THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Idaho Agricultural Experiment Station

Whereas, there has been presented to the Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREBY ANNEXED AND MADE A PART HEREBY, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THEREOF IS FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW,

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE SEED.

MUSTARD, YELLOW

'Idagold'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fifteenth day of November, in the year two thousand two.

[Signature]

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

[Signature]
**APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE**

**Instructions and information collection burden statement on reverse**

1. **NAME OF APPLICANT(S) as it is to appear on the Certificate**
   - Idaho Agricultural Experiment Station

2. **TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER**
   - BH.70.AJ (PI 597356)

3. **VARIETY NAME**
   - 'IDAGOLD'

4. **ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)**
   - IAES, College of Agriculture
   - University of Idaho
   - Moscow ID 83844-2331

5. **TELEPHONE (include area code)**
   - (208) 885-7173

6. **FAX (include area code)**
   - (208) 885-6654

7. **GENUS AND SPECIES NAME**
   - Sinapis alba

8. **FAMILY NAME (Botanical)**
   - Cruciferae

9. **CROP KIND NAME (Common name)**
   - Yellow mustard

10. **IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) (Common name)**
    - University Experiment Station

11. **IF INCORPORATED, GIVE STATE OF INCORPORATION**

12. **DATE OF INCORPORATION**
    - June 14, 2002

13. **NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS**
    - Jack Brown
    - Dept PSES
    - University of Idaho
    - Moscow ID 83844-2339

16. **CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)**
   - a. Exhibit A. Origin and Breeding History of the Variety
   - b. Exhibit B. Statement of Distinctness
   - c. Exhibit C. Objective Description of the Variety
   - d. Exhibit D. Additional Description of the Variety
   - e. Exhibit E. Statement of the Basis of the Applicant's Ownership
   - f. Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository)
   - g. Filing and Examination Fee (12,460), made payable to "Treasurer of the United States" (Mail to PVPO)

17. **DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? (See Section 83a of the Plant Variety Protection Act)**
    - YES
    - NO

18. **DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?**
    - YES
    - NO

19. **IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?**
    - FOUNDATION
    - REGISTERED
    - CERTIFIED

20. **HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?**
    - YES
    - NO

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) (I/are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) (I/are) informed that false representation herein can jeopardize protection and result in penalties.

**SIGNATURE OF APPLICANT (Owner(s))**

Richard C. Heimsch

**SIGNATURE OF APPLICANT (Owner(s))**

Jack Brown

**CAPACITY OR TITLE**

RICHARD C. HEIMSCH, DIRECTOR

CAPACITY OR TITLE

BREEDER

**DATE**

8/4/97

**DATE**

7/24/97

(See reverse for instructions and information collection burden statement)
Attachment II

‘IdaGold’
Condiment Yellow Mustard
(Sinapis alba L.)

Exhibit A: Origin and Breeding History

IdaGold is an open-pollinated cultivar selected for high adaptation to the dry-land environments of the Pacific Northwest (Idaho, Oregon and Washington). The cultivar was developed from a single plant selection in 1990 from the segregating F_3 population derived from the cross Mustang/BHLG.3553 made in 1988. Mustang is a high erucic acid oil cultivar that originated from Svalöv, Sweden, and BHLG.3553 is a low erucic acid high glucosinolate content cultivar from the collection of Agriculture Canada, Saskatoon, Canada. F_1 plants were increased to F_2 seed in the glasshouse in the fall of 1988 (Figure 1). F_2 seed harvested was bulk, and used to plant bulk field trials in 1989. This bulk evaluation was repeated in 1989 to obtain F_4 seed. At harvest 134 single plant selections were taken from the Mustang/BHLG.3553 F_4 populations. In 1990, these 134 single plant selections, along with over 1000 other single plants selected from other crosses, were planted as head rows at a single location in Idaho. Throughout the growing season head-rows were visually evaluated for adaptability. At harvest 37, from the original F_6 population of IdaGold was selected in the field for evaluation in early yield trials (3 replicates, 5x20’ plots at a single location) in 1992. After this early evaluation, four F_6 populations were selected from the Mustang/BHLG.3553 cross. Multiple-site, replicated field evaluation began using this seed source in the spring 1993. After the first year-site evaluations, the original IdaGold population was identified and seed increase operations began in that same year (Figure 2). Yield trials of IdaGold continued until PvP submission.

Seed increase of IdaGold began in 1993, where a population of F_6 plants was grown and 50 single plant selections made at harvest. These were grown out as head rows in 1994. At harvest 4 single plants selections were taken from 15 ‘selected’ plots (based on visual appearance). The four plants were planted in head rows in 1995. The remainder of the 2-row x 16’ selected plot was threshed as a bulk and used for the following years yield trials. The 1995 procedure of head-row to single plant, plus bulk for yield trials was repeated. At harvest in 1996, the ‘better’ head-row plots were identified (40 plots and 20 single plants harvested from each selected plot). A Foundation seed increase was planted in 1997. plots in the Foundation seed house were visually rouged and off-type plots removed, spraying with herbicide (~25 plots were removed). Seed was harvested by bulk harvesting the 1997 F_{10} head-rows.

