Project Themes
Canola Agri-Science Cluster

The Canola Agri-Science Cluster will channel $20 million in public/private funding into six areas of research aimed at sustainably growing the canola industry. By helping to reduce production risk, improve yields, enhance sustainability and increase market demand, the findings are expected to greatly expand the economic value of this $26.7 billion industry.

Theme 1: Differentiated quality and enhanced environmental performance in food processing

Theme 1 projects will advance canola processing techniques and build on previous ground-breaking research demonstrating canola oil's positive impact on heart health, diabetes and obesity.

One new project will take a closer look at nutrigenetics, glucose tolerance and whether genotype influences a person's response to canola oil. Another project will respond to public interest in green technologies by evaluating new processes for extracting oil and antioxidants from canola seed.

Theme 2: Differentiated quality and sustainable livestock production using canola meal

Theme 2 projects will further demonstrate the value of canola meal as a livestock feed ingredient. This research will build on previous studies, which have demonstrated that using canola meal as a protein source can significantly increase the profitability of milk and meat production, while also looking at how it contributes to the sustainability of livestock production.

New projects will expand understanding of these findings while exploring other advantages of using canola meal in livestock feed – for example, the potential to improve gut health, reduce antibiotic use and improve reproductive performance. These studies will involve dairy herds, nursery pigs, broiler chickens and hog operations in Canada and the U.S.

Theme 3: Increased production – yield and quality optimization for sustainable supply

Theme 3 projects will address opportunities to dramatically increase the yield and positive environmental impact of canola production. These studies will increase the economic returns from every acre while improving the efficiency of nutrient use and the crop's value for carbon capture and pollinator health.

In the area of seed development, researchers will explore opportunities to improve both the yield and composition of canola seed using genomic tools. One project will look at ways to improve protein content, quality and functionality in the seed. Another study will explore the potential to enhance yield and biomass in canola by modifying carbohydrate metabolism.

Another important goal is to improve canola seed emergence rates, which can be as low as 50%. One project will shed more light on the factors leading to secondary dormancy, providing the industry with a better understanding of how to reach its "plant one get one" goal.

Other research will look at how agronomy can be used to optimize harvest timing, productivity and crop sequencing.

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Theme 4: Sustainability and climate change – improving nutrient and water use efficiency

Nitrogen is by far the biggest operating cost of Canadian canola growers and one of the key factors determining oil and protein content. One of the top priorities of the industry is to ensure that a high percentage of applied nitrogen is used by the plant, instead of being lost through leaching and volatilization.

Theme 4 projects focused on this goal are multidisciplinary and will involve genomics, plant physiology, root architecture, microbiology, soil sciences and agronomy. This research will be overseen by a steering committee composed of public and private sector scientists and agronomy specialists.

Theme 5: Sustainability and climate change – integrated pest management

As climate, insect populations and pathogens change, so do the pest management challenges faced by Canadian canola growers. Theme 5 research will study the best methods of controlling major pests and pathogens in this changing environment, while protecting pollinators, beneficial insects and biodiversity within the canola canopy. These 10 projects will focus on:

- Sclerotinia stem rot – improving resistance, optimizing fungicide use and evaluating new tools for disease forecasting
- Clubroot management – sources of resistance, pathogen populations and integrated management strategies suitable for use on a large scale
- Flea beetles – genetic resources for resistance, integrated control methods involving plant density, ground predators and predictive models
- Cabbage seedpod weevil – biological control

Theme 6: Putting innovation into action – knowledge and technology transfer

Theme 6 activities will increase the value of all Science Cluster research by assisting scientists and sharing their findings with growers and other industry stakeholders. The Canola Council's agronomy specialists will translate research results into tangible practices that can be applied on farms. The information will also be widely available through the Canola Research Hub, a state-of-the-art online information resource maintained by the Council.

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