UNIVERSITY OF IDAHO WHEAT BREEDING AND GENETICS PROGRAMS

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University of Idaho
College of Agricultural and Life Sciences
CULTIVAR CHOICES

UI Stone, SWS, irrigated and dryland
UI Platinum, HWS, irrigated and dryland
UI Silver, HWW, dryland
UI Sparrow, SWW, dryland and irrigated
UI Bronze Jade, HWW, irrigated and dryland
SPRING WHEAT IN PRODUCTION

UI Platinum
- High yield potential, up to 160 Bu/A
- Short, early, excellent end-use quality
- Disease package: stem rust, leaf blight, stripe rust
- Adapted in irrigated and dryland production

UI Stone
- High yield potential, up to 160 Bu/A
- Most desired end-use quality
- Disease package: FHB, CCN, stripe rust
- Adapted in irrigated and dryland production
◆ High yield potential
◆ Tall with strong straw, brown chaff
◆ Excellent winter hardness
◆ Immune to dwarf bunt
◆ High level resistance to stripe rust, snow mold, eye spot
UI BRONZE JADE

- High grain yield
- Very good resistance to stripe rust
- PHS tolerance
- Cold tolerance
- Foundation seed planted
## Yield performance of UI Bronze Jade

<table>
<thead>
<tr>
<th>Trial</th>
<th>No. Entry</th>
<th>Location /Year</th>
<th>Trial Mean</th>
<th>UI Bronze Jade</th>
<th>LCS Jet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional</td>
<td>16</td>
<td>6/2018</td>
<td>114.4</td>
<td>148.1*</td>
<td>147.5</td>
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<tr>
<td>S-ID-IR</td>
<td>41</td>
<td>3/2018</td>
<td>144.7</td>
<td>163.9*</td>
<td>157.7</td>
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<tr>
<td>N-ID-RF</td>
<td>23</td>
<td>6/2018</td>
<td>108.2</td>
<td>112.3</td>
<td>129.7</td>
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<tr>
<td>Chen-IR</td>
<td>8</td>
<td>8/15-18</td>
<td>121.6</td>
<td>134.0*</td>
<td>NA</td>
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</tbody>
</table>
UI SILVER – HARD WHITE WINTER WHEAT

- Good yield performance under dryland in CO, ID, WA, OR
- Excellent test weight and baking quality
- Complex resistance to several diseases
  - HTAP resistance to stripe rust
  - SrTmp resistance to Ug99 stem rust
  - Excellent resistance to dwarf bunt
- Buyer preferred hard white winter cultivar
## New Hard White Winter Line

<table>
<thead>
<tr>
<th>IDO1506</th>
<th>Complex resistance, very short, average quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDO1806</td>
<td>High yield, resistance to stripe rust, good quality, good height</td>
</tr>
<tr>
<td>IDO1906</td>
<td>Complex resistance, very good bread quality, early, good height</td>
</tr>
</tbody>
</table>
IDO 1506 HARD WHITE WINTER WHEAT

- Short, good for intensive irrigation management
- Very good resistance to stripe rust and dwarf bunt
- Good bread baking quality
- Average yield performance
- Breeder seed available
IDO1405S, NEW SOFT WHITE SPRING

- High grain yield, excellent quality
- Similar or better FHB resistance than UI Stone
- Better stripe rust resistance than UI Stone
- Easier threshing than UI Stone
- Foundation seed planted
ID01603S, NEW HARD RED SPRING

• High grain yield, excellent bread baking quality.
• Excellent resistance to Hessian fly.
• Very good resistance to stripe rust.
• Pre-foundation seed.
Value-Added New Lines

- Resistant to LMA and/or PHS
  - A12204S-20
  - A12204S-22
- Low Grain Cadmium Uptake
  - CdDH-016
  - CdDH-028
- Herbicide Resistant
  - A16034S
<table>
<thead>
<tr>
<th>Line</th>
<th>Class</th>
<th>Traits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDO1608</td>
<td>HRW</td>
<td>HGY, Yr, AQ</td>
</tr>
<tr>
<td>IDO1808</td>
<td>SWW</td>
<td>HGY, Yr, Q+</td>
</tr>
<tr>
<td>IDO1805S</td>
<td>HRS</td>
<td>HGY, FHB, Yr, Q+</td>
</tr>
<tr>
<td>IDO1804S</td>
<td>HWS</td>
<td>HGY, Yr, Q+</td>
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</tbody>
</table>
IDO1608, NEW HARD RED WINTER LINE

- High grain yield
- Very good resistance to stripe rust and dwarf bunt
- Good bread baking quality
- Stronger straw strength
SUPPORTING RESEARCH

• Genomics for yield and yield components, USDA-NIFA
• Genomics and Proteomics for LMA/PHS, IWC and USDA
• Dwarf Bunt Genomics and Breeding, IWC
• FHB Genomics and Breeding, USDA-USWBSI
• Cadmium Genomics and Breeding, IWC and industry
• Strong Gluten Genomics and Breeding, IWC
Improvement of yield components

- Spikelet number per spike
- Kernel number per spike
- Thousand-kernel weight
- Productive tiller numbers
Genomics of Dwarf Bunt Resistance

- Caused by *Tilletia controversa* Kühn
- Reducing grain yield and quality
- International trade - Quarantine
- Fifteen genes designated
GENOMICS OF FHB RESISTANCE & BREEDING