UI-09-DH11 “UI Magic” 2 gene imi resistant, Soft White Winter Wheat

Statement of Origin and Breeding History

UI-09-DH11 Proposed name “UI Magic” is a soft white winter wheat cultivar with double haploid resistance to imidazolinone herbicide. UI Magic was developed by the Idaho Agricultural Experiment Station, B. Zemetra, Jenny Hansen, Thomas Kohler, Mckenzie Ellison. Plant variety protection, PVP will likely be applied for.

Breeding history:
The experimental number of UI Magic was UI-09-DH11.

Evidence supporting the identity of the variety

07-688-10 / BITTERROT
Bitterroot is a released line from University of Idaho (PVP 200800411)
Bitterroot pedigree is DH - 31 / 4 / Lewjain / 3 / RDL / SU 92 // KAL / BB, 07-688-10 is an experimental line from University of Idaho used as a donor for the 2 IMI resistance genes. The cross produced both blue/green and green plants (boot stage). UI-Magic was selected from plants that were blue/green in the boot stage.

Seed production:

Seed production of UI Magic was initiated in Fall 2013 when approximately 1500 heads were snapped from a plot in Idaho. Heads were individually thrashed in Fort Collins, CO, and 1425 headrows were planted on 0.75 acres in Casa Grande, Arizona in December, 2013. In May 2014, 51 rows were removed due to off-types. Primary off-types were awnless plants, taller plants, and later-flowering plants with a greener plant colour. There were 3,124 pounds of Breeder seed harvested from this field in June 2014. Foundation seed production (pending release by the Idaho Agriculture Experiment Station and authorization by Idaho Foundation Seed Program) was planted in Washington and with the Idaho Foundation Seed Program in Fall 2014.

Variants:

UI Magic may contain up to 5 per 1000 awnless plants, up to 3 per 1000 later-flowering or greener plants, and up to 2 per 1000 taller plants, up to 8” above canopy height and up to 0.75 % Red Seed.

Area of Adaptation

The probable areas of adaptation for UI Magic include the higher rainfall and irrigated wheat production areas of the Columbia Basin of Northeast Oregon and Southeast Washington and the Camas Prairie of Idaho.

Procedures for maintenance of seed classes

Recognized classes of UI Magic will be Breeder, Foundation, Registered, and Certified. Breeder and Foundation seed will be maintained by a cooperative effort the Idaho Foundation Seed Program and LCS. Varetial purity of Breeder seed will be maintained by roguing and removal of off-types in bulk seedings, and headrowing if necessary. Application will likely be made for protection under the Plant Variety Protection Act.
# Objective Description of Variety

## Wheat (Triticum spp.)

<table>
<thead>
<tr>
<th>Name of Applicant (S)</th>
<th>Temporary or Experimental Designation</th>
<th>Variety Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idaho Agriculture Experiment Station</td>
<td>09-DH11</td>
<td>UI Magic</td>
</tr>
</tbody>
</table>

### Address (Street and No. or RD No., City, State, Zip Code and Country)
875 Perimeter Drive MS 2337
Moscow, Idaho 83844-2337

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**Please read all instructions carefully:**

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g., 0 9 9 or 0 9) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: Royal Horticultural Society

### 1. Kind: 1

- 1 = Common
- 2 = Durum
- 3 = Club
- 4 = Other (Specify) ________________

### 2. Vernalization: 2

- 1 = Spring
- 2 = Winter
- 3 = Other (Specify) ________________

### 3. Coleoptile Anthocyanin: 1

- 1 = Absent
- 2 = Present

### 4. Juvenile Plant Growth: 3

- 1 = Prostrate
- 2 = Semi-Erect
- 3 = Erect

### 5. Plant Color: (boot stage) 3

- 1 = Yellow-Green
- 2 = Green
- 3 = Blue-Green

### 6. Flag Leaf: (boot stage)

- 1 = Erect
- 2 = Recurved
- 1 = Not Twisted
- 2 = Twisted
- 1 = Wax Absent
- 2 = Wax Present
7. EAR EMERGENCE:

