestock and forage productivity and biodiversity by developing environmentally friendly and cost-effective solutions for managing pests and wildlife

1. Develop solutions for managing pests and wildlife (e.g., grasshoppers, gophers/moles, badgers, burrowing mammals, wild ungulates, predators) that maintain the balance between livestock productivity and biodiversity

Knowledge Mobilization Outcomes

Outcome 1: Increased adoption of regionally appropriate agronomic and management practices for forage stand management

1. Encourage producers to maintain pasture records and use them to guide pasture management decisions
2. Create and share resources that help producers identify when forage stands require rejuvenation
3. Promote tools and resources that assist producers determine when it is economically viable to break and reseed tame pastures
4. Develop materials that illustrate the economic losses associated with maintaining pastures beyond their productive lifespan
5. Promote beneficial management practices for successful forage establishment when reseeding
6. Where suitable, encourage the use of inoculant to support effective legume establishment

Outcome 2: Increased adoption of grazing cattle on cropland

1. Provide case studies demonstrating how producers are addressing infrastructure challenges with this practice, including examples of implementation on their own land or utilizing neighbouring cropland
2. Create checklists outlining key factors and requirements to consider before grazing cattle on cropland
3. Develop example agreements that cow-calf producers can use when negotiating arrangements with crop landowners
4. Design tools to assist with determining the costs and benefits each party contributes to the arrangement, supporting transparent pricing discussions

Knowledge Mobilization Outcomes, cont.

Outcome 3: Increased adoption of best practices when selecting and planting annual forage mixtures

1. Create and promote resources providing weed and pest control options for annual crop mixtures
2. Develop regionally appropriate resources for agronomists, outlining best practices to consider when using annual forage mixtures that maintain the balance between livestock productivity and biodiversity

Outcome 4: Increased adoption of beneficial grazing management practices

1. Encourage the consistent use of range health assessments by actively promoting their value and application
2. Promote tools, resources and professional support for developing effective grazing rotations
3. Highlight resources that showcase beneficial grazing management practices for native forages including appropriate rest and recovery periods
4. Develop and distribute materials outlining beneficial management practices for grazing within silvopasture systems
5. Share guidance on proper management practices for grazing forages with antinutritional factors

Outcome 5: Increased adoption of regionally appropriate beneficial management practices to control invasive plant species

1. Promote tools and resources to control invasive plant species through regionally appropriate beneficial management practices

Outcome 6: Increased adoption of the use of soil agronomic principles and their use in decision making

1. Create and share resources on soil testing and texture, targeting how to make improvements in soil quality

Outcome 7: Promote adoption of beneficial management practices for proper silage harvest management, storage and feedout

1. Create and share resources on silage testing, including mycotoxins, nitrates and antinutritional factors