A REPORT OF THE

SUNFLOWER VARIETY REVIEW BOARD

ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

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The Association of Official Seed Certifying Agencies (AOSCA) Sunflower Variety Review Board (SFVRB), reviewed the following varieties on May 4, 2017. The Board recommended the inclusion of these varieties for certification. Seed of these varieties may be certified, providing production meets all standards of the Certifying Agency of the jurisdiction in which the seed is grown.

All variety information, including descriptions, claims, and research data to support any claim was supplied to the Sunflower Variety Review Board by the applicants. The Sunflower Variety Review Board makes judgment regarding recommendation of varieties for inclusion in certification based on the data supplied. Beyond this, the Sunflower Variety Review Board takes no position on the accuracy or truthfulness of any description or claim made by the applicants.

Further information on current procedures, application forms, and details regarding the Sunflower Variety Review Board can be obtained from:

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Respectfully submitted,

Alex Mkandawire, Chairman
Sunflower Variety Review Board
# 2017 AOSCA SUNFLOWER VARIETY REVIEW BOARD

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<td>USDA-ARS</td>
<td>27</td>
<td>RHA 476</td>
</tr>
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</table>

* indicates amendment application for name change
### Sunflower

**ZN7464B**

ZN7464B is a high oleic oilseed maintainer line derived from the pedigree ON3351B/ZN1443B. Both parents are proprietary Mycogen Seeds lines. ZN1443B is the donor parent for extra high oleic. ZN7464B has oleic acid content above 93%. ZN7464B is derived from a bulk of a F9 family tracing to a single F8 plant homozygous for extra high oleic.

**Hybrids utilizing ZN7464B** are adapted to the major sunflower growing regions of North America and Europe, and will be used primarily for vegetable oil.

**Flowering (relatively early, medium, or late?):** late  
**Height (relatively short, medium or tall?):** medium  
**Branching Type:** absent,  
**Distal Leaf Shape:** acuminate  
**Leaf Attitude:** long  
**Leaf Color:** medium green  
**Leaf Serration:** medium  
**Leaf Blistering:** medium  
**Ray Flowers:** sparse, narrow ovate  
**Ray Flower Color:** medium yellow  
**Pappi Color:** absent,  
**Pappi Color:** rust  
**Disk Flower Color:** orange  
**Head (neck) Attitude:** half-turned down with curved stem  
**Pollen Color:** yellow  
**Seed Shape:** ovoid elongated  
**Seed Color:** black  
**Seed Outer Pericarp Color:** medium  
**Hypocotyl Anthocyanin:** present, weak  
**Receptacle Shape:** weakly convex  
**Stripe Appearance:** marginal: strongly expressed center: strongly expressed color: grey  

**State expected variants or other varietal information not described above:**  
None.

**No claims are made regarding resistance to disease, insects, or herbicides.**

**Breeder seed increases are maintained by Mycogen Seeds under cloth bagged heads in nursery rows or in isolation cages. Up to two generations beyond breeder's seed are allowed for increase by open pollination in isolated fields for production of Foundation Seed. Isolation and other requirements will be according to the Seed Certification regulations of the state where seed is grown.**

**Certified seed of hybrids using this variety may be made available for the 2018 season. Please do not publish certified acreage.**

**It is not anticipated that a PVP application will be made on this variety.**

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**INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY**

Date this application was submitted: **March 9, 2017**  
Date recommended by the VRB: **June 30, 2017**
Sunflower

K12HE62R
(Amended – Name Change)

1. K12HE62R is a Seeds 2000 proprietary high oleic oilseed restorer, resistant to tribenuron methyl herbicide and resistant to downy mildew (Plasmopara halstedii), and was developed by the pedigree method of selection from the cross SU4907/TX16-1551R. Selection was for uniform plant type, self-compatibility, resistance to tribenuron methyl herbicide and resistance to downy mildew.

2. Hybrids utilizing K12HE62R are adapted to major sunflower growing regions of the upper Midwest of the USA and will be used primarily for vegetable oil. Hybrids utilizing K12HE62R have been tested in North and South Dakota.

3. Flowering (relatively early, medium, or late?): Early
   Physiological maturity (relatively early, medium, or late?): Early
   Height (relatively short, medium or tall?): Short

   Stem Branching: Fully branched

   | Leaf Shape: | Cordate | Leaf Margins: | Serrate |
   | Leaf Attitude: | Ascending | Leaf Surface: | Crinkled |
   | Leaf Color: | Green | Ray Flower Color: | Yellow |
   | Ray Flowers: | Flat | Stigma Anthocyanin: | Absent |
   | Disk Flower Color: | Yellow | Pappi Color: | Green |
   | Pollen Color: | Yellow | Head (neck) Attitude: | Erect |
   | Receptacle Shape: | Flat | Seed Middle Pericarp Color: | White |
   | Seed Outer Pericarp Color: | Black | Seed Shape: | Narrowly Ovate |
   | Stripe Appearance: | Absent | Seed Cross-section: | Curved |

State expected variants or other varietal traits that will assist in identification in the field: none claimed

4. K12HE62R is resistant to tribenuron methyl herbicide and is resistant to downy mildew.

5. Breeder’s seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder’s seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.

6. Certified seed will be made available in 2014. Do not publish acreage.

7. Application for PVP will not be made.

Date this application was submitted: March 7, 2017   Date recommended by the VRB: May 4, 2017
Sunflower

KHE3169R

KHE3169R is a high oleic, tribenuron-methyl resistant, oilseed restorer line developed by the pedigree method of selection from the cross SA439R/C9607R. SA439R is a proprietary high oleic line previously approved. C9607R is a proprietary line with genes resistance to tribenuron-methyl herbicide.

The pedigree method of selection was used for the development of KHE3169R. It is a bulk of F7 plants tracing back to a single F6 plant. Selection was based on uniform plant type, self compatibility, high oleic fatty acid content, and resistance to tribenuron-methyl herbicide.

Hybrids utilizing KHE3169R are adapted to major sunflower growing regions of North and South America, and SE Europe; the hybrids will be primarily for vegetable oil.

| Flowering (relatively early, medium, or late?) | late |
| Height (relatively short, medium or tall?) | tall |
| Branching Type | present, predominantly apical |
| Distal Leaf Shape | broad triangular |
| Leaf Attitude | medium |
| Leaf Color | medium green |
| Leaf Serration | fine |
| Leaf Blistering | medium |
| Ray Flowers | medium density, narrow ovate |
| Ray Flower Color | light yellow |
| Stigma Anthocyanin | absent, |
| Pappi Color | green |
| Disk Flower Color | yellow |
| Head (neck) Attitude | turned down with slightly curved stem |
| Pollen Color | yellow |
| Seed Shape | ovoid elongated |
| Receptacle Shape | weakly convex |
| Seed Thickness | thin |
| Seed Outer Pericarp Color | black |
| Hypocotyl Anthocyanin | absent, |
| Stripe Appearance | marginal: none or weakly expressed center: none or weakly expressed color: brown |

State expected variants or other varietal information not described above:

<table>
<thead>
<tr>
<th>LINE</th>
<th>Plant HT</th>
<th>Days to stage 5.1</th>
<th>Days to phys. mat</th>
<th>%oleic</th>
<th>Tribenuron-methyl Tol</th>
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</thead>
<tbody>
<tr>
<td>KHE3169R</td>
<td>122</td>
<td>62</td>
<td>101</td>
<td>90.0</td>
<td>1</td>
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<tr>
<td>RHA274</td>
<td>105</td>
<td>64</td>
<td>105</td>
<td>24.7</td>
<td>10</td>
</tr>
</tbody>
</table>

None.

