

Enabling the Public Sector to Deliver Public Good in Canada

UPOV Trainer Program

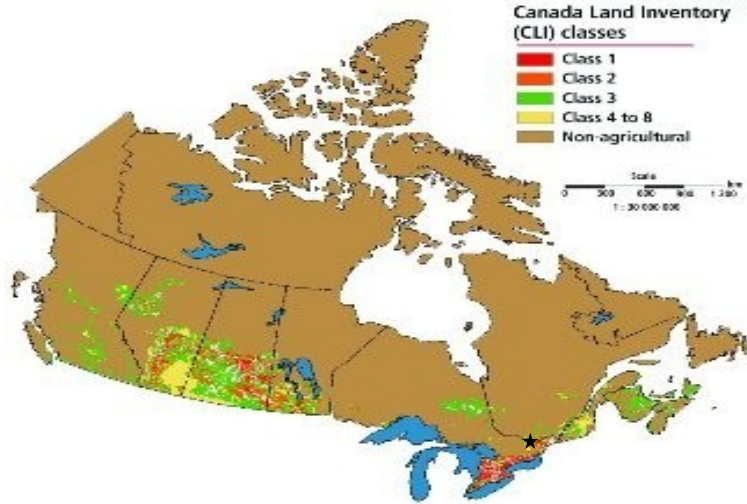


Canada 

Overview

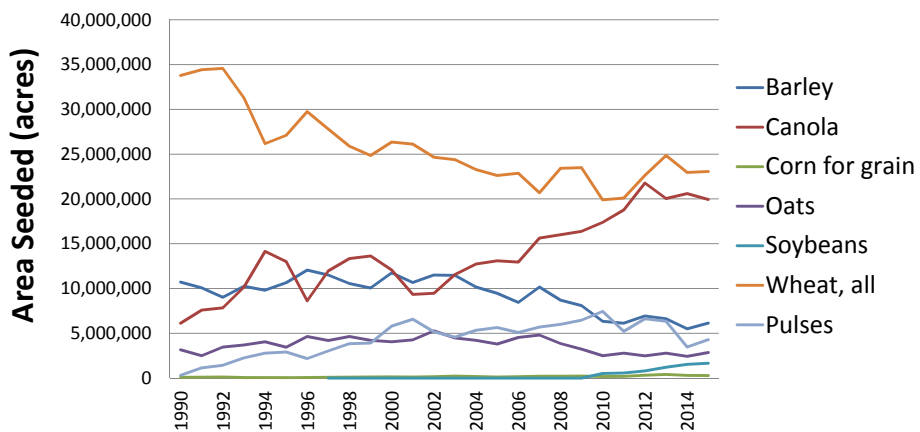
- Agriculture in Canada
- The Public Sector
- Opportunities to meet a need
 - Examples

Canadian Agriculture



Canadian Agriculture

Area Seeded to Selected Major Field Crops, Prairie Provinces (1990-2015)



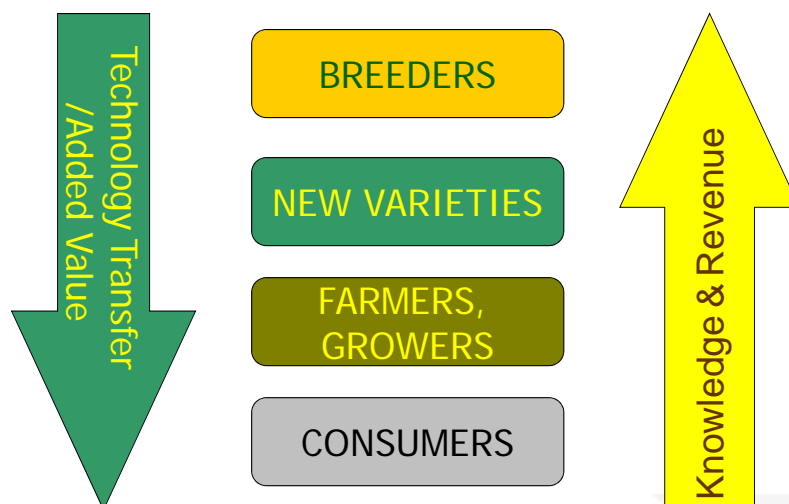
UPOV

- **UPOV's Mission Statement:**

“To provide and promote an *effective system* of plant variety protection, with the aim of encouraging the development of *new varieties of plants*, for the *benefit of society*”

7

Breeders' Rights = Farmer/Society Benefits



6

Benefits for breeders?

- Can take legal action against unauthorized propagation and sales
- Can license propagators (growers) and define the terms and conditions of those agreements
- Exercise control over propagating material (e.g. seed) and prevent it from being stolen or illegally propagated
- Royalty collection - fee charged for each protected plant or bag of seed sold
- Royalties recoup initial investment, and encourage further reinvestment into breeding programs (private, public, producer, or partnership)



7

Benefits for producers

- Fosters investment and a competitive marketplace
- Breeders develop better varieties (yield, disease resistance, stress tolerance, end-use characteristics, etc)
- Increased number and diversity of crops and varieties = more choice for producers and consumers
- International harmonization encourages foreign breeders to release varieties in Canada
- Balances interests (public/private & producer/breeder)



8

Canadian Case Study - Wheat:

- Canada's largest crop – 9,406,000 ha seeded (2016)
- Total production – 30,487,000 tonnes (2016)
- Annual Export – 21,000,000 tonnes (2016)
- Value of Exports – \$6.2 billion US (\$8.1 billion CAD)
- Investment in R&D - \$56 million (CAD) annually
- 72% of investment from taxpayers, 28% from producer and private sector investment

9

Wheat: Farmers Benefit from Yield and Quality Improvements

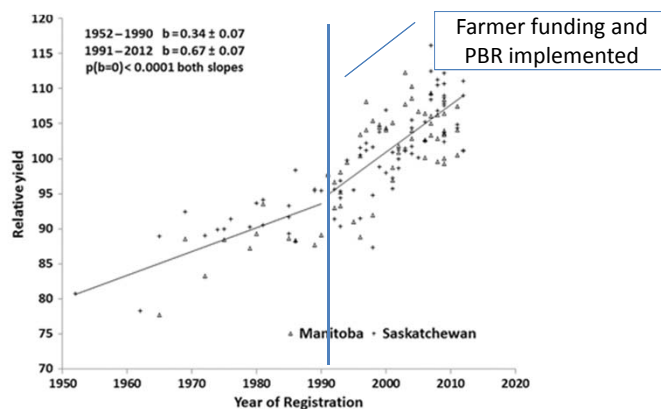


Fig. 1. CWRS cultivar least squares means calculated from data from the Manitoba and Saskatchewan Seed Guides and plotted against year of cultivar registration.

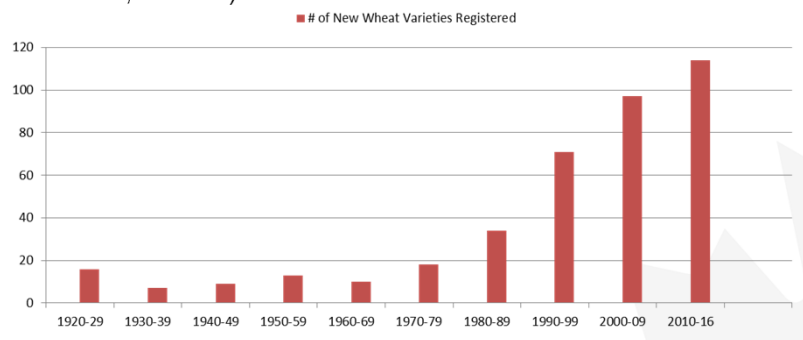
10

Thomas, J. B. & Graf, R. J. 2014.
Can. J. Plant Sci. 94: 1–13

Case Study - Wheat: Choices

Variety Registration

- 389 wheat varieties registered since 1923 (incl. spring, durum, winter)



- Only 117 (30%) of the registered wheat varieties currently hold PBR protection. Average duration of PBR is 7 years

Wheat Breeding Programs



12

Western Grains Research Foundation:

- Formed by 12 farmer organizations in 1981 to invest in field crop research to benefit farmers.
- Farmers fund research and variety development through voluntary “check offs” (levy)
- Since 1995 has invested \$148 million+ (CAD) in wheat and barley breeding
- Over 200 wheat/barley varieties developed with WGRF sponsorship – PBR helps protect these investments
- Partners with the federal government and agriculture universities and receives a % of royalties
- \$1 dollar invested in wheat generates a \$20 (CAD) return for producers

WGRF Annual Report 2016



SeCan Association

SeCan

Canada's Seed Partner

- Canada's largest seller of certified seed
- Not-for-profit association of over 700 seed growers (includes farmers) and processors
- Mechanism of technology transfer from breeders to farmers via sale of certified seed.
- Access to both public and privately bred varieties
- Since its inception in 1976, has returned more than \$90 million dollars in royalties to plant breeding institutions
- Uses PBR to support plant breeding, and protect the investments of taxpayers, producers, and private companies.

14

Investment in Plant Breeding

The average benefit (B) to cost (C) ratio for investing in the University of Saskatchewan plant breeding program for all crops is 11.5 to 1, but varies greatly per crop kind:

- Winter wheat = 2.5
- Oats = 3.8
- Flax = 6.0
- Spring wheat = 10.8
- Barley = 11.8
- Field (dry) peas = 25.6
- Lentils = 48.7



Investment in plant breeding benefits farmers!

Vineland

**Vineland is a results-based, independent, not-for-profit organization
focused on horticultural science and innovation**



Vineland's 49th Parallel Collection

- Consumer-focused rose breeding program specializes in cold hardiness and disease resistance
- Non-exclusive model (in Canada) – 21 licensees from coast to coast to coast
- Vineland manages the marketing of the collection to support the industry
- On target to sell out with first release in 2017
- More to come...



Important Messages

- Farmers participate in the benefits of using genetic resources (e.g. improved yield, adaptability, quality, disease resistance, choice/options, etc.)
- Farmers can fund plant breeding through levies / royalties and certified seed purchase - PBR is used to protect these investments
- Farmers are involved in all decision making processes regarding plant genetic resources: legislative, regulatory, policy development, and program implementation