IdaGold has been observed in yield trials from 1993 to 1997, and its performance has been further evaluated in small-plot multi-location trials, in larger plot on-farm tests, and also in commercial production from 1998 through 2001. Throughout this period IdaGold has been found to be uniform and stable in performance. Foundation seed of IdaGold has been certified pure by the state of Idaho on two occasions. Three certified seed increases of
IdaGold have passed certification by the state of Idaho over the past five years. During certification of Foundation or Certified seed, no off-types or variants have been found.

Exhibit B: Statement of Distinctness

IdaGold is most similar to the condiment yellow mustard cultivar ‘Tilney’. IdaGold is, however, significantly taller than Tilney. IdaGold and Tilney when compared in replicated (4 replicates) field trials over the past four years under direct seeded and conventional seeding situations at two locals. Direct seeded conditions were considered as there was increasing interest amongst the growing community into direct seeding situations and IdaGold (along with other condiment yellow mustard) had shown beneficial effects when grown in direct seed cropping situations. Averaged over 11 site/years, IdaGold plants were 51.0 inches tall after flower ending, which was significantly taller (P<0.05) taller than Tilney plants which averaged 46.7 inches tall. Over the 11 comparative trials IdaGold plants were significantly taller under six environments. In each environment IdaGold plants were taller, albeit, this difference was not significant at the 5% level.

Mucilage content is the leading quality factor in yellow mustard. Mucilage content is a determination of the viscosity of liquid used to boil mustard seeds. Mucilage content is determined by the following method. A 5.0 g sample of mustard seed is placed into a 250 ml beaker and 45 ml of distilled water added, to a total weight of 50.0 g. The beaker is covered with a watch glass and brought to the boil on an electric plate. Seeds are boiled for 15 minutes, thereafter, the seed/water mix is allowed to cool at room temperature and adjusted to the original weight by adding distilled water. The mix is filtered through a plug of cheese cloth, and filtered liquid is transferred into the “G” tube of a clean and dry Ubbelohde Viscometer (Cannon Instrument Co. PO Box 16, State College, PA 16804; also available from Fisher Scientific Cat # 13-614B). Care must be taken to avoid air bubbles. Samples are introduced to between the “J” and ”K” marker levels (see Viscometer user guide). The viscometer is then placed into a constant temperature bath set at 23-24° C (73.5 to 75° F). Allow 20 minutes for sample to come to bath temperature. Then a finger is placed over the “B” tube while suction is applied to the “A” tube, until the liquid reaches the center of bulb “C”. Suction from tube “A” and the finger from tube “B” while immediately placing a finger over tube “A” until the sample drops away from the lower end of the capillary into tube “I”. Measure the efflux time from mark “D” to mark “F”. The viscosity of distilled water at the same temperature is determined using the methods described above. Mucilage content is calculated by:

\[ \text{cSt} \times \text{ml/g} = [\text{sample time – water time}] \times \text{viscometer constant} \times 9.0 \]

Mucilage content is IdaGold is significantly and markedly higher (better quality) than in any of the alternative cultivars available (Table 2). IdaGold mucilage content was more than doubled compared to AC pennant and Tilney (considered as a quality standard).
**Figure 1.** Flow chart describing the breeding and evaluation history of IdaGold condiment yellow mustard.

**Figure 2.** Flow chart describing seed increase history of IdaGold condiment yellow mustard.
1988 spring

Crossing

1988 fall

$F_1$

single GH plants

1989

$F_2$

Bulk plots

1990

$F_3$ Single plants

1991

$F_4$ Head rows

1992

$F_5$ Early yield trials

1993-1996

Site yield trials

IdaGold
Crossing

F₁

1993 → F₆ Single plants

1994 → F₇ Head rows

1995 → F₈ Head rows

1996 → F₉ Head rows

1997 → F₁₀ Head rows

Foundation seed 800 head rows
Table 1. Plant Height (inches) in comparative morphology trials 1998 to 2001

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>IdaGold</td>
<td>46.2</td>
<td>55.6</td>
<td>54.6</td>
<td>50.7</td>
<td>59.1</td>
<td>57.1</td>
<td>56.1</td>
<td>49.2</td>
<td>44.3</td>
<td>44.1</td>
<td>43.8</td>
</tr>
<tr>
<td>Tilney</td>
<td>41.3</td>
<td>53.1</td>
<td>52.1</td>
<td>47.7</td>
<td>52.1</td>
<td>53.1</td>
<td>49.7</td>
<td>43.3</td>
<td>39.8</td>
<td>43.3</td>
<td>38.9</td>
</tr>
<tr>
<td>LSD 5%</td>
<td>3.61</td>
<td>ns</td>
<td>2.41</td>
<td>ns</td>
<td>5.44</td>
<td>1.82</td>
<td>3.83</td>
<td>1.19</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
</tbody>
</table>

ns = not significantly different; *, ** = Significantly different at 5% and 1% level, respectively.
Mosc and Mo-N are locations near Moscow, Idaho, that were conventionally tilled and direct seeded, respectively, and Gene and Ge-N are locations near Genesee, Idaho, that were conventionally tilled and direct seeded, respectively.