Breeders seed will be maintained by Nuseed Americas in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeders seed will be allowed for production of foundation seed. Isolation and other requirements will be in accordance with the seed certification regulations of the state where it is produced.

2017, do not publish certified production acreage.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY

Date this application was submitted: March 7, 2017  Date recommended by the VRB: June 30, 2017
Sunflower

KHM3030R

KHM3030R is a high oleic, imidazolinone resistant, oilseed restorer line developed by the pedigree method of selection from the cross SA439R/SA2624R. SA2624R is a Clearfield donor line previously approved. SA439R is a high oleic line previously approved. The pedigree method of selection was used for the development of KHM3030R. It is a bulk of F7 plants tracing back to a single F6 plant. Selection was based on uniform plant type, self compatibility, high oleic fatty acid content, and resistance to imidazolinone herbicide.

Hybrids utilizing KHM3030R are adapted to major sunflower growing regions of North and South America, and SE Europe; the hybrids will be primarily for vegetable oil.

Flowering (relatively early, medium, or late?): late
Height (relatively short, medium or tall?): tall
Branching Type: present, predominantly apical
Distal Leaf Shape: broad triangular
Leaf Attitude: low
Leaf Color: medium green
Leaf Serration: medium
Leaf Blistering: absent or very weak
Ray Flowers: medium density, narrow ovate
Stigma Anthocyanin: absent
Ray Flower Color: light yellow
Pappi Color: green
Disk Flower Color: yellow
Head (neck) Attitude: half-turned down with straight stem
Pollen Color: yellow
Seed Shape: ovoid wide
Receptacle Shape: weakly convex
Seed Thickness: thin
Seed Outer Pericarp Color: grey
Hypocotyl Anthocyanin: absent
Stripe Appearance: marginal: weakly expressed center: none or weakly expressed color: black

State expected variants or other varietal information not described above:

<table>
<thead>
<tr>
<th>LINE</th>
<th>Plant HT</th>
<th>Days to stage 5.1</th>
<th>Days to phys. mat.</th>
<th>%oleic</th>
<th>Imidazolinone Tol</th>
</tr>
</thead>
<tbody>
<tr>
<td>KHM3030R</td>
<td>132</td>
<td>68</td>
<td>120</td>
<td>89.3</td>
<td>1</td>
</tr>
<tr>
<td>RHA274</td>
<td>105</td>
<td>64</td>
<td>105</td>
<td>24.7</td>
<td>10</td>
</tr>
</tbody>
</table>

None.

Breeders seed will be maintained by Nuseed Americas in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeders seed will be allowed for production of foundation seed. Isolation and other requirments will be in accordance with the seed certification regulations of the state where it is produced.

2017, do not publish certified production acreage.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY

Date this application was submitted: March 7, 2017    Date recommended by the VRB: June 30, 2017
Sunflower

SA61061R

1. SA61061R is a high oleic, imidazolinone resistant, oilseed restorer line developed by the pedigree method of selection from the backcross SA6106R*2/RHA801CL+. RHA801CL+ is a Clearfield Plus donor line provided by BASF for conversion of lines to Clearfield Plus. The pedigree and backcross method of selection was used for the development of SA61061R. It is a bulk of BC2F7 plants tracing back to a single BC2F6 plant. Selection was for uniform plant type, self compatibility, high oleic acid content, and resistance to imidazolinone herbicide.

2. Hybrids utilizing SA61061R are adapted to major sunflower growing regions of North and South America, and SE Europe; the hybrids will be primarily for vegetable oil.

3. Flowering (relatively early, medium, or late?): medium
   Height (relatively short, medium, or tall?): tall
   Branching Type: present, predominantly apical
   Distal Leaf Shape: broad triangular
   Leaf Attitude: medium
   Leaf Color: medium green
   Leaf Serration: coarse
   Leaf Blistering: weak
   Ray Flowers: medium density, broad ovate
   Ray Flower Color: light yellow
   Stigma Anthocyanin: absent
   Pappi Color: green
   Disk Flower Color: yellow
   Head (neck) Attitude: half-turned down with curved stem
   Pollen Color: yellow
   Seed Shape: ovoid wide
   Receptacle Shape: flat
   Seed Thickness: thin
   Seed Outer Pericarp Color: black
   Hypocotyl Anthocyanin: absent
   Stripe Appearance: marginal: none or weakly expressed center: color: black

State expected variants or other varietal information not described above:

<table>
<thead>
<tr>
<th>LINE</th>
<th>Plant HT</th>
<th>Days to stage 5.1</th>
<th>Days to phys. mat.</th>
<th>%oleic</th>
<th>Imidazolinone Tol</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA61061R</td>
<td>105</td>
<td>65</td>
<td>109</td>
<td>88.3</td>
<td>1</td>
</tr>
<tr>
<td>RHA274</td>
<td>105</td>
<td>64</td>
<td>105</td>
<td>24.7</td>
<td>10</td>
</tr>
</tbody>
</table>

4. None.

5. Breeders seed will be maintained by Nuseed Americas in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeders seed will be allowed for production of foundation seed. Isolation and other requirements will be in accordance with the seed certification regulations of the state where it is produced.


7. No.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY
Date this application was submitted: March 7, 2017 Date recommended by the VRB: June 30, 2017

Association of Official Seed Certifying Agencies

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WSM3988R is an imidazolinone resistant confectionary line which carries the Rf fertility restoration gene, selected by the pedigree method of selection from the cross SA440A/CR29//CR1082. SA440A is an imidazolinone resistant Nuseed proprietary confectionary line. CR29 and CR1082 are Nuseed proprietary confectionary lines.

The pedigree method of selection was used for the development of WSM3988R. It is a bulk of F7 plants tracing to a single F6 plant. Selection was for uniform plant type, self compatibility, and resistance to imidazolinone herbicide.

Hybrids utilizing WSM3988R are adapted to major sunflower growing regions of North and South America and SE Europe; the hybrids will be used primarily for human consumption.

Flowering (relatively early, medium, or late?): late
Height (relatively short, medium or tall?): tall
Branching Type: present, predominantly apical
Distal Leaf Shape: broad triangular
Leaf Attitude: medium
Leaf Color: medium green
Leaf Serration: coarse
Leaf Blistering: weak
Ray Flowers: medium density, narrow ovate
Ray Flower Color: medium yellow
Stigma Anthocyanin: absent,
Pappi Color: green
Disk Flower Color: yellow
Pollen Color: yellow
Seed Shape: elongated
Receptacle Shape: weakly concave
Seed Outer Pericarp Color: dark brown
Head (neck) Attitude: turned down with slightly curved stem
Hypocotyl Anthocyanin: absent,
Stripe Appearance: marginal: strongly expressed center: weakly expressed color: white

State expected variants or other varietal information not described above:

<table>
<thead>
<tr>
<th>Line</th>
<th>Plant Ht.</th>
<th>Days to Stage 5.1</th>
<th>Days to Phys. Mat.</th>
<th>Imidazolinone</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSM3988R</td>
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<td>79</td>
<td>119</td>
<td>1</td>
</tr>
<tr>
<td>RHA294</td>
<td>105</td>
<td>67</td>
<td>102</td>
<td>10</td>
</tr>
</tbody>
</table>

Breeder’s seed will be maintained by Nuseed Americas in nursery rows under bags or by open pollination in isolated fields. Up to two generations beyond breeder’s seed will be allowed for production of foundation seed. Isolation and other requirements will be in accordance with the seed certification regulations for the state where it is produced.