<table>
<thead>
<tr>
<th>146</th>
<th>Number of Days (Average)</th>
<th>BRUNEAU</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Number of Days Earlier Than</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Same As</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Number of Days Later Than</td>
<td>LCS ARTDECO</td>
</tr>
</tbody>
</table>

*Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

8. ANther COLOR:  
1 = Yellow  2 = Purple

9. PLANT HEIGHT: (from soil to top of head, excluding awns)

<table>
<thead>
<tr>
<th>80 cm (Average)</th>
<th>LCS ARTDECO</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 cm Taller Than</td>
<td></td>
</tr>
<tr>
<td>Same As</td>
<td></td>
</tr>
<tr>
<td>10 cm Shorter Than</td>
<td>BRUNEAU</td>
</tr>
</tbody>
</table>

10. STEM:

A. ANTHOCYANIN 1  1 = Absent  2 = Present

B. WAXY BLOOM 1  1 = Absent  2 = Present

C. HAIRINESS (last internode of rachis) 1  1 = Absent  2 = Present

D. INTERNODE 1  1 = Hollow  2 = Semi-Solid  3 = Solid

E. PEDUNCLE 1  1 = Erect  2 = Recurved  3 = Semi-Erect

F. AURICLE

1  Anthocyanin:  1 = Absent  2 = Present

2  Hair:  1 = Absent  2 = Present

11. HEAD: (At Maturity)

A. DENSITY 3

1 = Lax  
2 = Middense (Laxidense)  
3 = Dense

B. SHAPE 2

1 = Tapering  
2 = Strap  
3 = Clavate  
4 = Other (Specify)

C. CURVATURE 1

1 = Erect  
2 = Inclined  
3 = Recurved

D. AWNEDNESS 4

1 = Awnless  
2 = Apically Awnletted  
3 = Awnletted  
4 = Awned
12. GLUMES: (At Maturity)

A. COLOR 1
   1 = White
   2 = Tan
   3 = Other (Specify) ______________________

B. SHOULDER 2
   1 = Wanting  2 = Oblique
   3 = Rounded  4 = Square
   5 = Elevated  6 = Apiculate
   7 = Other (Specify) ______________________

C. SHOULDER WIDTH 1
   1 = Narrow
   2 = Medium
   3 = Wide

D. BEAK 3
   1 = Obtuse
   2 = Acute
   3 = Acuminate

E. BEAK WIDTH 2
   1 = Narrow
   2 = Medium
   3 = Wide

F. GLUME LENGTH 2
   1 = Short (ca. 7 mm)
   2 = Medium (ca. 8 mm)
   3 = Long (ca. 9 mm)

G. WIDTH 2
   1 = Narrow (ca. 3 mm)
   2 = Medium (ca. 3.5 mm)
   3 = Wide (ca. 4 mm)

H. PUBESCENCE 1
   1 = Not Present
   2 = Present
13. **SEED**:

A. **SHAPE**  
   1 = Ovate  
   2 = Oval  
   3 = Elliptical

B. **CHEEK**  
   1 = Rounded  
   2 = Angular

C. **BRUSH**  
   1 = Collared  
   2 = Medium  
   3 = Long

D. **CREASE**  
   1 = Width 60% or less of Kernel  
   2 = Width 80% or less of Kernel  
   3 = Width Nearly as Wide as Kernel  
   4 = Width Nearly Twice as Wide as Kernel