Table 2. Mucilage values (viscometer constants: 629-0.02721, 556 – 0.03182) of IdaGold, Tilney and AC. Pennant from comparative quality trials 1999 to 2001

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IdaGold</td>
<td>68.4</td>
<td>73.5</td>
<td>71.9</td>
<td>72.6</td>
<td>71.1</td>
<td>75.7</td>
<td>79.1</td>
<td>84.2</td>
<td>42.6</td>
<td>52.8</td>
<td>51.5</td>
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<tr>
<td>Tilney</td>
<td>29.7</td>
<td>31.3</td>
<td>30.3</td>
<td>32.3</td>
<td>35.7</td>
<td>34.9</td>
<td>33.3</td>
<td>34.3</td>
<td>26.4</td>
<td>26.5</td>
<td>27.9</td>
</tr>
<tr>
<td>AC.Pennant</td>
<td>33.0</td>
<td>32.9</td>
<td>33.6</td>
<td>33.6</td>
<td>33.5</td>
<td>34.6</td>
<td>37.0</td>
<td>39.2</td>
<td>27.6</td>
<td>25.3</td>
<td>27.9</td>
</tr>
<tr>
<td>LSD 5%</td>
<td>16.44</td>
<td>12.32</td>
<td>9.15</td>
<td>8.52</td>
<td>11.43</td>
<td>10.98</td>
<td>24.75</td>
<td>16.87</td>
<td>13.54</td>
<td>9.22</td>
<td>13.96</td>
</tr>
</tbody>
</table>

ns = not significantly different; *, **, *** = Significantly different at 5%, 1% and 0.1% level, respectively.
Mosc and Mo-N are locations near Moscow, Idaho, that were conventionally tilled and direct seeded, respectively, and Gene and Ge-N are locations near Genesee, Idaho, that were conventionally tilled and direct seeded, respectively.
EXHIBIT C  
(RAPESEED)

U.S. DEPARTMENT OF AGRICULTURE  
PLANT VARIETY PROTECTION OFFICE, AMS, USDA  
NATIONAL AGRICULTURAL LIBRARY Bldg., Rm. 500  
10301 BALTIMORE Blvd.  
BELTSVILLE, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY

**RAPESEED**  
YELLOW MUSTARD  
(*Brassica napus* and *B. campestris*) *(Sinapis alba)*

<table>
<thead>
<tr>
<th>Name of Applicants(s)</th>
<th>Temporary Designation</th>
<th>Variety Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idaho Agricultural Experiment Station</td>
<td>BJ.70.AJ</td>
<td>'IDAGOLD'</td>
</tr>
<tr>
<td>(PI 597356)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address (Street and No., or R.F.D. No., City, State, &amp; Zip Code)</td>
<td>Official Use Only</td>
<td>PVPO Number</td>
</tr>
<tr>
<td>IAES, College of Agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Idaho</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moscow ID 83844-2339</td>
<td></td>
<td>9700374</td>
</tr>
</tbody>
</table>

1. SPECIES:

*  
  ___ *Brassica napus*  
  ___ *Brassica campestris*  
  X *Sinapis alba*

2. TYPE:

  X Spring  
  ___ Winter

3. PLANT HEIGHT (at pod maturity):

  ___ 1.29.0 cm Tall (compare to standard variety below)
  ___ 4.0 cm shorter than Check variety: **OCHRE**
  Height same as Check variety:__________________________
  ___ 2.0 cm taller than Check variety: **TILNEY**

*Height Class:__  
  1 = Autumn sown  
  2 = Short (Candle)  
  3 = Medium short ( )  
  4 = Medium (Jet Neuf)  
  5 = Tall (Dwarf Essex)  
  1 = Spring sown  
  2 = Medium short ( )  
  3 = Medium (Cresus)  
  4 = Medium tall ( )  
  5 = Tall (Petranova)

4. STEM ANTHOCYANIN:

  ___ 1 = Absent  
  2 = Weak  
  3 = Medium  
  4 = Strong

5. SEED COTYLEDONS (Maximum width fully developed; mean of 50 graded seeds):

  ___ 1 = Narrow (Erglu)  
  2 = Medium (Primor)  
  3 = Broad (Expander)

6. SEEDLING GROWTH HABIT (leaf rosette):

  ___ 1 = Upright  
  2 = Prostrate (short photoperiod)
7. LEAVES:

<table>
<thead>
<tr>
<th>3</th>
<th>Margins (serration): 1 = Absent or very weak (Akela) 2 = Weak (Arvor, Jet Neuf) 3 = Medium (Primor) 4 = Strong (Candle, Kentan)</th>
</tr>
</thead>
</table>

| 5 | Lobing (fully developed leaf on plant or rosette): 1 = Absent or very weak (Akela) 2 = Weak (Arvor) 3 = Medium (Primor) 4 = Medium strong (Argus) 5 = Strong (Kenton) |

| 3 | Leaf Attachment to stem: 1 = Fully clasping (Candle) 2 = Partial clasping (Jet Neuf) 3 = No clasping |

| 2 | Color: 1 = Light green (Arvor) 2 = Medium green (Primor) 3 = Medium dark green (Oro) 4 = Dark green (Brunowski, Rapor) |

| 1 | Glaucosity: 1 = Absent 2 = Weak (Span) 3 = Weak to medium (Gulliver) 4 = Medium (Magnus) 5 = Medium to strong (Oro) 6 = Strong |