2017, do not publish certified seed production acreage.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY

Date this application was submitted: 3/10/2017  
Date recommended by the VRB: June 30, 2017

Association of Official Seed Certifying Agencies
**Sunflower**

**WSM4533R**

WSM4533R is an imidazolinone resistant confectionary line which carries the Rf fertility restoration gene, selected by the pedigree method of selection from the cross SA440A/CR29//CR1082. SA440A is an imidazolinone resistant Nuseed proprietary confectionary line. CR29 and CR1082 are Nuseed proprietary confectionary lines.

The pedigree method of selection was used for the development of WSM4533R. It is a bulk of F7 plants tracing to a single F6 plant. Selection was for uniform plant type, self compatibility, and resistance to imidazolinone herbicide.

Hybrids utilizing WSM4533R are adapted to major sunflower growing regions of North and South America and SE Europe; the hybrids will be used primarily for human consumption.

### Flowering (relatively early, medium, or late?):
- late

### Height (relatively short, medium or tall?):
- tall

### Branching Type:
- present, predominantly apical

### Distal Leaf Shape:
- broad triangular

### Leaf Attitude:
- medium

### Leaf Color:
- medium green

### Ray Flowers:
- medium density, narrow ovate

### Disk Flower Color:
- yellow

### Pollen Color:
- yellow

### Receptacle Shape:
- weakly concave

### Seed Outer Pericarp Color:
- dark brown

### Stripe Appearance:
- marginal: strongly expressed center: weakly expressed color: white

State expected variants or other varietal information not described above:

<table>
<thead>
<tr>
<th>Line</th>
<th>Plant Ht.</th>
<th>Days to Stage 5.1</th>
<th>Days to Phys. Mat.</th>
<th>Imidazolinone</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSM4533R</td>
<td>130</td>
<td>79</td>
<td>114</td>
<td>1</td>
</tr>
<tr>
<td>RHA294</td>
<td>105</td>
<td>67</td>
<td>102</td>
<td>10</td>
</tr>
</tbody>
</table>

### 4.

None.

### 5.

Breeder's seed will be maintained by Nuseed Americas in nursery rows under bags or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be in accordance with the seed certification regulations for the state where it is produced.

### 6.

**2017, do not publish certified seed production acreage.**

### 7.

No.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY

Date this application was submitted: 3/10/2017      Date recommended by the VRB:  June 30, 2017
Sunflower

### 7PHLQ23R

7PHLQ23R is a linoleic oil type, imidazolinone resistant, restorer line developed by Pioneer Hi-Bred International that derives from the cross U11TCIMLM/U12FSCLLM. U11TCIMLM derives from the cross U09KJLM/U09WBIMLM. And U09WBIMLM derives from B0642LM/SANAY. U12FSCLLM derives from the cross U09MYHM/BTIMIR/U06VBHM/3/B0642LM/4/SANAY. SANAY is a commercial sold hybrid from Syngenta. U09KJLM, U09MYHM, U06VBHM & B0642LM are all Pioneer proprietary lines. BTIMIR is the CLHA + inbred licensed for use from BASF. Selections were made for imidazolinone resistance, oil content, shorter plant stature, earlier flowering and yield, as assessed in hybrid combination. The pedigree method was used in the development of 7PHLQ23R. It is a bulk of F9 seed tracing back to a single F8 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.

State expected variants or other varietal information not described above:

<table>
<thead>
<tr>
<th>State expected variants or other varietal information not described above:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7PHLQ23R is a linoleic type, imidazolinone resistant restorer line. Compared to the public line RHA274, 7PHLQ23R blooms 7 days latter and is shorter. The broad triangular leaves are longer and wider than RHA274. The ovoid elongated seed is, 0.8 mm longer than RHA274. 7PHLQ23R has seed that are medium brown with weakly-black stripes. Hypocotyl anthocyanin is strong.</td>
</tr>
</tbody>
</table>

Hybrids utilizing 7PHLQ23R have been tested in and are adapted to the growing regions of Central, Eastern, and Western Europe.

Flowering (relatively early, medium, or late?): late  
Height (relatively short, medium or tall?): medium  
Branching Type: present, predominantly apical

| Distal Leaf Shape:       | broad triangular |
| Leaf Attitude:          | high            |
| Leaf Color:             | medium green    |
| Ray Flowers:            | medium density, narrow ovate |
| Leaf Serration:         | fine            |
| Leaf Blistering:        | weak            |
| Ray Flower Color:       | medium yellow   |
| Stigma Anthocyanin:    | present, weak   |
| Pappi Color:            | green           |
| Disk Flower Color:      | yellow          |
| Head (neck) Attitude:   | half-turned down with straight stem |
| Pollen Color:           | yellow          |
| Seed Shape:             | ovoid elongated |
| Receptacle Shape:       | weakly convex   |
| Seed Thickness:         | thin            |
| Seed Outer Pericarp Color: | medium brown |
| Hypocotyl Anthocyanin: | present, strong |
| Stripe Appearance:      | marginal: weakly expressed center: weakly expressed color: black |

Date this application was submitted: March 8, 2017  
Date recommended by the VRB: June 30, 2017
### Sunflower

**7PTVR25R**

7PTVR25R is a linoleic type restorer line developed by Pioneer Hi-Bred International that derives from the cross U09KJLM/U09KJLM/H0560JB2LM///U09KJLM. Both U09KJLM & H0560JB2LM are all Pioneer proprietary lines. Selections were made for oil content, shorter plant stature, earlier flowering and yield, as assessed in hybrid combination. The pedigree method was used in the development of 7PTVR25R. It is a bulk of F6 seed tracing back to a single F5 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.

#### Hybrids utilizing 7PTVR25R have been tested in and are adapted to the growing regions of Central, Eastern, and Western Europe.

#### Flowering (relatively early, medium, or late?): medium

#### Height (relatively short, medium or tall?): medium

#### Branching Type: present, overall

#### Distal Leaf Shape: acuminate

#### Leaf Attitude: medium

#### Leaf Color: medium green

#### Leaf Serration: fine

#### Leaf Blistering: absent or very weak

#### Ray Flowers: dense, broad ovate

#### Ray Flower Color: medium yellow

#### Pappi Color: green

#### Disk Flower Color: yellow

#### Head (neck) Attitude: half-turned down with straight stem

#### Pollen Color: yellow

#### Seed Shape: ovoid elongated

#### Seed Color: black

#### Stigma Anthocyanin: absent

#### Seed Thickness: medium

#### Hypocotyl Anthocyanin: present, medium

#### Stripe Appearance: marginal: none or weakly expressed center: none or weakly expressed color:

State expected variants or other varietal information not described above:

7PTVR25R is a linoleic type restorer line. Compared to the public line RHA274, 7PTVR25R blooms 2 days later and is shorter. The leaves are acuminate. The seed is ovoid elongated, longer and heavier than RHA274. 7PTVR25R has seed that are black without stripes. Hypocotyl anthocyanin is medium.

