The Crop Development Centre --
A Canadian Plant Breeding Success Story


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Introduction

The Crop Development Centre was established in 1971 through joint funding of the National Research Council of Canada and the Saskatchewan Department of Agriculture with a mandate to increase crop diversification opportunities for Saskatchewan farmers, to improve the adaptation of existing Saskatchewan crops and to become a 'centre of excellence' for crop research.

Today, the Centre employs seven plant breeders, two pathologists and is supported by several scientists with expertise in related areas. The Centre's core programs are cultivar development and pulse, cereal & flax pathology with support programs in crop agronomy, crop quality, genomics and molecular genetics. Major funding for the Centre is provided by Saskatchewan Agriculture and Food through the Agriculture Development Fund. Significant funding is also provided by numerous crop commissions and industry.

The success of the Crop Development Centre can be measured in many ways. Since its inception, over 250 crop cultivars in 14 crop kinds have been released; cultivar releases such as Laird Lentil in 1978 sparked the beginning of a $1.2 billion Canadian Pulse industry; CDC McGwire 2-row husless barley was grown on over 85% of the total Canadian husless barley acres in 2006; flax cultivars Vinky and CDC Bethune have led to a marked expansion of flax production across Saskatchewan and the prairie provinces.

Breeding Efforts by Crop

<table>
<thead>
<tr>
<th>Crop Group</th>
<th>Professional PYs</th>
<th>Cultivar releases past 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oat (Feed &amp; Milling)</td>
<td>0.9</td>
<td>6</td>
</tr>
<tr>
<td>Barley (Feed, Food &amp; Malt)</td>
<td>0.9</td>
<td>13</td>
</tr>
<tr>
<td>Flax</td>
<td>1.4</td>
<td>4</td>
</tr>
<tr>
<td>Wheat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring</td>
<td>1.2</td>
<td>10</td>
</tr>
<tr>
<td>Durum</td>
<td>1.0</td>
<td>--</td>
</tr>
<tr>
<td>CPS</td>
<td>0.8</td>
<td>--</td>
</tr>
<tr>
<td>Winter</td>
<td>1.4</td>
<td>--</td>
</tr>
<tr>
<td>Canaryseed</td>
<td>0.3</td>
<td>2</td>
</tr>
<tr>
<td>Pulses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lentil</td>
<td>1.4</td>
<td>13</td>
</tr>
<tr>
<td>Dry bean, Fababeans</td>
<td>1.0</td>
<td>7</td>
</tr>
<tr>
<td>Chickpea</td>
<td>1.5</td>
<td>6</td>
</tr>
<tr>
<td>Field pea</td>
<td>1.6</td>
<td>15</td>
</tr>
<tr>
<td>Fruit (apples, sour cherries, raspberries)</td>
<td>0.6</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>14.0</td>
<td>84</td>
</tr>
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</table>

Breeding Efforts by Activity

<table>
<thead>
<tr>
<th>Activity</th>
<th>PYs</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Plant Breeding Research</td>
<td>2.2</td>
<td>14.5</td>
</tr>
<tr>
<td>b) Germplasm Enhancement</td>
<td>1.4</td>
<td>9.3</td>
</tr>
<tr>
<td>c) Cultivar Development</td>
<td>9.1</td>
<td>60.3</td>
</tr>
<tr>
<td>d) Biotechnology Research and development</td>
<td>1.3</td>
<td>8.6</td>
</tr>
<tr>
<td>e) Plant Breeding Education</td>
<td>1.1</td>
<td>7.3</td>
</tr>
<tr>
<td>Total</td>
<td>15.1</td>
<td>100.0</td>
</tr>
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</table>

Course Offerings in Plant Breeding

The Crop Development Centre is a unit within the Department of Plant Sciences at the University of Saskatchewan. Plant Breeding and related courses offered in Plant Sciences include:

Undergraduate Level
Plant Breeding; Genetics of Plant Populations; Applied Plant Biotechnology

Graduate Level
Advanced Plant Breeding; Applied Plant Cytogenetics; Quantitative Genetics; Applied Plant Biotechnology

Recent graduates and current graduate student enrollment

<table>
<thead>
<tr>
<th>Currently enrolled</th>
<th>Completed since 2002</th>
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<tbody>
<tr>
<td>M.Sc. students</td>
<td></td>
</tr>
<tr>
<td>(plant breeding)</td>
<td>28</td>
</tr>
<tr>
<td>(10)</td>
<td>(7)</td>
</tr>
<tr>
<td>Ph.D. students</td>
<td>27</td>
</tr>
<tr>
<td>(plant breeding)</td>
<td>(7)</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
</tr>
<tr>
<td>(17)</td>
<td>(12)</td>
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</tbody>
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