8. FLOWERS:

| 1 | Flower Buds Location: 1 = Buds at tip of apical meristem (Jet Neuf) 2 = Buds immediately below apical meristem (Candle) |

| 2 | Petal color: 1 = Pale yellow ( ) 2 = Yellow (Jet Neuf, Primor) 3 = Orange ( ) 4 = White ( ) |

| 1 | Anther dotting (at opening of flower; give percentage): 0 % |

| 2 | Flowering class (Autumn sown): 1 = Very early (Arvor) 2 = Early (Primor) 3 = Medium early ( ) 4 = Medium late ( ) 5 = Late (Marcus) 6 = Very late ( ) |

| 2 | Flowering class (Spring sown): 1 = Very early (Tower) 2 = Early (Kosa) 3 = Medium early ( ) 4 = Medium late ( ) 5 = Late (Petranova) 6 = Very late ( ) |

9. PODS (Slique):

| 1 | Pod type: 1 = Bilateral single pod (Jet Neuf) 2 = Other ( ) |

| 3 | Silique beak length: 19.19 mm Short (Forto) 2 = Medium (Liragold) 3 = Long (Rapol) |

| 1 | Pod length; (give length: 13.74 mm) 1 = Short ( ) 2 = Medium ( ) 3 = Long ( ) |

| 3 | Pod width; (give width: 4.69 mm) 1 = Narrow ( ) 2 = Medium ( ) 3 = Wide ( ) |

| 5 | Pod habit: 1 = Erect (Gulliver) 2 = Semi-erect to erect (Oro) 3 = Semi-erect 4 = Horizontal to semi-erect (Brink) 5 = Horizontal |

| 1 | Pedicel length: 1 = Very short ( ) 2 = Short ( ) 3 = Long ( ) |

| 2 | Ripening Class (Autumn sown): 1 = Very early ( ) 2 = Early ( ) 3 = Medium ( ) 4 = Late ( ) 5 = Very late ( ) |
9. PODS (Continued):

- 96 days to maturity:

- ___ days earlier than Check variety: 

- maturity same as Check variety: TILNEY 

- ___ days later than Check variety: 

10. SEEDS:

- 5.5 g/1000 unsized seed:

- ___ g less than Check variety: 

- weight same as Check variety: 

- 0.2 g more than Check variety: TILNEY 

- Weight Class (grams)
  1 = less than 3.0 (Candle)
  2 = 3.0 - 3.9
  3 = 4.0 - 5.0 (Jet Neuf)
  4 = more than 5.0

- Seeds Per Pod: (give number: ___ per pod)
  1 = Low
  2 = Medium
  3 = High

- Testa Color:
  1 = Black (Jet Neuf)
  2 = Red
  3 = Yellow (Yellow Sarson)
  4 = Dark brown to back
  5 = Reddish-brown to black
  6 = Other

9700374

11. CHEMICAL COMPOSITION OF SEED:

- 2 Erucic Acid
  1 = Low (less than 2%)
  2 = Intermediate
  3 = High (more than 50%)

- 25.1% Oil

- Glucosinate Content: (give: 244.1 micro moles/g, ____ mg/g)
  1 = Low - Less than 30 millim/g (Candle)
  2 = High - More than 30 millim/g (Mikado)

- % Protein (oil free meal)

- Fatty Acid Composition (%):
  
<table>
<thead>
<tr>
<th>Palmitic</th>
<th>Stearic</th>
<th>Oleic</th>
<th>Linoleic</th>
<th>Linolenic</th>
<th>Eicosenoic</th>
<th>Erucic</th>
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</thead>
<tbody>
<tr>
<td>16:0</td>
<td>18:0</td>
<td>18:1</td>
<td>18.2</td>
<td>18:3</td>
<td>20:1</td>
<td>22:1</td>
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<tr>
<td>3.0</td>
<td>1.1</td>
<td>28.1</td>
<td>10.2</td>
<td>10.3</td>
<td>11.1</td>
<td>31.7</td>
</tr>
</tbody>
</table>

12. FROST TOLERANCE (Late spring frosts):

- 1 Tolerance: 1 = Not hardy - susceptible (Indore)
  2 = Moderately susceptible
  3 = Moderately resistant
  4 = Hardy (Bridger)

13. LODGING RESISTANCE:

- 4 Resistance: 1 = Weak (Span)
  2 = Moderately weak (Olga)
  3 = Moderately strong
  4 = Strong (Torpe)

14. HERBICIDE RESISTANCE:

- 1 Atrazine:
  1 = Susceptible (Jet Neuf)
  2 = Resistant

- Other: SU
  1 = Susceptible
  2 = Resistant
15. DISEASE RESISTANCE:  0 = Not tested  1 = Susceptible  2 = Low resistance  3 = Moderate resistance  4 = High resistance

*  ___  Sclerotinia Stem Rot (*Sclerotinia sclerotiorum*)

*  ___  Black Leg, Stem Canker (*Leptosphaeria maculans, Plenodomus lingum*)  
   (*Phoma lingam*)

*  ___  White Rust (*Albugo candida, A. cruciferrarum*)