#### None

Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

Certified seed is first expected to be available in 2017. Please do not publish certified seed production acreage.

Application for protection under the Plant Variety Protection Act will not be made.

**INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY**

Date this application was submitted: **March 8, 2017**

Date recommended by the VRB: **June 30, 2017**
7PACJ80R is a tribenuron-methyl resistant, high oleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the backcross PH5102R/5*D0250LM. PH5102R and D0250LM are all Pioneer proprietary lines. PH5102R is a tribenuron-methyl resistant, high oleic oil type line used as the donor for herbicide resistance and oleic oil type. Selections were made for tribenuron-methyl resistance, fatty acid content and recurrent parent traits. The pedigree method was used in the development of 7PACJ80R. It is a bulk of BCSF5 seed tracing back to a single BCSF4 selection. It is homozygous for dominant fertility restoration of the CMS PET1 cytoplasm.

Hybrids utilizing 7PACJ80R have been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowering</td>
<td>medium</td>
</tr>
<tr>
<td>Height</td>
<td>short</td>
</tr>
<tr>
<td>Branching Type</td>
<td>present, predominantly apical</td>
</tr>
<tr>
<td>Distal Leaf Shape</td>
<td>broad triangular to rounded</td>
</tr>
<tr>
<td>Leaf Attitude</td>
<td>medium</td>
</tr>
<tr>
<td>Leaf Color</td>
<td>medium green</td>
</tr>
<tr>
<td>Ray Flowers</td>
<td>medium density, narrow ovate</td>
</tr>
<tr>
<td>Disk Flower Color</td>
<td>orange</td>
</tr>
<tr>
<td>Pollen Color</td>
<td>yellow</td>
</tr>
<tr>
<td>Receptacle Shape</td>
<td>flat</td>
</tr>
<tr>
<td>Seed Outer Pericarp Color</td>
<td>black</td>
</tr>
<tr>
<td>Stripe Appearance</td>
<td>marginal: none or weakly expressed center: weakly expressed color: grey</td>
</tr>
<tr>
<td>Leaf Serration</td>
<td>fine</td>
</tr>
<tr>
<td>Leaf Blistering</td>
<td>weak</td>
</tr>
<tr>
<td>Ray Flower Color</td>
<td>medium yellow</td>
</tr>
<tr>
<td>Stigma Anthocyanin</td>
<td>absent,</td>
</tr>
<tr>
<td>Pappi Color</td>
<td>green</td>
</tr>
<tr>
<td>Head (neck) Attitude</td>
<td>vertical</td>
</tr>
<tr>
<td>Seed Shape</td>
<td>ovoid elongated</td>
</tr>
<tr>
<td>Seed Thickness</td>
<td>thin</td>
</tr>
<tr>
<td>Hypocotyl Anthocyanin</td>
<td>absent,</td>
</tr>
</tbody>
</table>

State expected variants or other varietal information not described above:
None.

7PACJ80R claims no resistance to the common sunflower diseases and insect pests. **7PACJ80R is Tribenuron-methyl resistant.**

Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

Certified seeds is first expected to be available in 2017. Please do not publish certified seed production acreage.

Application for protection under the Plant Variety Protection Act will not be made.

Date this application was submitted: **March 9, 2017**  Date recommended by the VRB: **July 21, 2017**
7PCDQ22R is a tribenuron-methyl resistant, linoleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross D0250LM/PH5002R. D0250LM and PH5002R are all Pioneer proprietary lines. PH5002R is a tribenuron-methyl resistant line used as the donor for herbicide resistance. Selections were made for tribenuron-methyl resistance, earlier flowering date, shorter plant height, oil content and yield, as assessed in hybrid combination.

The pedigree method was used in the development of 7PCDQ22R. It is a bulk of F7 seed tracing back to a single F6 selection. It is homozygous for dominant fertility restoration of the CMS PET1 cytoplasm

Hybrids utilizing 7PCDQ22R have been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

State expected variants or other varietal information not described above:

None.

7PCDQ22R claims no resistance to the common sunflower diseases and insect pests.

7PCDQ22R is Tribenuron-methyl resistant.

Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

Certified seeds is first expected to be available in 2017. Please do not publish certified seed production acreage.

Application for protection under the Plant Variety Protection Act will not be made.

Date this application was submitted: March 9, 2017  Date recommended by the VRB: July 21, 2017
Sunflower

7PKVL42R

1. 7PKVL42R is a linoleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross PH5031R/ D0250LM. PH5031R and D0250LM are all Pioneer proprietary lines. Selections were made for earlier flowering, shorter plant height, oil content and yield, as assessed on hybrid combination. The pedigree method was used in the development of 7PKVL42R. It is a bulk of F8 seed tracing back to a single F7 selection. It is homozygous for dominant fertility restoration of the cms PET1 cytoplasm.

2. Hybrids utilizing 7PKVL42R have been tested in and are adapted to the growing regions of Northern plains of the U.S. and Central, Eastern and Western Europe.

3. Flowering (relatively early, medium, or late?): **medium**
   Height (relatively short, medium, or tall?): **short**
   Branching Type: **present, predominantly apical**
   Distal Leaf Shape: **broad triangular to rounded**
   Leaf Serration: **fine**
   Leaf Attitude: **medium**
   Leaf Blistering: **medium**
   Leaf Color: **medium green**
   Ray Flowers: **medium density, broad ovate**
   Ray Flower Color: **medium yellow**
   Stigma Anthocyanin: **absent**
   Pappi Color: **green**
   Disk Flower Color: **orange**
   Head (neck) Attitude: **vertical**
   Pollen Color: **yellow**
   Seed Shape: **ovoid wide**
   Seed Thickness: **thin**
   Seed Outer Pericarp Color: **black**
   Hypocotyl Anthocyanin: **absent**
   Stripe Appearance: **marginal: strongly expressed center; strongly expressed color: grey**

   State expected variants or other varietal information not described above:

4. 7PKVL42R claims no resistance to the common sunflower diseases and insect pests.

5. Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

6. Certified seed is first expected to be available in 2017. Please do not publish certified seed production acreage.

7. Application for protection under the Plant Variety Protection Act will not be made.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY

Date this application was submitted: **March 9, 2017**
Date recommended by the VRB: **July 21, 2017**
Sunflower

7PPPU01B

1. 7PPPU01B is a tribenuron-methyl resistant, high oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0941HG/PH1023B. T0941HG and PH1023B are all Pioneer proprietary lines. PH1023B is a tribenuron-methyl resistant line used as the donor for herbicide resistance. Selections were made for tribenuron-methyl resistance, earlier flowering, shorter plant height, oil & fatty acid content and yield, as assessed in hybrid combination. The pedigree method was used in the development of 7PPPU01B. It is a bulk of F7 seed tracing back to a single F6 selection. The sterile analog derives from the CMS PET1 cytoplasm following 6 generations of backcrossing. It is homozygous dominant for single head.

