



Oat Breeding at the Crop Development Centre

A.D. Beattie

University of Saskatchewan, Saskatoon, SK, Canada

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Where is the CDC?



Breeding Target Area



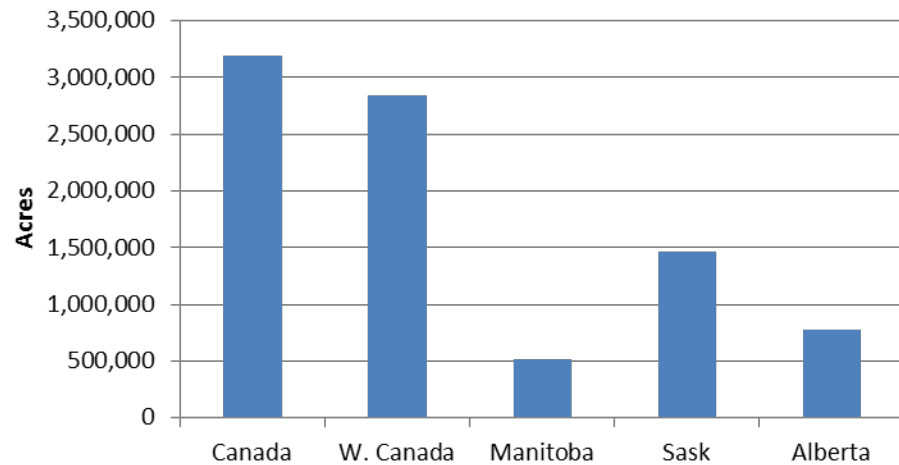
- Grande Prairie, AB
 - 1,247 GDD (5°C)
 - 288 mm rain
- Saskatoon, SK
 - 1,643 GDD (5°C)
 - 251 mm rain
- Winnipeg, MB
 - 1,777 GDD (5°C)
 - 534 mm rain



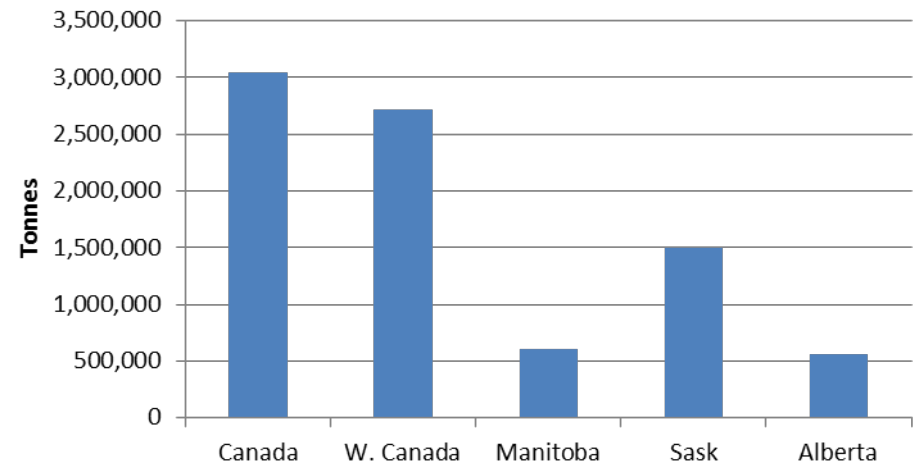


Breeding Target Area

Canadian Oat Acreage (2009-13)



Canadian Oat Production (2009-13)





Breeding Focus

- Milling – 90%
- Feed – 5%
- Forage – 5%





Breeding Objectives

- Agronomics
 - Yield
 - Lodging resistance
 - Maturity
- Grain and Quality
 - TWT, TKW, Plumpness – Uniformity
 - Groat percentage
 - Beta-glucan, fat, protein
- Disease
 - Crown rust, BYDV, FHB





Breeding Network






SELECTION OF PLANT-BREEDING

JOHN BELLING, *Washington, D. C.*

J. Hered. (1918)

FINAL selection of improved races by mere inspection has become, in most cases, more or less discredited among plant-breeders. The progeny test is now the main reliance of the breeder, and actual measurements are found to be usually more trustworthy than ocular estimates. Hence *selection* often includes some kind of testing before the act of choice. Without trial of some kind, selection consists in picking out the best looking individuals, in breeding for “fine feathers” and not for performance. This leads to pretty exhibits at the agricultural shows and county fairs, but does not cheapen the production of food. It is usually simple enough







Breeding Scheme

| | | |
|-----|---|------|
| F7 | Preliminary Yield Trial 2 reps @ 2 locations 250-300 entries harvest all cull to 20-25% | 2018 |
| F8 | Standard Yield Trial 3 reps @ 6 locations 60-75 entries harvest all | 2019 |
| F9 | 4-8 entries in 1 st year WCORT 3 reps @ 13-18 locations | 2020 |
| F10 | 2-4 entries in 2 nd year WCORT 150-200 paired hills for breeder seed | 2021 |
| F11 | 150-200 Breeder Rows (from hills) | 2022 |

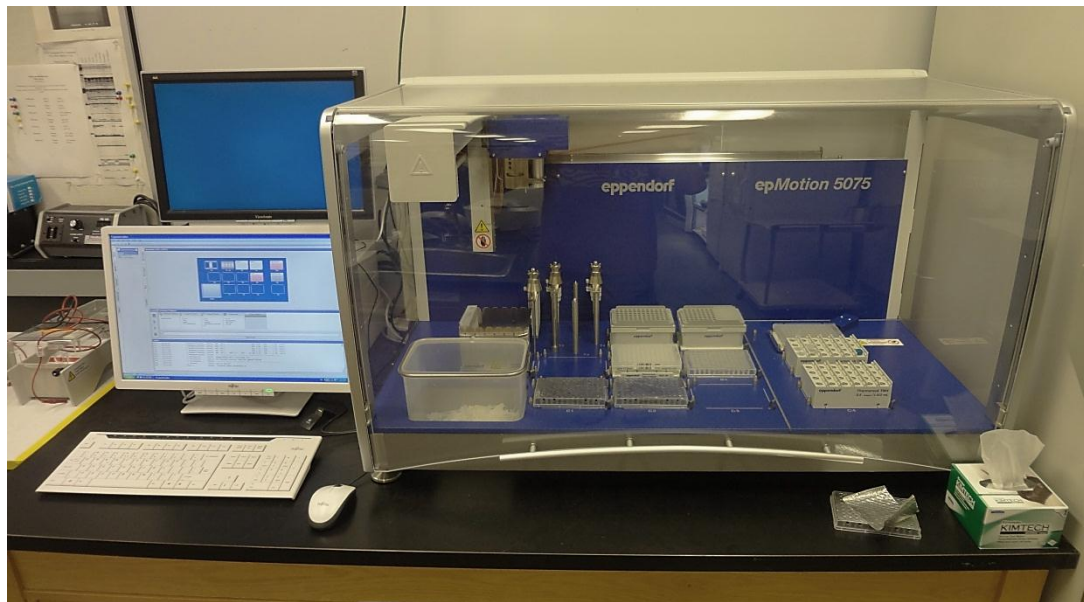


Useful Equipment

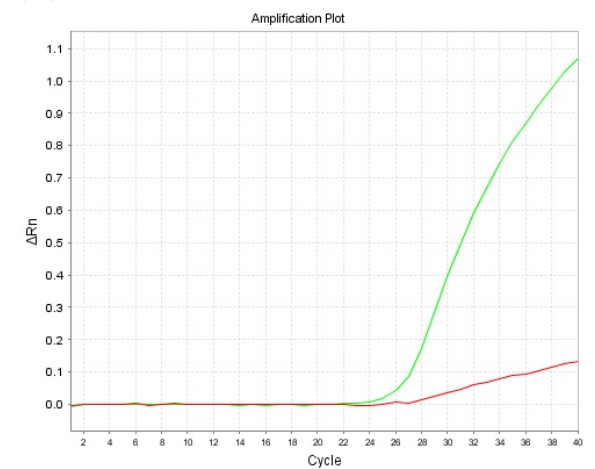
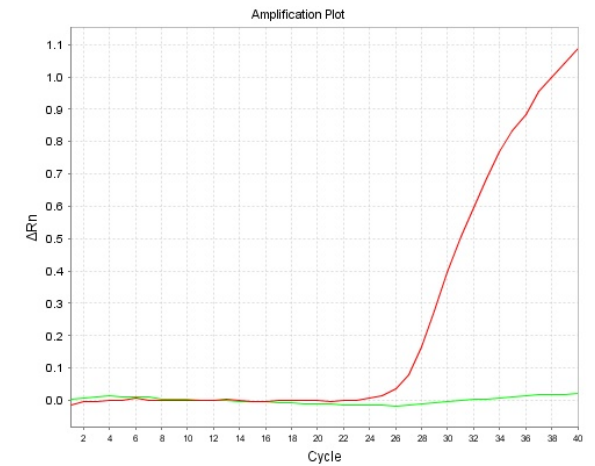


- Quality evaluation
 - Groat percentage, BG, fat, protein

Useful Equipment



- Marker-assisted selection
 - *Pc91, Pc94, PcKM, APR, ADL*
 - ~ 15,000 data points





Recent CDC Oat Varieties

- OT3066 (2014)
- OT3061 (2013)
- CDC Ruffian (2012)
- CDC Haymaker (2011)
- CDC Big Brown (2011)
- CDC Nasser (2011)
- CDC Morrison (2011)
- CDC Seabiscuit (2010)
- CDC Minstrel (2008)





OT3066 (2014)

- Yield > AC Morgan
- Maturity = CDC Dancer
- Good straw strength
- BG > Leggett, Oil = CDC Dancer
- MR to crown rust
- Marketing rights to SeCan





Breeding Target Area

Canadian Oat Yields (2009-13)