  ___  Light Leaf Spot (*Pyrenopeziza brassicae*)

  ___  Downy Mildew (*Peronospora parasitica*)

  ___  Rhizoctonia Root Rot (*Rhizoctonia solani*)

  ___  Alternaria Black Spot (*Alternaria brassicicola*)

___  Other

---

16. COMMENTS: Please give any additional comments which characterizes the variety.

Glucosinolate Profile + Total (μmoles/gm)

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Pent</th>
<th>OH-Benz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>244.1±3.95</td>
<td>8.5±0.20</td>
<td>235.6±4.06</td>
</tr>
</tbody>
</table>

17. DIRECTIONS: Select the number which characterizes the variety in the features above. Those characteristics marked with an asterisk * should be recorded. Any others should be recorded if possible to help establish novelty or uniqueness. Characteristics described, including numerical measurements, should represent those that are *typical* for the variety. Give test area conditions.
Table 1. Average seed yield (lb/acre) ‘IdaGold’ and three control cultivars from yellow mustard (Sinapis alba L.) regional trials 1993 to 1996.

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Mean</th>
<th>Rank</th>
<th>1993 5 sites</th>
<th>1994 6 sites</th>
<th>1995 7 sites</th>
<th>1996 5 sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>1428</td>
<td>2</td>
<td>1505</td>
<td>1245</td>
<td>1694</td>
<td>1268</td>
</tr>
<tr>
<td>Ochre</td>
<td>1410</td>
<td>3</td>
<td>1728</td>
<td>1150</td>
<td>1730</td>
<td>1034</td>
</tr>
<tr>
<td>Tilney</td>
<td>1396</td>
<td>4</td>
<td>1570</td>
<td>1060</td>
<td>1817</td>
<td>1139</td>
</tr>
<tr>
<td><strong>IdaGold</strong></td>
<td><strong>1593</strong></td>
<td><strong>1</strong></td>
<td><strong>1919</strong></td>
<td><strong>1283</strong></td>
<td><strong>1879</strong></td>
<td><strong>1290</strong></td>
</tr>
</tbody>
</table>

| se (mean) | 132 | 133 | 94 | 176 | 9700374 |
| LSD 5%    | 258 | 263 | 186 | 348 | 225 |

Table 2. Total glucosinolates (μmol/gram of defatted seed meal) and glucosinolate profile of IdaGold Breeder’s Seed and control cultivars. Data presented are averages of 40 samples, standard errors are presented in parenthesis.

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Total</th>
<th>Progoitrin¹</th>
<th>Sinalbin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>257.00</td>
<td>7.70</td>
<td>249.30</td>
</tr>
<tr>
<td>Tilney</td>
<td>230.95</td>
<td>2.35</td>
<td>228.60</td>
</tr>
<tr>
<td><strong>IdaGold</strong></td>
<td><strong>244.05</strong></td>
<td><strong>8.46</strong></td>
<td><strong>235.59</strong></td>
</tr>
</tbody>
</table>

¹ Sinalbin (p-hydroxybenzyl glucosinolate) and progoitrin (2-hydroxy-3-buteryl glucosinolate),
Table 3. Fatty acid profile (% of total oil) of IdaGold Breeder’s Seed and control cultivars. Data presented are averages of 40 samples, standard errors are shown in parenthesis.

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>16:0(^1)</th>
<th>18:0</th>
<th>18:1</th>
<th>18:2</th>
<th>18:3</th>
<th>20:1</th>
<th>22:1</th>
<th>24:1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>2.6</td>
<td>1.2</td>
<td>29.6</td>
<td>9.5</td>
<td>8.2</td>
<td>11.8</td>
<td>33.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Tilney</td>
<td>2.6</td>
<td>1.0</td>
<td>25.1</td>
<td>9.6</td>
<td>11.0</td>
<td>9.1</td>
<td>37.5</td>
<td>2.3</td>
</tr>
<tr>
<td>IdaGold</td>
<td>3.0</td>
<td>1.1</td>
<td>28.1</td>
<td>10.2</td>
<td>10.3</td>
<td>11.1</td>
<td>31.7</td>
<td>2.1</td>
</tr>
</tbody>
</table>

\(1\) 16:0 = palmitic acid; 18:0 = stearic acid; 18:1 = oleic acid; 18:2 = linoleic acid; 18:3 = linolenic acid; 20:1 = eicosenoic acid; 22:1 = erucic acid; and 24:1 = nervonic acid.

Table 4. Seedling emergence (1 to 9 scale with 9 = rapid emergence), days from planting to flower start, plant height (cm), oil content (%), 1000 seed weight (g) and seed color (1 to 9 scale, with 9 = bright yellow color and 1 = dull pale color) of IdaGold and control cultivars. Data presented are averages over four years.