2. Hybrids utilizing 7PPPU01B have been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Flowering (relatively early, medium, or late?): late
   Height (relatively short, medium or tall?): tall
   Branching Type: absent,
   Distal Leaf Shape: broad triangular to rounded
   Leaf Attitude: medium
   Leaf Color: light green
   Ray Flowers: medium density, fusiform
   disk flower color: flat, medium length
   Pollen Color: yellow
   Receptacle shape: weakly convex
   Seed Outer Pericarp Color: black
   Stripe Appearance: marginal: strongly expressed center: weakly expressed color: grey
   Leaf Serration: fine
   Leaf Blistering: weak
   Ray Flower Color: medium yellow
   Stigma Anthocyanin: absent,
   Pappi Color: green
   Disk Flower Color: orange
   Head (neck) Attitude: half-turned down with straight stem
   Seed Shape: ovoid wide
   Seed Thickness: thin
   Hypocotyl Anthocyanin: absent,

State expected variants or other varietal information not described above:

None.

4. 7PPPU01B claims no resistance to the common sunflower diseases and insect pests. 7PPPU01B is Tribenuron-methyl resistant.

5. Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

6. Certified seeds is first expected to be available in 2017. Please do not publish certified seed production acreage.

7. Application for protection under the Plant Variety Protection Act will not be made.

Date this application was submitted: March 9, 2017   Date recommended by the VRB: July 21, 2017
7PTYJ59B is an oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0632HG/PH1023B. T0632HG and PH1023B are all Pioneer proprietary lines. Selections were made for earlier flowering, shorter plant height, oil & fatty acid content and yield, as assessed in hybrid combination. The pedigree method was used in the development of 7PTYJ59B. It is a bulk of F8 seed tracing back to a single F7 selection. The sterile analog derives from the CMS PET1 cytoplasm following 6 generations of backcrossing. It is homozygous dominant for single head.

Hybrids utilizing 7PTYJ59B have been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowering (relatively early, medium, or late?)</td>
<td>late</td>
</tr>
<tr>
<td>Height (relatively short, medium or tall?)</td>
<td>medium</td>
</tr>
<tr>
<td>Branching Type:</td>
<td>absent,</td>
</tr>
<tr>
<td>Distal Leaf Shape:</td>
<td>broad triangular to rounded</td>
</tr>
<tr>
<td>Leaf Attitude:</td>
<td>medium</td>
</tr>
<tr>
<td>Leaf Color:</td>
<td>light green</td>
</tr>
<tr>
<td>Leaf Serration:</td>
<td>medium</td>
</tr>
<tr>
<td>Leaf Blistering:</td>
<td>weak</td>
</tr>
<tr>
<td>Ray Flowers:</td>
<td>medium density, narrow ovate</td>
</tr>
<tr>
<td>Ray Flower Color:</td>
<td>medium yellow</td>
</tr>
<tr>
<td>Stigma Anthocyanin:</td>
<td>absent,</td>
</tr>
<tr>
<td>Pappi Color:</td>
<td>green</td>
</tr>
<tr>
<td>Disk Flower Color:</td>
<td>orange</td>
</tr>
<tr>
<td>Head (neck) Attitude:</td>
<td>turned down with straight stem</td>
</tr>
<tr>
<td>Pollen Color:</td>
<td>yellow</td>
</tr>
<tr>
<td>Seed Shape:</td>
<td>ovoid wide</td>
</tr>
<tr>
<td>Seed Thickness:</td>
<td>thin</td>
</tr>
<tr>
<td>Receptacle Shape:</td>
<td>strongly convex</td>
</tr>
<tr>
<td>Seed Outer Pericarp Color:</td>
<td>black</td>
</tr>
<tr>
<td>Hypocotyl Anthocyanin:</td>
<td>absent,</td>
</tr>
<tr>
<td>Stripe Appearance:</td>
<td>marginal: strongly expressed center; weakly expressed color: grey</td>
</tr>
</tbody>
</table>

State expected variants or other varietal information not described above:

None.

7PTYJ59B claims no resistance to the common sunflower diseases and insect pests.

Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

Certified seeds is first expected to be available in 2017. Please do not publish certified seed production acreage.

Application for protection under the Plant Variety Protection Act will not be made.

Date this application was submitted: March 9, 2017  Date recommended by the VRB: July 21, 2017
Sunflower

7PVAD55R

1. **7PVAD55R** is an oleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the backcross B0345HM/H0560JB5LM//1*B0345HM. B0345HM and H0560JB5LM are all Pioneer proprietary lines. H0560JB5LM is a tribenuron-methyl susceptible and downy mildew race 714 resistant line used as the donor for downy mildew resistance. Selections were made for tribenuron-methyl susceptibility and downy mildew race 714 resistance. The pedigree method was used in the development of 7PVAD55R. It is a bulk of BC1F4 seed tracing back to a single BC1F3 selection. It is homozygous for dominant fertility restoration of the CMS PET1 cytoplasm.

2. Hybrids utilizing 7PVAD55R have been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. **Flowering (relatively early, medium, or late?):** late  
   **Height (relatively short, medium or tall?):** short  
   **Branching Type:** present, predominantly apical  
   **Distal Leaf Shape:** broad triangular to rounded  
   **Leaf Attitude:** medium  
   **Leaf Color:** medium green  
   **Leaf Serration:** fine  
   **Leaf Blistering:** weak  
   **Ray Flowers:** medium density, fusiform  
   **Ray Flower Color:** medium yellow  
   **Stigma Anthocyanin:** absent  
   **Pappi Color:** green  
   **Disk Flower Color:** orange  
   **Pollen Color:** yellow  
   **Head (neck) Attitude:** turned down with straight stem  
   **Pollen Shape:** ovoid wide  
   **Receptacle Shape:** strongly convex  
   **Seed Shape:** ovoid wide  
   **Seed Thickness:** medium  
   **Seed Outer Pericarp Color:** medium brown  
   **Hypocotyl Anthocyanin:** absent  
   **Stripe Appearance:** marginal: none or weakly expressed center; none or weakly expressed color: grey

4. 7PVAD55R claims resistance to downy mildew, 714 race. **7PVAD55R is Tribenuron-methyl susceptible**

5. Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

6. Certified seeds is first expected to be available in **2017**. Please do not publish certified seed production acreage.

7. Application for protection under the Plant Variety Protection Act will not be made.

**INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY**

Date this application was submitted: **March 9, 2017**  
Date recommended by the VRB: **July 21, 2017**
7PWCK45B is a tribenuron-methyl resistant, high oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross B0632HG/T0739HG. B0632HG and T0739HG are all Pioneer proprietary lines. B0632HG is a tribenuron-methyl resistant line used as the donor for herbicide resistance. Selections were made for tribenuron-methyl resistance, earlier flowering, shorter plant height, oil & fatty acid content and yield, as assessed in hybrid combination.

The pedigree method was used in the development of 7PWCK45B. It is a bulk of F7 seed tracing back to a single F6 selection. The sterile analog derives from the CMS PET1 cytoplasm following 6 generations of backcrossing. It is homozygous dominant for single head.

Hybrids utilizing 7PWCK45B have been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

State expected variants or other varietal information not described above:

None.

7PWCK45B claims no resistance to the common sunflower diseases and insect pests. 7PWCK45B is Tribenuron-methyl resistant.

Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

Certified seeds is first expected to be available in 2017. Please do not publish certified seed production acreage.

Application for protection under the Plant Variety Protection Act will not be made.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY
Date this application was submitted: March 9, 2017 Date recommended by the VRB: July 21, 2017
7PWDH67B is an oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the backcross T0942HG/5*T0511LG. T0942HG and T0511LG are all Pioneer proprietary lines. T0942HG is an oleic oil type line used as the donor for oleic oil type. Selections were made for fatty acid content and recurrent parent traits.

