Breeding Success! Now, will the industry prefer them?

Organic Grain Industry Monthly Teleconference SPECIAL EDITION March 28, 2018
AAFC Organic Oat Breeding Program

Program objective is to provide producers, processors, food and feed consumers as well as other end users with superior oat cultivars for the Prairies.
Schematic of a Breeding Program and Cultivar Registration

Cross and Line Development

P1 \(\times\) P2

\[\text{Inbreeding and Selection} \]

- F1
- F2
- F5
- F6
- F7
- F8
- F9

\[\text{Early Generation Selections} \]

Basic Traits Established

Off-Season Increase

Preliminary Yield Trial

B Test (Pre-registration)

\[\text{Select} \rightarrow \text{Foundation} \rightarrow \text{Registered} \]

Breeder Seed

- F9
- F10
- F11

Select ~200 Heads

Grown Panicle Rows in Isolation

15 Metre Rows

Variety Registration Testing

2 years of field, disease and end-use quality performance testing

Request Support for Registration

Commercial Seed Production

Certified (Commercial)
Prospective lines must have **merit**

= Improved grain yield, disease resistance or end-use quality
# PRCOB- Oat and Barley Agronomy Evaluation Team specifications for oat

<table>
<thead>
<tr>
<th>Agronomic Traits</th>
<th>Target Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>Equal to or better than AC Morgan</td>
</tr>
<tr>
<td>Heading Date</td>
<td>As early as possible</td>
</tr>
<tr>
<td>Maturity</td>
<td>As early as possible</td>
</tr>
<tr>
<td>Height</td>
<td>Shorter</td>
</tr>
<tr>
<td>Lodging</td>
<td>Similar to AC Morgan</td>
</tr>
<tr>
<td>Test Weight</td>
<td>&gt;48.6 Kg/hl (38# Winchester bushel)</td>
</tr>
<tr>
<td>Kernel Weight</td>
<td>&gt;30g/1000</td>
</tr>
<tr>
<td>%Plump</td>
<td>Similar to CDC Dancer</td>
</tr>
<tr>
<td>%Thins</td>
<td>Similar to CDC Dancer</td>
</tr>
<tr>
<td>%Groat</td>
<td>Similar to CDC Dancer</td>
</tr>
</tbody>
</table>
### PRCOB- Oat QET Compositional specifications for food oat

<table>
<thead>
<tr>
<th>Quality Trait</th>
<th>Recommended Target Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hull Colour</td>
<td>White to yellow preferred</td>
</tr>
<tr>
<td>Groat Colour</td>
<td>White to cream, similar to checks</td>
</tr>
<tr>
<td>Plumpness</td>
<td>&gt;50% over</td>
</tr>
<tr>
<td>Thin Oats</td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Test Weight</td>
<td>48.6 Kg/hl (38# Winchester bushel)</td>
</tr>
<tr>
<td>Kernel Weight</td>
<td>&gt;30g/1000</td>
</tr>
<tr>
<td>% Groats</td>
<td>Target 75%</td>
</tr>
<tr>
<td>Total Dietary Fiber¹</td>
<td>&gt;10% dwb</td>
</tr>
<tr>
<td>Oil², maximum:</td>
<td>&lt;7.5%dwb (will increase to 8%)</td>
</tr>
<tr>
<td>Protein³, minimum:</td>
<td>&gt;13%dwb</td>
</tr>
<tr>
<td>ß-glucan⁴, minimum:</td>
<td>≥4.5%dwb</td>
</tr>
</tbody>
</table>

¹AOAC 991.43, ²AOAC 996.06, ³AACC 46-30 /*corresponds to AOAC 992.23 ⁴AOAC 995.16 or AACC 32-23
<table>
<thead>
<tr>
<th>Priority 1 Disease</th>
<th>Minimum Accepted Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smuts</td>
<td>Intermediate</td>
</tr>
<tr>
<td>Barley Yellow Dwarf Virus</td>
<td>Moderately Susceptible</td>
</tr>
<tr>
<td>Oat Stem Rust</td>
<td>Intermediate</td>
</tr>
<tr>
<td>Oat Crown Rust</td>
<td>Intermediate</td>
</tr>
<tr>
<td>Fusarium Head Blight</td>
<td>Intermediate (based on DON)</td>
</tr>
</tbody>
</table>
AAC Oravena (OT8003)

- First oat cultivar developed under organic management
- Officially registered July 3, 2014
- Licensed to GRAIN MILLERS CANADA CORP.
- Pedigreed seed production under organic management
AAC Oravena---Traits

- Good Yield
- Good lodging resistance
- High Test Weight
- High Thousand Kernel Weight
- High Total Dietary Fibre
- High Betaglucan
- Oil content similar to Leggett
- Resistant to smut, crown rust resistance, intermediate resistance to stem rust
AAC Kongsore (OT8006)

- Stainless/OT3013
  OT3013=AC Morgan//AC Rebel/Dumont 48
- F3 generation was moved into the organic program, where it remained
- Supported for registration in February 2017
- Registered March 2018
- Licensed to GRAIN MILLERS CANADA CORP.
AAC Kongsore (OT8006)

- Good yield
- Good lodging resistance
- High test weight
- High thousand kernel weight
- High percent plumps
- High protein
- Good betaglucan & Total Dietary Fibre
- Resistant to smut
- Intermediate reaction to Crown Rust (Pc91)
The hope is that producers will notice the new cultivar(s)......
Producers will grow the cultivar
...and Millers will want to use that cultivar in their products
...and consumers will want to purchase and consume the products.
THANK YOU
AAFC & GFII, OSC, Grain Millers, Clif Bar, OACC, OFC, POGI, POGA, Martin Entz, Dean Spaner and so many others