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Emergence</th>
<th>Flower start</th>
<th>Plant height</th>
<th>Oil content</th>
<th>1000 seed wt.</th>
<th>Seed color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>6.4</td>
<td>42.8</td>
<td>121</td>
<td>24.9</td>
<td>5.36</td>
<td>7.96</td>
</tr>
<tr>
<td>Tilney</td>
<td>5.7</td>
<td>44.0</td>
<td>127</td>
<td>25.2</td>
<td>5.57</td>
<td>7.59</td>
</tr>
<tr>
<td>Ochre</td>
<td>6.0</td>
<td>43.8</td>
<td>133</td>
<td>25.2</td>
<td>5.42</td>
<td>7.09</td>
</tr>
<tr>
<td>IdaGold</td>
<td>5.9</td>
<td>46.1</td>
<td>129</td>
<td>25.1</td>
<td>5.51</td>
<td>7.58</td>
</tr>
<tr>
<td>s.e. mean</td>
<td>0.30</td>
<td>0.38</td>
<td>1.60</td>
<td>0.50</td>
<td>0.37</td>
<td>0.27</td>
</tr>
<tr>
<td>LSD 5%</td>
<td>0.59</td>
<td>0.74</td>
<td>3.14</td>
<td>0.98</td>
<td>0.73</td>
<td>0.53</td>
</tr>
</tbody>
</table>
Table 5. Seed Yield (lb/acre) of ‘IdaGold’ and three control cultivars from the 1993 Yellow Mustard (*Sinapis alba* L.) Regional Trial grown at: Parker Farm, Moscow, ID (Mosc); Kambitsch Farm, Genesee, ID (Gene); Tensed, ID (Tens); Lewiston, ID (Lewi); Washtucna, WA (Wash)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Rank</th>
<th>Mosc</th>
<th>Gene</th>
<th>Tens</th>
<th>Lewi</th>
<th>Wash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>1505</td>
<td>3</td>
<td>2174</td>
<td>1740</td>
<td>1544</td>
<td>921</td>
<td>1185</td>
</tr>
<tr>
<td>Ochre</td>
<td>1728</td>
<td>2</td>
<td>2403</td>
<td>2211</td>
<td>2064</td>
<td>992</td>
<td>971</td>
</tr>
<tr>
<td>Tilney</td>
<td>1570</td>
<td>4</td>
<td>2318</td>
<td>1605</td>
<td>1895</td>
<td>1050</td>
<td>982</td>
</tr>
<tr>
<td><strong>IdaGold</strong></td>
<td><strong>1919</strong></td>
<td><strong>1</strong></td>
<td><strong>2311</strong></td>
<td><strong>2850</strong></td>
<td><strong>2252</strong></td>
<td><strong>1046</strong></td>
<td><strong>1134</strong></td>
</tr>
</tbody>
</table>

s.e. (mean) 133
LSD 5% 263

---

Table 6. Seed yield (lb/acre) of ‘IdaGold’ and three control cultivars from the 1994 Yellow Mustard (*Sinapis alba* L.) Regional Trial grown at: Parker Farm, Moscow, ID (Mosc); Kambitsch Farm, Genesee, ID (Gene); Tensed, ID (Tens); Lewiston, ID (Lewi); Washtucna, WA (Wash); and Grangeville, ID.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Rank</th>
<th>Mosc</th>
<th>Gene</th>
<th>Tens</th>
<th>Lewi</th>
<th>Wash</th>
<th>Gran</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>1245</td>
<td>2</td>
<td>795</td>
<td>619</td>
<td>2125</td>
<td>1524</td>
<td>1298</td>
<td>660</td>
</tr>
<tr>
<td>Ochre</td>
<td>1150</td>
<td>4</td>
<td>1029</td>
<td>531</td>
<td>2065</td>
<td>1486</td>
<td>1175</td>
<td>615</td>
</tr>
<tr>
<td>Tilney</td>
<td>1060</td>
<td>3</td>
<td>1123</td>
<td>371</td>
<td>2036</td>
<td>1171</td>
<td>*</td>
<td>600</td>
</tr>
<tr>
<td><strong>IdaGold</strong></td>
<td><strong>1283</strong></td>
<td><strong>1</strong></td>
<td><strong>1287</strong></td>
<td><strong>578</strong></td>
<td><strong>2211</strong></td>
<td><strong>1519</strong></td>
<td><strong>1503</strong></td>
<td><strong>601</strong></td>
</tr>
</tbody>
</table>

s.e. (mean) 94
LSD 5% 186
Table 7. Seed yield (lb/acre) of 'IdaGold' and three control cultivars grown in the 1995 Yellow Mustard (*Sinapis alba* L.) Regional Trial grown at: Parker Farm, Moscow, ID (Mosc); Kambitsch Farm, Genesee, ID (Gene); Tensed, ID (Tens); Cavendish, ID (Cavi); Tammany, ID (Tamm); Lewiston, ID (Lewi); and Pendleton, OR (Pend).

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Rank</th>
<th>Mosc</th>
<th>Gene</th>
<th>Tens</th>
<th>Cavi</th>
<th>Tamm</th>
<th>Lewi</th>
<th>Pend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>1694</td>
<td>4</td>
<td>1772</td>
<td>2543</td>
<td>1466</td>
<td>1057</td>
<td>2003</td>
<td>1488</td>
<td>2029</td>
</tr>
<tr>
<td>Ochre</td>
<td>1730</td>
<td>3</td>
<td>1814</td>
<td>2317</td>
<td>1687</td>
<td>790</td>
<td>2309</td>
<td>1199</td>
<td>1994</td>
</tr>
<tr>
<td>Tilney</td>
<td>1817</td>
<td>2</td>
<td>1762</td>
<td>2986</td>
<td>1334</td>
<td>914</td>
<td>2410</td>
<td>1290</td>
<td>2144</td>
</tr>
<tr>
<td><strong>IdaGold</strong></td>
<td><strong>1879</strong></td>
<td><strong>1</strong></td>
<td><strong>1927</strong></td>
<td><strong>2617</strong></td>
<td><strong>1823</strong></td>
<td><strong>936</strong></td>
<td><strong>2268</strong></td>
<td><strong>1445</strong></td>
<td><strong>2130</strong></td>
</tr>
<tr>
<td>s.e. (mean)</td>
<td>176</td>
<td>139</td>
<td>181</td>
<td>181</td>
<td>78</td>
<td>251</td>
<td>81</td>
<td>240</td>
<td></td>
</tr>
<tr>
<td>LSD 5%</td>
<td>348</td>
<td>275</td>
<td>358</td>
<td>358</td>
<td>154</td>
<td>497</td>
<td>160</td>
<td>475</td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Seed yield (lb/acre) of 'IdaGold' and three control cultivars from the 1996 Yellow Mustard (*Sinapis alba* L.) Regional Trial grown at: Parker Farm, Moscow, ID (Mosc); Kambitsch Farm, Genesee, ID (Gene); Lewiston, ID (Lewi); Potlatch, ID (Potl); and Walla Walla, WA (Wala).

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Mean</th>
<th>Rank</th>
<th>Mosc</th>
<th>Gene</th>
<th>Lewi</th>
<th>Potl</th>
<th>Walla-Walla</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>1268</td>
<td>2</td>
<td>809</td>
<td>1152</td>
<td>2158</td>
<td>868</td>
<td>1354</td>
</tr>
<tr>
<td>Kirby</td>
<td>1212</td>
<td>3</td>
<td>602</td>
<td>1144</td>
<td>2273</td>
<td>818</td>
<td>1221</td>
</tr>
<tr>
<td>Ochre</td>
<td>1034</td>
<td>5</td>
<td>625</td>
<td>890</td>
<td>1735</td>
<td>797</td>
<td>1125</td>
</tr>
<tr>
<td>Tilney</td>
<td>1139</td>
<td>4</td>
<td>619</td>
<td>970</td>
<td>2082</td>
<td>734</td>
<td>1289</td>
</tr>
<tr>
<td><strong>IdaGold</strong></td>
<td><strong>1290</strong></td>
<td><strong>1</strong></td>
<td><strong>830</strong></td>
<td><strong>995</strong></td>
<td><strong>2351</strong></td>
<td><strong>805</strong></td>
<td><strong>1468</strong></td>
</tr>
<tr>
<td>s.e. (mean)</td>
<td>114</td>
<td>77</td>
<td>185</td>
<td>38</td>
<td>47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSD 5%</td>
<td>225</td>
<td>198</td>
<td>366</td>
<td>75</td>
<td>93</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 9. Rate of seedling emergence (Emerg, 1 to 9 scale, 9 = rapid emergence), days to first flowering (F.Start) and oil content (%) of Yellow Mustard (*Sinapis alba* L.) Regional Trial 1993. Data presented are averaged over 5 sites, grown at: Parker farm, Moscow, ID; Kambitsch Farm, Genesee, ID; Tensed, ID; Lewiston, ID; and Washucnca, WA.

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Emerg</th>
<th>F.Start</th>
<th>Plant Height</th>
<th>Oil content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>6.08</td>
<td>46.62</td>
<td>116.0</td>
<td>26.47</td>
</tr>
<tr>
<td>Tilney</td>
<td>5.08</td>
<td>48.25</td>
<td>131.0</td>
<td>26.12</td>
</tr>
<tr>
<td>Ochre</td>
<td>6.42</td>
<td>48.00</td>
<td>146.0</td>
<td>26.52</td>
</tr>
<tr>
<td><strong>IdaGold</strong></td>
<td><strong>5.75</strong></td>
<td><strong>51.75</strong></td>
<td><strong>129.0</strong></td>
<td><strong>27.42</strong></td>
</tr>
</tbody>
</table>

s.e. (mean) | 0.77 | 0.57 | 0.42 | 0.42 |
LSD 5%      | 1.52 | 1.13 | 0.83 | 0.83 |

Table 10. Days to first flowering (F.Start), plant height at maturity (cm), oil content (%), 1000 seed weight (g) and seed color (1 to 9 scale, 9 = bright yellow color) of Yellow Mustard (*Sinapis alba* L.) Regional Trial 1994. Data presented are averaged over 6 sites, grown at: Parker Farm, Moscow, ID (Mosc); Kambitsch Farm, Genesee, ID (Gene); Tensed, ID (Tens); Lewiston, ID (Lewi); Washucnca, WA (Wash); and Grangeville, ID.

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Flower Start</th>
<th>Plant Height</th>
<th>Oil Content</th>
<th>Seed Weight</th>
<th>Seed Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>41.08</td>
<td>148.07</td>
<td>24.01</td>
<td>5.56</td>
<td>6.80</td>
</tr>
<tr>
<td>Tilney</td>
<td>43.00</td>
<td>146.57</td>
<td>23.95</td>
<td>5.71</td>
<td>7.40</td>
</tr>
<tr>
<td>Ochre</td>
<td>42.67</td>
<td>152.97</td>
<td>24.07</td>
<td>5.63</td>
<td>6.40</td>
</tr>
<tr>
<td><strong>IdaGold</strong></td>
<td><strong>45.62</strong></td>
<td><strong>156.75</strong></td>
<td><strong>23.36</strong></td>
<td><strong>5.46</strong></td>
<td><strong>6.80</strong></td>
</tr>
</tbody>
</table>

s.e. (mean) | 0.57 | 3.67 | 0.43 | 0.10 | 0.32 |
LSD 5%      | 1.13 | 7.27 | 0.85 | 0.20 | 0.65 |
Table 11. Rate of seedling emergence (Emerg, 1 to 9 scale, 9 = rapid emergence), time of first flowering (1 to 9 scale with 9 = very late flowering), plant height at maturity (cm), oil content (%), and 1000 seed weight (g) of Yellow Mustard (Sinapis alba L.) Regional Trial 1995. Data presented are averaged over 6 sites, grown at: Parker Farm, Moscow, ID (Mosc); Kambitsch Farm, Genesee, ID (Gene); Tensed, ID (Tens); Cavendish, ID (Cavi); Tammany, ID (Tamm); Lewiston, ID (Lewi); and Pendleton, OR (Pend).

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Emerg</th>
<th>Flower Start</th>
<th>Plant Height</th>
<th>Oil Content</th>
<th>Seed Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>6.83</td>
<td>6.25</td>
<td>125.00</td>
<td>24.48</td>
<td>5.20</td>
</tr>
<tr>
<td>Kirby</td>
<td>6.96</td>
<td>6.25</td>
<td>143.75</td>
<td>25.35</td>
<td>5.45</td>
</tr>
<tr>
<td>Ochre</td>
<td>6.62</td>
<td>6.25</td>
<td>141.25</td>
<td>25.25</td>
<td>5.25</td>
</tr>
<tr>
<td>Tilney</td>
<td>6.54</td>
<td>6.17</td>
<td>138.75</td>
<td>25.75</td>
<td>5.30</td>
</tr>
<tr>
<td>IdaGold</td>
<td>6.29</td>
<td>6.00</td>
<td>133.75</td>
<td>24.85</td>
<td>5.55</td>
</tr>
</tbody>
</table>

s.e. (mean) 0.09 0.45 2.04 0.65 0.07
LSD 5% 0.18 0.89 4.03 1.29 0.14

---

Table 12. Rate of seedling emergence (Emerg, 1 to 9 scale, 9 = rapid emergence), days to first flowering (F.Start), plant height at maturity (cm), oil content (%), and 200 seed weight (g) of Yellow Mustard (Sinapis alba L.) Regional Trial 1996. Data presented are averaged over 6 sites, grown at: Parker Farm, Moscow, ID (Mosc); Kambitsch Farm, Genesee, ID (Gene); Lewiston, ID (Lewi); Potlatch, ID (Potl); and Walla Walla, WA (Wala).

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Emerg</th>
<th>Flower Start</th>
<th>Plant Height</th>
<th>Oil Content</th>
<th>Seed Weight</th>
<th>Seed Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gisilba</td>
<td>5.97</td>
<td>81.0</td>
<td>47.1</td>
<td>*</td>
<td>*</td>
<td>7.83</td>
</tr>
<tr>
<td>Ochre</td>
<td>4.62</td>
<td>81.0</td>
<td>45.5</td>
<td>*</td>
<td>*</td>
<td>7.92</td>
</tr>
<tr>
<td>Tilney</td>
<td>5.27</td>
<td>81.0</td>
<td>42.0</td>
<td>5.3</td>
<td>*</td>
<td>7.83</td>
</tr>
<tr>
<td>IdaGold</td>
<td>5.58</td>
<td>81.0</td>
<td>49.6</td>
<td>5.5</td>
<td>*</td>
<td>8.08</td>
</tr>
</tbody>
</table>

s.e. (mean) 0.05 0.0 0.29 -- 0.23
LSD 5% 0.10 -- 0.57 -- 0.45
**STATEMENT OF THE BASIS OF OWNERSHIP**

1. **NAME OF APPLICANT(S):**
   - Idaho Agricultural Experiment Station

2. **TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER:**
   - BH.70.AJ
   - (PI 597356)

3. **VARIETY NAME:**
   - 'IDAGOLD'

4. **ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country):**
   - IAES, College of Agriculture
   - University of Idaho
   - Moscow ID 83844-2337

5. **TELEPHONE (Include area code):**
   - (208) 885-7173

6. **FAX (Include area code):**
   - (208) 885-6654

7. **PVP NUMBER:**
   - 9700574

8. **Does the applicant own all rights to the variety?** Mark an "X" in appropriate block. If no, please explain.
   - [ ] YES
   - [ ] NO

9. **Is the applicant (individual or company) a U.S. national or U.S. based company?**
   - If no, give name of country
   - [ ] YES
   - [ ] NO

10. **Is the applicant the original breeder?** If no, please answer the following:
    a. **If original rights to variety were owned by individual(s):**
       - Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country
       - [ ] YES
       - [ ] NO
    b. **If original rights to variety were owned by a company:**
       - Is the original breeder(s) U.S. based company? If no, give name of country
       - [ ] YES
       - [ ] NO

11. **Additional explanation on ownership (If needed, use reverse for extra space):**

**PLEASE NOTE:**

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.