The pedigree method was used in the development of 7PWDH67B. It is a bulk of BC5F5 seed tracing back to a single BC5F4 selection. The sterile analog derives from the CMS PET1 cytoplasm following 6 generations of backcrossing. It is homozygous dominant for single head.

Hybrids utilizing 7PWDH67B have been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

1. Flowering (relatively early, medium, or late?): late
   Height (relatively short, medium or tall?): tall
   Branching Type: absent,
   Distal Leaf Shape: broad triangular to rounded
   Leaf Attitude: high
   Leaf Color: medium green
   Leaf Serration: medium
   Leaf Blistering: absent or very weak
   Ray Flowers: medium density, narrow ovate
   Ray Flower Color: medium yellow
   Stigma Anthocyanin: absent,
   Pappi Color: green
   Disk Flower Color: orange
   Head (neck) Attitude: half-turned down with straight stem
   Pollen Color: yellow
   Seed Shape: ovoid wide
   Seed Thickness: medium
   Seed Outer Pericarp Color: black
   Hypocotyl Anthocyanin: absent,
   Stripe Appearance: marginal: strongly expressed center: weakly expressed color: grey

State expected variants or other varietal information not described above:
None.

2. 7PWDH67B claims no resistance to the common sunflower diseases and insect pests.

3. Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

4. Certified seeds is first expected to be available in 2017. Please do not publish certified seed production acreage.

5. Application for protection under the Plant Variety Protection Act will not be made.

Date this application was submitted: March 9, 2017
Date recommended by the VRB: July 21, 2017
Sunflower

7PXLA91R

7PXLA91R is a tribenuron-methyl resistant, oleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross PH5057R/Kondi. PH5057R is Pioneer proprietary lines and Kondi is Syngenta commercial hybrid. PH5057R is a tribenuron-methyl resistant line used as the donor for herbicide resistance. Selections were made for tribenuron-methyl resistance, earlier flowering date, shorter plant height, oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of 7PXLA91R. It is a bulk of F7 seed tracing back to a single F6 selection. It is homozygous for dominant fertility restoration of the CMS PET1 cytoplasm.

Hybrids utilizing 7PXLA91R have been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

| Flowering (relatively early, medium, or late?): | medium |
| Height (relatively short, medium or tall?): | short |
| Branching Type: | present, predominantly apical |
| Distal Leaf Shape: | broad triangular to rounded |
| Leaf Attitude: | low |
| Leaf Color: | medium green |
| Ray Flowers: | medium density, narrow ovate |
| Disk Flower Color: | orange |
| Pollen Color: | yellow |
| Receptacle Shape: | strongly convex |
| Seed Outer Pericarp Color: | black |
| Stripe Appearance: | marginal: strongly expressed center; strongly expressed color: grey |

Leaf Serration: | fine |
Leaf Blistering: | weak |
Ray Flower Color: | medium yellow |
Stigma Anthocyanin: | present, medium |
Pappi Color: | green |
Head (neck) Attitude: | half-turned down with straight stem |
Seed Shape: | ovoid wide |
Seed Thickness: | medium |
Hypocotyl Anthocyanin: | absent |

State expected variants or other varietal information not described above:

None.

7PXLA91R claims no resistance to the common sunflower diseases and insect pests.

Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

Certified seeds is first expected to be available in 2017. Please do not publish certified seed production acreage.

Application for protection under the Plant Variety Protection Act will not be made.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY

Date this application was submitted: **March 9, 2017**  Date recommended by the VRB: **July 21, 2017**
D1403HM is a tribenuron-methyl resistant, oleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross PH5000R/PH6000R. PH5000R and PH6000R are Pioneer proprietary lines. PH5000R and PH6000R are tribenuron-methyl resistant lines. Selections were made for tribenuron-methyl resistance, earlier flowering date, shorter plant height, oil and fatty acid content and yield, as assessed in hybrid combination. The pedigree method was used in the development of D1403HM. It is a bulk of F7 seed tracing back to a single F6 selection. It is homozygous for dominant fertility restoration of the CMS PET1 cytoplasm.

D1403HM has been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

### 3. Flowering (relatively early, medium, or late?):
- **Height (relatively short, medium or tall?):** short
- **Branching Type:** present, predominantly apical
- **Distal Leaf Shape:** broad triangular to rounded
- **Leaf Attitude:** medium
- **Leaf Color:** medium green
- **Ray Flowers:** medium density, narrow ovate
- **Ray Flowers:** flat, medium length
- **Disk Flower Color:** orange
- **Pollen Color:** yellow
- **Receptacle Shape:** weakly convex
- **Seed Outer Pericarp Color:** black
- **Stripe Appearance:** marginal; weakly expressed center; none or weakly expressed color: grey

### 4. Date this application was submitted:
- **March 9, 2017**

### 5. Date recommended by the VRB:
- **July 21, 2017**

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**Certification Information:**

**INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY**

Certified seeds is first expected to be available in 2017. Please do not publish certified seed production acreage.

Application for protection under the Plant Variety Protection Act will not be made.
Sunflower

**T0831LG**

T0831LG is a linoleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross U9605LG/B0306LG. U9605LG and B0306LG are all Pioneer proprietary lines. Selections were made for earlier flowering, shorter plant height, oil content and yield, as assessed in hybrid combination.

The pedigree method was used in the development of T0831LG. It is a bulk of F8 seed tracing back to a single F7 selection. The sterile analog derives from the CMS PET1 cytoplasm following 6 generation of backcrossing. It is homozygous dominant for single heads.

Hybrids utilizing T0831LG have been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

<table>
<thead>
<tr>
<th>Trait</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowering (relatively early, medium, or late?)</td>
<td>medium</td>
</tr>
<tr>
<td>Height (relatively short, medium or tall?)</td>
<td>medium</td>
</tr>
<tr>
<td>Branching Type</td>
<td>absent,</td>
</tr>
<tr>
<td>Distal Leaf Shape</td>
<td>rounded</td>
</tr>
<tr>
<td>Leaf Attitude</td>
<td>medium</td>
</tr>
<tr>
<td>Leaf Color</td>
<td>medium green</td>
</tr>
<tr>
<td>Ray Flowers</td>
<td>medium density, broad ovate</td>
</tr>
<tr>
<td>Pollen Color</td>
<td>yellow</td>
</tr>
<tr>
<td>Receptacle Shape</td>
<td>weakly convex</td>
</tr>
<tr>
<td>Seed Outer Pericarp Color</td>
<td>black</td>
</tr>
<tr>
<td>Stripe Appearance</td>
<td>marginal: weakly expressed center: none or weakly expressed color: grey</td>
</tr>
<tr>
<td>Head (neck) Attitude</td>
<td>half-turned down with straight stem</td>
</tr>
<tr>
<td>Seed Shape</td>
<td>rounded</td>
</tr>
<tr>
<td>Seed Thickness</td>
<td>thick</td>
</tr>
<tr>
<td>Hypocotyl Anthocyanin</td>
<td>absent,</td>
</tr>
<tr>
<td>Pappi Color</td>
<td>green</td>
</tr>
<tr>
<td>Ray Flower Color</td>
<td>medium yellow</td>
</tr>
<tr>
<td>Stigma Anthocyanin</td>
<td>absent,</td>
</tr>
<tr>
<td>Leaf Serration</td>
<td>medium</td>
</tr>
<tr>
<td>Leaf Blistering</td>
<td>medium</td>
</tr>
<tr>
<td>Disk Flower Color</td>
<td>orange</td>
</tr>
<tr>
<td>Pollen Color</td>
<td>yellow</td>
</tr>
<tr>
<td>Seed Thickness</td>
<td>thick</td>
</tr>
<tr>
<td>Seed Shape</td>
<td>rounded</td>
</tr>
<tr>
<td>Hypocotyl Anthocyanin</td>
<td>absent,</td>
</tr>
</tbody>
</table>

State expected variants or other varietal information not described above:

None.

T0831LG claims no resistance to the common sunflower diseases and insect pests.

Pioneer Hi-Bred international will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

Certified seeds is first expected to be available in 2017. Please do not publish certified seed production acreage.

Application for protection under the Plant Variety Protection Act will not be made.

Date this application was submitted: March 9, 2017    Date recommended by the VRB: July 21, 2017
## Sunflower

### T1184HM

T1184HM is an oleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross B0345HM/T00B3/B0531LM. B0345HM, T00B3 and B0531LM are all Pioneer proprietary lines. Selections were made for earlier flowering, shorter plant height, oil & fatty acid content and yield, as assessed on hybrid combination. The pedigree method was used in the development of T1184HM. It is a bulk of F8 seed tracing back to a single F7 selection. It is homozygous for dominant fertility restoration of the cms PET 1 cytoplasm.

<table>
<thead>
<tr>
<th>1.</th>
<th>Flowering (relatively early, medium, or late?): late</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Height (relatively short, medium or tall?): medium</td>
</tr>
<tr>
<td>3.</td>
<td>Branching Type: present, only apical</td>
</tr>
<tr>
<td>4.</td>
<td>Distal Leaf Shape: broad triangular to rounded</td>
</tr>
<tr>
<td>5.</td>
<td>Leaf Attitude: high</td>
</tr>
<tr>
<td>6.</td>
<td>Leaf Color: medium green</td>
</tr>
<tr>
<td>7.</td>
<td>Ray Flowers: medium density, broad ovate</td>
</tr>
<tr>
<td>8.</td>
<td>Leaf Serration: fine</td>
</tr>
<tr>
<td>9.</td>
<td>Leaf Blistering: weak</td>
</tr>
<tr>
<td>10.</td>
<td>Ray Flower Color: medium yellow</td>
</tr>
<tr>
<td>11.</td>
<td>Stigma Anthocyanin: absent,</td>
</tr>
<tr>
<td>12.</td>
<td>Pappi Color: green</td>
</tr>
<tr>
<td>13.</td>
<td>Disk Flower Color: orange</td>
</tr>
<tr>
<td>14.</td>
<td>Head (neck) Attitude: vertical</td>
</tr>
<tr>
<td>15.</td>
<td>Pollen Color: yellow</td>
</tr>
<tr>
<td>16.</td>
<td>Seed Shape: elongated</td>
</tr>
<tr>
<td>17.</td>
<td>Receptacle Shape: flat</td>
</tr>
<tr>
<td>18.</td>
<td>Seed Thickness: thin</td>
</tr>
<tr>
<td>19.</td>
<td>Seed Outer Pericarp Color: black</td>
</tr>
<tr>
<td>20.</td>
<td>Hypocotyl Anthocyanin: absent,</td>
</tr>
<tr>
<td>21.</td>
<td>Stripe Appearance: marginal: none or weakly expressed center: none or weakly expressed color:</td>
</tr>
</tbody>
</table>

State expected variants or other varietal information not described above:

None.

4. T1184HM claims no resistance to the common sunflower diseases and insect pests.

5. Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

6. Certified seed is first expected to be available in 2017. Please do not publish certified seed production acreage.

7. Application for protection under the Plant Variety Protection Act will not be made.
**Sunflower**

**T1336HG**

1. T1336HG is an oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0632HG/T0511LG. T0632HG and T0511LG are all Pioneer proprietary lines. Selections were made for earlier flowering, shorter plant height, oil & fatty acid content and yield, as assessed in hybrid combination. The pedigree method was used in the development of T1336HG. It is a bulk of F8 seed tracing back to a single F7 selection. The sterile analog derives from the CMS PET1 cytoplasm following 6 generations of backcrossing. It is homozygous dominant for single head.

2. Hybrids utilizing T1336HG have been tested in and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. **Flowering** (relatively early, medium, or late?): medium  
   **Height** (relatively short, medium or tall?): medium  
   **Branching Type:** absent,  
   **Distal Leaf Shape:** broad triangular to rounded  
   **Leaf Attitude:** medium  
   **Leaf Color:** medium green  
   **Ray Flowers:** medium density, narrow ovate, flat, medium length  
   **Leaf Serration:** fine  
   **Leaf Blistering:** absent or very weak  
   **Ray Flower Color:** medium yellow  
   **Stigma Anthocyanin:** absent,  
   **Pappi Color:** green  
   **Disk Flower Color:** orange  
   **Head (neck) Attitude:** half-turned down with straight stem  
   **Pollen Color:** yellow  
   **Seed Shape:** ovoid wide  
   **Receptacle Shape:** flat  
   **Seed Thickness:** medium  
   **Seed Outer Pericarp Color:** black  
   **Hypocotyl Anthocyanin:** absent,  
   **Stripe Appearance:** marginal; strongly expressed center; strongly expressed color: grey

   State expected variants or other varietal information not described above: None.

4. T1336HG claims no resistance to the common sunflower diseases and insect pests.

5. Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

6. Certified seeds is first expected to be available in 2017. Please do not publish certified seed production acreage.

7. Application for protection under the Plant Variety Protection Act will not be made.

**INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY**

Date this application was submitted: March 9, 2017  
Date recommended by the VRB: July 21, 2017
Sunflower

7PFZD07R

7PFZD07R is a tribenuron-methyl resistant, oleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross U01P6LH1LM/F0998LM. Both U01P6LH1LM & F998LM are Pioneer proprietary lines. U01P6LH1LM is a tribenuron-methyl resistant line used as the donor for herbicide resistance. Selections were made for tribenuron-methyl resistance, medium-early flowering, oil and fatty acid content and yield, as assessed in hybrid combination.

The pedigree method was used in the development of 7PFZD07R. It is a bulk of F8 seed tracing back to a single F7 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.

Hybrids utilizing 7PFZD07R have been tested in and are adapted to the growing regions of the Central, Eastern, and Western Europe.

Flowering (relatively early, medium, or late?): late
Height (relatively short, medium or tall?): medium
Branching Type: present, predominantly apical
Distal Leaf Shape: broad triangular to rounded
Leaf Attitude: high
Leaf Color: medium green
Leaf Serration: medium
Leaf Blistering: weak
Ray Flowers: medium density, narrow ovate
Ray Flower Color: medium yellow
Stigma Anthocyanin: present, medium
Pappi Color: green
Disk Flower Color: orange
Head (neck) Attitude: half-turned down with curved stem
Pollen Color: orange
Pollen Shape: ovate elongated
Receptacle Shape: flat
Seed Shape: ovoid elongated
Seed Thickness: thin
Seed Outer Pericarp Color: black
Hypocotyl Anthocyanin: present, medium
Stripe Appearance: marginal: weakly expressed center: strongly expressed color: grey

State expected variants or other varietal information not described above:

None.

This variety is resistant to tribenuron-methyl herbicide.

Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

Certified seed is first expected to be available in 2017. Please do not publish certified seed production acreage

Application for protection under the Plant Variety Protection Act will not be made.

Date this application was submitted: March 9, 2017
Date recommended by the VRB: July 21, 2017
Sunflower

7PPHS11B

1. 7PPHS11B is a linoleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0428LG/U0761LG. T0428LG and U0761LG are both Pioneer proprietary lines. Selections were made for mid-early flowering, oil content, diseases resistance and yield, as assessed in hybrid combination.

The pedigree method was used in the development of 7PPHS11B. It is a bulk of F8 seed tracing back to a single F7 selection. The sterile analog derives from the CMS PET1 cytoplasm following 4 generations of backcrossing. It is homozygous dominant for single heads.

2. Hybrids utilizing 7PPHS11B have been tested in and are adapted to the growing regions of Central, Eastern and Western Europe.

3. Flowering (relatively early, medium, or late?): late
   Height (relatively short, medium or tall?): tall
   Branching Type: absent,
   Distal Leaf Shape: broad triangular
   Leaf Attitude: medium
   Leaf Color: medium green
   Ray Flowers: medium density, narrow ovate
   Leaf Serration: fine
   Leaf Blistering: weak
   Ray Flower Color: medium yellow
   Stigma Anthocyanin: absent,
   Pappi Color: green
   Disk Flower Color: orange
   Head (neck) Attitude: turned down with straight stem
   Pollen Color: orange
   Seed Shape: ovoid wide
   Receptacle Shape: weakly convex
   Seed Thickness: medium
   Seed Outer Pericarp Color: black
   Hypocotyl Anthocyanin: present,
   Stripe Appearance: marginal: weakly expressed center: none or weakly expressed color: grey

State expected variants or other varietal information not described above:

None

4. 

5. Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

6. Certified seed is first expected to be available in 2017. Please do not publish certified seed production acreage.

7. Application for protection under the Plant Variety Protection Act will not be made.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY
Date this application was submitted: March 9, 2017  Date recommended by the VRB: June 30, 2017
PH1032B is a tribenuron-methyl resistant, linoleic oil type maintainer line developed by Pioneer Hi-Bred International, conversion of U9605LG. PH1032B derives from the cross U9605LG/4/[B0646LG//B0648LG/3/R07447LG]. An FSB family resistant to tribenuron methyl derived from three way cross between Pioneer proprietary elite lines B0646LG, B0648LG and R07447LG was used as donor for herbicide resistance. The process of back cross conversion of U9605LG for tribenuron-methyl resistance started in 2009 in Woodland, California, USA. After 4 generations of back-crossing and three generations of self pollination, the line PH1032B was fixed and lack of segregation for herbicide resistance was confirmed by herbicide qualification testing. The sterile analog derives from the CMS PET1 cytoplasm following 5 generations of back-crossing. It is homozygous dominant for single heads.

Hybrids utilizing PH1032B have been tested in and are adapted to the growing regions of the Northern Plains of the U. S., Central, Eastern, and Western Europe.

1. Flowering (relatively early, medium, or late?): late
   Height (relatively short, medium or tall?): medium
   Branching Type: absent,
   Distal Leaf Shape: broad triangular
   Leaf Attitude: medium
   Leaf Color: light green
   Leaf Serration: medium
   Leaf Blistering: weak
   Ray Flowers: medium density, broad ovate
   Ray Flower Color: medium
   Stigma Anthocyanin: absent,
   Pappi Color: green
   Disk Flower Color: orange
   Pollen Color: orange
   Head (neck) Attitude: half-turned down with straight stem
   Pollen Shape: rounded
   Receptacle Shape: strongly convex
   Seed Shape: medium
   Seed Thickness: medium
   Seed Outer Pericarp Color: black
   Hypocotyl Anthocyanin: absent,
   Stripe Appearance: marginal: strongly expressed center: strongly expressed color: grey

State expected variants or other varietal information not described above:

None.

4. This inbred is resistant to tribenuron-methyl herbicide.

5. Pioneer Hi-Bred International will be responsible for the maintenance of all seed stocks. Foundation seed will be produced in open pollinated field increases in isolation as prescribed by the state where the seed is grown. A maximum of two generations beyond breeder seed will be allowed. Breeder seed will originate from cage isolations or, on occasion, from controlled bagging in nursery rows.

6. Certified seed is first expected to be available in 2017. Please do not publish certified seed production acreage.

7. Application for protection under the Plant Variety Protection Act will not be made.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY

Date this application was submitted: March 9, 2017  Date recommended by the VRB: July 21, 2017
CM 595B is a linoleic type, F6 derived line from the pedigree Wild H. annuus/3*Krasnodar630//RComp/3*CM469, developed using the pedigree and backcross breeding methods by Dr. Walter Dedio, retired sunflower breeder of Agriculture and Agri-Food Canada. Seed was obtained directly from the breeder for use as a parent line, and has not previously been reviewed by AOSCA for variety certification. The line is very early, blooming in 59 days after planting in Glyndon, MN, in 2016.

Seeds obtained from the original breeder was grown in a field isolation in Courtland, MN, offtype plants culled prior to bloom, and A-line plants pollinated by honeybees. The S1 seed was bulked to produce breeder's seed. The isolation field was located in a county that is free of wild H. annuus and H. petiolaris.

The variety is adapted to Canada and similar regions with short growing seasons, as well as for double cropping use in the United States.

State expected variants or other varietal information not described above:

The most prominent characteristic is the line's earliness. The leaves are notably coarsely serrated and the achenes are distinctively ovoid and wide.

No claims are made regarding herbicide, disease, or insect resistance.

Foundation seed increases will be conducted under bags, in cages, or in small field isolations in accordance with the laws and regulations of the location’s governing authority. Seedstocks will be maintained by North Dakota Foundation Seedstocks Project in collaboration with USDA-ARS.

Certified seed will be made available in limited quantities in 2017. Acreage may be published.

No plant variety protection has been or will be applied to this line.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY

Date this application was submitted:  November 30, 2016  Date recommended by the VRB:  May 4, 2017
RHA 476 is a high oleic, F7-derived line from the pedigree RHA 344/NID//NS-H-924/4/RHA 418/RHA 419/3/RO 12-13//RHA274/PRSS/5/R-7009, developed using the pedigree method and selection for high oleic acid, high yield and oil content in testcrosses, and earliness suitable for western Canada and double crop environments in the USA. The line is very early, blooming 60 days after planting in Glyndon, MN, in 2016.

RHA 476 was derived from a single F7 plant. Progeny were grown in an increase nursery under bags, and each plant individually tested for fatty acid composition of the seed oil, a 20 single nucleotide polymorphism assay, and physical examination of plants and seeds. Offtypes for any of the tests were discarded before formation of breeder’s seed.

No claims are made regarding herbicide, disease, or insect resistance.

Foundation seed increases will be conducted under bags, in cages, or in small field isolations in accordance with the laws and regulations of the location’s governing authority. Seedstocks will be maintained by North Dakota Foundation Seedstocks Project in collaboration with USDA-ARS.

Certified seed will be made available in limited quantities in 2017. Acreage may be published.

PVP protection will not be requested. Please do not publish descriptive information in the PVP database.

The most prominent characteristic is the line’s earliness. There tends to be a slight incline to the central head, which is fairly large for a male line. Seeds have no stripes and are brownish in appearance.