E. **COLOR**  
   1 = White  
   2 = Amber  
   3 = Red  
   4 = Other (Specify)

F. **TEXTURE**  
   1 = Hard  
   2 = Soft  
   3 = Other (Specify)

G. **PHENOL REACTION** (See Instructions)  
   1 = Ivory  
   2 = Fawn  
   3 = Light Brown  
   4 = Dark Brown

H. **SEED WEIGHT**  
   _____g/1000 Seed (whole number only)

I. **GERM SIZE**  
   1 = Small  
   2 = Midsized  
   3 = Large

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14. **DISEASE**: PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED (0 = Not Tested  1 = Susceptible  2 = Resistant  3 = Intermediate  4 = Tolerant)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Race:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem Rust (Puccinia graminis f. sp. tritici)</td>
<td></td>
</tr>
<tr>
<td>Leaf Rust (Puccinia recondita f. sp. tritici)</td>
<td></td>
</tr>
<tr>
<td>Stripe Rust (Puccinia striiformis)</td>
<td></td>
</tr>
<tr>
<td>Loose Smut (Ustilago tritici)</td>
<td></td>
</tr>
<tr>
<td>Powdery Mildew (Erysiphe graminis f. sp. tritici)</td>
<td></td>
</tr>
<tr>
<td>Common Bunt (Tilletia tritici or T. laevis)</td>
<td></td>
</tr>
<tr>
<td>Dwarf Bunt (Tilletia controversa)</td>
<td></td>
</tr>
<tr>
<td>Karnal Bunt (Tilletia indica)</td>
<td></td>
</tr>
<tr>
<td>Flag Smut (Urocystis agropyri)</td>
<td></td>
</tr>
<tr>
<td>Tan Spot (Pyrenophora tritici-repentis)</td>
<td></td>
</tr>
<tr>
<td>Halo Spot (Selenophoma donacis)</td>
<td></td>
</tr>
<tr>
<td>Septoria spp.</td>
<td></td>
</tr>
<tr>
<td>Septoria nodorum (Giume Blotch)</td>
<td></td>
</tr>
<tr>
<td>Septoria avenae (Speckled Leaf Disease)</td>
<td></td>
</tr>
<tr>
<td>Septoria tritici (Speckled Leaf Blotch)</td>
<td></td>
</tr>
<tr>
<td>Scab (Fusarium spp.)</td>
<td></td>
</tr>
<tr>
<td>&quot;Snow Molds&quot;</td>
<td></td>
</tr>
<tr>
<td>Kernel Smudge (&quot;Black Point&quot;)</td>
<td></td>
</tr>
<tr>
<td>Common Root Rot (Fusarium, Cochliobolus and Bipolaris spp.)</td>
<td></td>
</tr>
<tr>
<td>Barley Yellow Dwarf Virus (BYDV)</td>
<td></td>
</tr>
<tr>
<td>Rhizoctonia Root Rot (Rhizoctonia solani)</td>
<td></td>
</tr>
<tr>
<td>Soilborne Mosaic Virus (SBMV)</td>
<td></td>
</tr>
<tr>
<td>Black Chaff (Xanthomonas campestris pv. translucens)</td>
<td></td>
</tr>
</tbody>
</table>
14. DISEASE: (continued) (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

<table>
<thead>
<tr>
<th>Disease Description</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat Yellow (Spindle Streak) Mosaic Virus</td>
<td></td>
</tr>
<tr>
<td>Bacterial Leaf Blight (Pseudomonas syringae pv. syringae)</td>
<td></td>
</tr>
<tr>
<td>Wheat Streak Mosaic Virus (WSMV)</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
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<tr>
<td>Other (Specify)</td>
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<tr>
<td>Other (Specify)</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
</tr>
</tbody>
</table>

