Profitable, Productive Wheat

Canada is a major wheat producing nation. Wheat crops contribute $11B annually to Canada’s economy. However, Canadian wheat crops are impacted by changing climate conditions, as well as diseases and pests, resulting in a growing need to produce increasingly productive and resilient varieties of high-quality wheat.

Canadian Wheat Alliance (CWA)

CWA represents an unprecedented 11-year commitment among Agriculture and Agri-Food Canada, the University of Saskatchewan, the province of Saskatchewan and the National Research Council Canada, to support and advance research that will improve the profitability of Canadian wheat producers. CWA will align their complementary areas of expertise in six high-priority research areas. CWA also welcomes the engagement of both the public and the private sector.

The theme areas are focused on the acceleration of breeding, and on reducing losses due to drought, heat, cold stress and diseases, and on reducing nitrogen fertilizer requirements.

Accelerating Variety Development
1. Genomics Assisted Breeding (GAB)
   To improve genomic resources for faster gene discovery and novel identification and validation

2. Wheat Improvement through Cell Technologies (WICT)
   To improve the efficiency of the doubled haploidy system for multiple genotypes

Sustainable Yields – Coping with Variable Climates
3. Enhanced Fusarium and Rust Tolerance (EFRT)
   To characterize disease resistant genes and to breed novel varieties for durable Fusarium and rust resistance

4. Improving Wheat Productivity under Conditions of Abiotic Stress (Abiotic stress project)
   To improve plants with drought, heat and cold tolerance

Increased Productivity and Sustainable Profitability
5. Targeting Developmental Pathways to Improve Seed Yield and Crop Performance (Development project)
   To discover and deploy genes associated with performance and seed yield

6. Beneficial Biotic Interactions (BBI)
   To enhance nutrient use efficiency and improve plant health through modified microbial communities
Goals
CWA will undertake R&D projects that will improve the yield of Canadian wheat varieties by reducing losses from drought, heat, cold and diseases. The targeted specifications for new Canadian spring and winter wheat varieties include:

- Increase yield on a per acre basis
- Increase in resiliency to climate stresses and diseases
- Shorten and improve the efficiency of the wheat breeding cycle
- Reduce the nitrogen fertilizer requirements

Impacts
Ultimately, the Alliance will benefit Canadian producers, seed growers, processors and exporters.

- New wheat varieties that produce stable, increased yields under volatile growing conditions, enhancing global food security
- Reduced costs and environmental impact for farmers through more efficient fertilizer usage
- Improved ability for Canada to capture a greater percentage of the expanding world market in wheat

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