15. HOMOZYGOUS FOR SPECIFIC DISEASE RESISTANCE GENE

- Stem rust
- Leaf rust
- Other

16. INSECT: PLEASE SPECIFY BIOTYPE (Where Needed) (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

<table>
<thead>
<tr>
<th>Insect Description</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem Sawfly (Cephus spp.) (Specify)</td>
<td></td>
</tr>
<tr>
<td>Cereal Leaf Beetle (Oulema melanopa) (Specify)</td>
<td></td>
</tr>
<tr>
<td>Russian Aphid 1 (Diuraphis noxia)</td>
<td></td>
</tr>
<tr>
<td>Russian Aphid 2 (Diuraphis noxia)</td>
<td></td>
</tr>
<tr>
<td>Greenbug (Schizaphis graminum) (General)</td>
<td></td>
</tr>
<tr>
<td>Greenbug (Schizaphis graminum) Biotype A</td>
<td></td>
</tr>
<tr>
<td>Greenbug (Schizaphis graminum) Biotype B</td>
<td></td>
</tr>
<tr>
<td>Greenbug (Schizaphis graminum) Biotype C</td>
<td></td>
</tr>
<tr>
<td>Greenbug (Schizaphis graminum) Biotype E</td>
<td></td>
</tr>
<tr>
<td>Greenbug (Schizaphis graminum) Other (Specify)</td>
<td></td>
</tr>
<tr>
<td>Aphids (Specify)</td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
</tr>
<tr>
<td>Hessian Fly (Mayetiola destructor) Biotype A</td>
<td></td>
</tr>
<tr>
<td>Hessian Fly (Mayetiola destructor) Biotype B</td>
<td></td>
</tr>
<tr>
<td>Hessian Fly (Mayetiola destructor) Biotype C</td>
<td></td>
</tr>
<tr>
<td>Hessian Fly (Mayetiola destructor) Biotype D</td>
<td></td>
</tr>
<tr>
<td>Hessian Fly (Mayetiola destructor) Biotype E</td>
<td></td>
</tr>
<tr>
<td>Hessian Fly (Mayetiola destructor) Biotype F</td>
<td></td>
</tr>
<tr>
<td>Hessian Fly (Mayetiola destructor) Biotype G</td>
<td></td>
</tr>
<tr>
<td>Hessian Fly (Mayetiola destructor) Biotype GP</td>
<td></td>
</tr>
<tr>
<td>Hessian Fly (Mayetiola destructor) Biotype H</td>
<td></td>
</tr>
</tbody>
</table>
16. INSECT: (continued)  (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)
   0  Hessian Fly (Mayetiola destructor) Biotype I
   0  Hessian Fly (Mayetiola destructor) Biotype J
   0  Hessian Fly (Mayetiola destructor) Biotype L
   0  Hessian Fly (Mayetiola destructor) Biotype M
   0  Hessian Fly (Mayetiola destructor) Biotype N
   0  Hessian Fly (Mayetiola destructor) Biotype O
   0  Hessian Fly (Mayetiola destructor) (Specify)

17. HIGH MOLECULAR WEIGHT GLUTENIN SUBUNIT PROFILE (Check those that apply):

   Glu-A1
   □  1
   □  2
   □  2'
   □  null
   □  1'

   Glu-B1
   □  6+8
   □  7+8
   □  7+9
   □  13+16
   □  13+19
   □  17+18

   Glu-D1
   □  2+11
   □  2+12
   □  3+12
   □  5+10
   □  null

18. TRANSLOCATIONS (1=Present 2=Absent 3=Heterogeneous 4= Not Tested):
   4  1BL/1RS  4  1A/1R  4  2NS/2AS  4  4DL/4AS

19. IMIDAZOLINONE HERBICIDE TOLERANCE (1=Present 2=Absent 3=Not Tested):
   1  Als-1  1  Als-2  2  Als-3

20. END USE QUALITY:
   Grain Protein ______
   Flour Protein ______
   SDS ______
   Fariograph ______
   Other ____________________________

21. ADDITIONAL INFORMATION ON ANY ITEM ABOVE OR GENERAL COMMENTS:
WHEAT DESCRIPTOR ILLUSTRATIONS

4. EARLY PLANT GROWTH HABIT:
1. Prostrate
2. Intermediate
3. Erect

10. (D.) STEM INTERNODE X-SECTION:
1. Hollow
2. Semi-solid
3. Solid

11. (B.) SPIKE SHAPE:

12. (D.) BEAK SHAPE:
1. Tapering
2. Oblong
3. Clavate
4. Elliptical

11. (D.) AWNEDNESS:
1. Awnless
2. Apically Awnleted
3. Awnleted
4. Awned

12. (C.) SHOULDER SHAPE:
1. Wanting
2. Oblique
3. Rounded
4. Square
5. Elevated
6. Apiculate

13. (A.) SEED SHAPE:
1. Ovate
2. Oval
3. Elliptical

13. (B.) CHEEK SHAPE:
1. Rounded
2. Angular

13. (C.) BRUSH SIZE
1. Small
2. Midsized
3. Large
4. Collared

13. (C.) BRUSH HAIR LENGTH:
1. Short
2. Medium
3. Long

13. (D.) SEED CREASE WIDTH:
1. Narrow
2. Mid-wide
3. Wide

13. (D.) SEED CREASE DEPTH:
1. Shallow
2. Mid-Deep
3. Deep

References: