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 30, 2018. 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
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08-R0411-3-2 is an Imidazolinone herbicide resistant confectionery restorer line which carries Rf fertility restoration gene. 08-R0411-3-2 was developed by CHS, Inc. using pedigree method of selection from cross between CHS proprietary lines 06-R190/04-R073 // 00R196RT. 08-R0411-3-2 is a fully branched restorer line having predominantly apical branching. 08-R0114-3-2 provides fertility restoration in hybrids when crossed to sterile CMS female inbreds. 08-R0411-3-2 restorer line was developed using pedigree method of selection. In each generation, plants were selected for uniform Imidazolinone herbicide tolerance, seed size, seed length and self compatibility. Selected plants were selfed to advance generations to achieve homozygosity. Plant progenies were tested. Uniform F6 plants were selfed and bulked.

Hybrids utilizing 08-R0411-3-2 restorer line are adapted to the growing region of the Northern Plains of USA and Eastern Europe. 08-R0411-3-2 provides fertility restoration in hybrids when crossed to sterile CMS female inbreds. Hybrids combinations utilizing restorer male line 08-R0411-3-2 have been tested in northern plains of USA and Eastern Europe.

Flowering (relatively early, medium, or late?): medium
Height (relatively short, medium or tall?): medium
Branching Type: present, predominantly apical
Distal Leaf Shape: broad triangular to acuminate
Leaf Attitude: medium
Leaf Color: medium green
Ray Flowers: medium density, fusiform
Leaf Serration: coarse
Leaf Blistering: absent or very weak
Ray Flower Color: orange yellow
Stigma Anthocyanin: present, medium
Longitudinal recurved, long
Pappi Color: green
Disk Flower Color: orange
Head (neck) Attitude: half-turned down with straight stem
Pollen Color: yellow
Seed Shape: elongated
Seed Outer Pericarp Color: dark brown
Hypocotyl Anthocyanin: absent,
Stripe Appearance: marginal: strongly expressed center: weakly expressed color: white

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

08-R0411-3-2 is a confectionery restorer line with RF fertility restoration gene, having resistance to Imidazolinone herbicide. No specific disease or insect resistance is claimed.

Breeder Seed and Foundation Seed will be maintained by CHS, Inc. exclusively. Breeder seed will be increased by hand crossing under bag. Foundation seed increases will be produced from bulked breeder seed in 1-5 acres isolations. Hybrids will only be produced from this foundation seed in accordance to the seed certification standards in the state where it is produced.

The seeds will be offered for sale in 2019

An application will not be made for protection under Plant Variety Protection Act.

Date this application was submitted: Mar 5, 2018
Date recommended by the VRB: Aug 22, 2018
1. 11-R0009 is a confectionary restorer line, having Clearfield® Plus resistance gene developed by BASF which provides resistance to Imidazolinone herbicide. 11-R0009 was developed by by CHS, Inc. using pedigree method of selection from cross of CHS proprietary lines 06-R1264-1-6/BT-R1/04-R011/06-R1263-2. 11-R0009 is a fully branched restorer line having predominantly apical branching. 11-R0009 carries Rf fertility restoration gene and provides fertility restoration in hybrids when crossed to sterile female inbreds.

11-R0009 restorer line was developed using pedigree method of selection. In each generation, plants were selected for uniform Imidazolinone herbicide tolerance, seed size, seed length and self compatibility. Selected plants were selfed to advance generations to achieve homozygosity. Plant progenies were tested. Uniform F6 plants were selfed and bulked.

2. Hybrids utilizing 11-R0009 restorer line are adapted to the growing region of the Northern Plains of USA and Eastern Europe. 11-R0009 provides fertility restoration in hybrids when crossed to sterile CMS female inbreds. Hybrids combinations utilizing restorer male line 11-R0009 have been tested in Northern Plains of USA and Eastern Europe for hybrids.

3. Flowering (relatively early, medium, or late?): very early
   Height (relatively short, medium or tall?): medium
   Branching Type: present, predominantly apical
   Distal Leaf Shape: broad triangular to 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
   Stigma Anthocyanin: present, medium
   Pappi Color: green
   Disk Flower Color: yellow
   Head (neck) Attitude: turned down with straight stem
   Pollen Color: yellow
   Seed Shape: ovoid elongated
   Seed Thickness: medium
   Seed Outer Pericarp Color: dark brown
   Receptacle Shape: weakly convex
   Hypocotyl Anthocyanin: absent.
   Stripe Appearance: marginal: weakly expressed center: none or weakly expressed color: white

State expected variants or other varietal information not described above:

None

4. 11-R0009 is a confectionary restorer line, having Clearfield® Plus resistance gene developed by BASF which provides resistance to Imidazolinone herbicide. No specific disease or insect resistance is claimed.

5. Breeder Seed and Foundation Seed will be maintained by CHS, Inc. exclusively. Breeder seed will be increased by hand crossing under bag. Foundation seed increases will be produced from bulked breeder seed in 1-5 acres isolations. Hybrids will only be produced from this foundation seed in accordance to the seed certification standards in the state where it is produced.

6. The seeds will be offered for sale in 2019

7. An application will not be made for protection under Plant Variety Protection Act.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY
Date this application was submitted: Mar 5, 2018  Date recommended by the VRB: Aug 22, 2018

Association of Official Seed Certifying Agencies 2018 SUNFLOWER VRB
Sunflower

12-R0006-5-1

1. 12-R0006-5-1 is a confectionary restorer line having Su7 resistant gene developed by the DuPont™ which provides tolerance to Tribenuron methyl herbicide. 12-R0006-5-1 was developed by CHS, Inc. using pedigree method of selection from cross of CHS proprietary lines 08-R0252-1/08-R0310-2.
   12-R0006-5-1 is a fully branched restorer line which carries Rf fertility restoration gene. 12-R0006-5-1 provides fertility restoration in hybrids when crossed to sterile CMS female inbreds.
   12-R0006-5-1 restorer line was developed using pedigree method of selection making selections in each generation. Selection was based on Tribenuron methyl herbicide resistance, seed size, seed length and self compatibility. Selected plants were selfed to advance generations to achieve homozygosity. Plant progenies were tested. Uniform F6 plants were selfed and bulked.

2. Hybrids utilizing 12-R0006-5-1 restorer line are adapted to the growing region of the Northern Plains of USA. 12-R0006-5-1 provides fertility restoration in hybrids when crossed to sterile CMS female inbreds. Hybrids combinations utilizing restorer male line 12-R0006-5-1 have been tested in Northern plains of USA.

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: low
   Leaf Color: medium green
   Ray Flowers: dense, narrow ovate
   Ray Flower Color: light yellow
   Stigma Anthocyanin: absent
   Papil Color: green
   Head (neck) Attitude: half-turned down with straight stem
   Seed Shape: ovoid elongated
   Seed Thickness: thick
   Hypocotyl Anthocyanin: absent
   Stripe Appearance: marginal; strongly expressed center: strongly expressed color: white

State expected variants or other varietal information not described above:

None

4. 12-R0006-5-1 is a confectionary restorer line having Su7 resistant gene developed by the DuPont™ which provides tolerance to Tribenuron methyl herbicide. No specific disease or insect resistance is claimed.

5. Breeder Seed and Foundation Seed will be maintained by CHS, Inc. exclusively. Breeder seed will be increased by hand crossing under bag. Foundation seed increases will be produced from bulked breeder seed in 1-5 acres isolations. Hybrids will only be produced from this foundation seed in accordance to the seed certification standards in the state where it is produced.

6. The seeds will be offered for sale in 2019

7. An application will not be made for protection under Plant Variety Protection Act.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY

Date this application was submitted: Mar 5, 2018  Date recommended by the VRB: Aug 22, 2018

Association of Official Seed Certifying Agencies 2018 SUNFLOWER VRB
Sunflower

12-R0104-10

1. 12-R0104-10 is a confectionary restorer line, having Clearfield® Plus resistance gene developed by BASF providing resistance to imidazolinone herbicide. 12-R0104-10 was developed by CHS, Inc. using pedigree method of selection from a cross between CHS proprietary lines 11-R0019/08-R0252-3. 12-R0104-10 is a mono headed restorer line having Rf fertility restoration gene which provides fertility restoration in hybrids when crossed to CMS sterile female inbreds. 12-R0104-10 restorer line was developed using pedigree method of selection. In each generation, plants were selected for uniform imidazolinone herbicide tolerance, seed size, seed length, head size and self compatibility. Selected plants were selfed to advance generations to achieve homozygosity. Plant progenies were tested. Uniform F6 plants were selfed and bulked.

2. Hybrids utilizing 12-R0104-10 restorer line are adapted to the growing region of the Northern Plains of USA. 12-R0104-10 provides fertility restoration in hybrids when crossed to sterile CMS female inbreds. Hybrids combinations utilizing restorer male line 12-R0104-10 have been tested in Northern Plains of USA.

3. Flowering (relatively early, medium, or late?): very early
Height (relatively short, medium or tall?): medium
Branching Type: absent
Distal Leaf Shape: broad triangular
Leaf Attitude: low
Leaf Color: medium green
Leaf Serration: fine
Leaf Blistering: absent or very weak
Ray Flowers: medium density, narrow ovate
Ray Flowers: strongly recurved to back of head, medium length
Stigma Anthocyanin: present, medium
Pappi Color: green
Ray Flower Color: orange yellow
Disk Flower Color: yellow
Head (neck) Attitude: turned down with slightly curved stem
Pollen Color: yellow
Stigma: elongated
Seeds: medium
Seed Outer Pericarp Color: light brown
Hypocotyl Anthocyanin: absent
Receptacle Shape: flat
Receptacle Size: medium
Seed Thickness: medium
Stripe Appearance: marginal, strongly expressed center: strongly expressed color: white

State expected variants or other varietl information not described above:

None

4. 12-R0104-10 is a confectionary restorer line, having Clearfield® Plus resistance gene developed by BASF having resistance to imidazolinone herbicide. No specific disease or insect resistance is claimed.

5. Breeder Seed and Foundation Seed will be maintained by CHS, Inc. exclusively. Breeder seed will be increased by hand crossing under bag. Foundation seed increases will be produced from bulked breeder seed in 1-5 acres isolations. Hybrids will only be produced from this foundation seed in accordance to the seed certification standards in the state where it is produced.

6. The seeds will be offered for sale in 2019

7. An application will not be made for protection under Plant Variety Protection Act.

INFORMATION BELOW FOR AESCA INTERNAL USE ONLY
Date this application was submitted: Mar 5, 2018
Date recommended by the VRB: Aug 22, 2018

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### Sunflower

#### B06-0650

1. **B06-0650** is an Imidazolinone resistant confectionary maintainer line developed by CHS, Inc. using pedigree method of selection from cross of CHS proprietary lines B232//B9112/ B911/PR-6.

   B06-0650 line is a homozygous dominant for single head which maintain the sterile analog. The sterile analog drives from CMS PET1 cytoplasm by back crossing for six generations. 

   B06-0650 is a maintainer line which was developed by using pedigree method of selection. In each generation, plants were selected for uniform Imidazolinone herbicide tolerance, the sterile analogous from CMS PETI cytoplasm by back cross for six generations. Selected plants were selfed to advance generations to achieve homozygosity. Plant progenies were tested and uniform F6 plants were selfed and bulked.

2. Hybrids utilizing B06-0650 maintainer line are adapted to the growing region of the Northern Plains of USA and Eastern Europe. B06-0650 maintains sterile analogous when crossed to sterile CMS female inbreds. Hybrids combinations utilizing maintainer line B06-0650 have been tested in USA and Eastern Europe.

3. **Flowering (relatively early, medium, or late?):** medium  
   **Height (relatively short, medium or tall?):** medium  
   **Branching Type:** absent  
   **Distal Leaf Shape:** broad triangular  
   **Leaf Serration:** fine  
   **Leaf Attitude:** medium  
   **Leaf Blistering:** weak  
   **Leaf Color:** medium green  
   **Ray Flower Color:** orange yellow  
   **Ray Flowers:** dense, narrow ovate  
   **Stigma Anthocyanin:** present, weak  
   **Longitudinal Recurved, medium length:**  
   **Pappi Color:** green  
   **Disk Flower Color:** yellow  
   **Head (neck) Attitude:** half-turned down with straight stem  
   **Pollen Color:**  
   **Seed Shape:** ovoid wide  
   **Receptacle Shape:** weakly convex  
   **Seed Thickness:** thick  
   **Seed Outer Pericarp Color:** dark brown  
   **Hypocotyl Anthocyanin:** absent  
   **Stripe Appearance:** marginal: strongly expressed center: strongly expressed color: white  

4. **B06-0650** is a confectionary maintainer line having resistance to Imidazolinone herbicide. No specific disease or insect resistance is claimed.

5. **Breeder Seed and Foundation Seed** will be maintained by CHS, Inc. exclusively. **Breeder seed will be increased by hand crossing under bag. Foundation seed increases will be produced from bulked breeder seed in 1-5 acres isolations. Hybrids will only be produced from this foundation seed in accordance to the seed certification standards in the state where it is produced.

6. **Seed will be offered for sale in 2019**

7. **An application will not be made for protection under Plant Variety Protection Act.**

**INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY**

Date this application was submitted: **Mar 5, 2018**  
Date recommended by the VRB: **Jul 23, 2018**

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Sunflower

B08-1180-4

1. B08-1180-4 is an Imidazolinone resistant confectionary maintainer line developed by CHS, Inc. It was developed by using pedigree method of selection from cross of CHS proprietary lines B137/B20-1997-2-1/B05-074.

B08-1180-4 line is a homozygous dominant for single head which maintain the sterile analog. The sterile analog drives from CMS PET1 cytoplasm by back crossing for six generations.

B08-1180-4 maintainer line was developed using pedigree method of selection. In each generation, plants were selected for uniform Imidazolinone herbicide tolerance, seed size, seed length, head size and self compatibility. Selected plants were selfed to advance generations to achieve homozygosity. Plant progenies were tested. Uniform F6 plants were selfed and bulked.

2. Hybrids utilizing B08-1180-4 maintainer line are adapted to the growing region of the Northern Plains of USA. B08-1180-4 maintains sterile analog when crossed to sterile CMS female inbreds. Hybrids combinations utilizing maintainer female lines have been tested in northern plains of USA.

3. Flowering (relatively early, medium, or late?): medium
   Height (relatively short, medium or tall?): medium
   Branching Type: absent.
   Distal Leaf Shape: narrow triangular to broad triangular
   Leaf Attitude: medium
   Leaf Color: medium green
   Ray Flowers: sparse, broad ovate
   Ray Flower Color: light yellow
   Leaf Serration: medium
   Leaf Blistering: strong
   Stigma Anthocyanin: absent,
   Pappi Color: green
   Disk Flower Color: yellow
   Head (neck) Attitude: turned down with straight stem
   Pollen Color: weakly convex
   Seed Shape: ovoid elongated
   Receptacle Shape: weakly convex
   Seed Thickness: thick
   Seed Outer Pericarp Color: dark brown
   Hypocotyl Anthocyanin: absent,
   Stripe Appearance: marginal, strongly expressed center; weakly expressed color: white

State expected variants or other varietal information not described above:

None

4. B08-1180-4 is a confectionary maintainer line having resistance to Imidazolinone herbicide. No specific disease or insect resistance is claimed.

5. Breeder Seed and Foundation Seed will be maintained by CHS, Inc. exclusively. Breeder seed will be increased by hand crossing under bag. Foundation seed increases will be produced from bulked breeder seed in 1-5 acres isolations. Hybrids will only be produced from this foundation seed in accordance to the seed certification standards in the state where it is produced.

6. Seed will be offered for sale in 2019

7. An application will not be made for protection under Plant Variety Protection Act.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY
Date this application was submitted: Mar 5, 2018 Date recommended by the VRB: Jul 23, 2018

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**Sunflower**

**B08-1439-1**

1. B08-1439-1 is a confectionary maintainer line having Su7 resistant gene developed by the DuPont™ which provides tolerance to Tribenuron methyl herbicide. B08-1439-1 is also resistant to rust disease caused by *Puccinia helianthi*. B08-1439-1 was developed by CHS, Inc. using pedigree method of selection from the cross of CHS proprietary lines B03-0060-2/B08-0302. B08-1439-1 line is a homozygous dominant for single head which maintain the sterile analog. The sterile analog drives from CMS PET1 cytoplasm by back crossing for six generations. B08-1439-1 maintainer line was developed by using pedigree method of selection. In each generation, plants were selected for uniform Tribenuron methyl herbicide tolerance, seed size, seed length, head size, resistance to rust disease and self compatibility. Selected plants were selfed to advance generations to achieve homozygosity. Plant progenies were tested. Uniform F6 plants were selfed and bulked.

2. Hybrids utilizing B08-1439-1 maintainer line are adapted to the growing region of the Northern Plains of USA. B08-1439-1 maintains sterile analog when crossed to sterile CMS female inbreds. Confectionery sunflower hybrid combinations utilizing B08-1439-1 female lines have been tested in northern plains of USA.

3. Flowering (relatively early, medium, or late?): medium  
   Height (relatively short, medium or tall?): medium  
   Branching Type: absent  
   Distal Leaf Shape: broad triangular  
   Leaf Attitude: medium  
   Leaf Serration: medium  
   Leaf Blistering: weak  
   Leaf Color: medium green  
   Ray Flowers: medium density, narrow ovate  
   Ray Flower Color: medium yellow  
   Stigma Anthocyanin: absent  
   Undulated, medium length  
   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: strongly convex  
   Seed Thickness: thick  
   Seed Outer Pericarp Color: dark brown  
   Hypocotyl Anthocyanin: absent  
   Stripe Appearance: marginal; strongly expressed center; weakly expressed color; white  

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

4. B08-1439-1 is a confectionary maintainer line having Su7 resistant gene developed by the DuPont™ which provides tolerance to Tribenuron methyl herbicide. B08-1439-1 is tolerant to rust disease caused by *Puccinia helianthi*. B08-1439-1 claims no resistance to other diseases and insect-pests.

5. **Breeder Seed and Foundation Seed will be maintained by CHS, Inc. exclusively.** Breeder seed will be increased by hand crossing under bag. Foundation seed increases will be produced from bulked breeder seed in 1-5 acres isolations as prescribed by the seed certification standards in the state. Hybrids will only be produced from this foundation seed in accordance to the seed certification standards in the state where it is produced.

6. Seed will be offered for sale in 2019

7. An application will not be made for protection under Plant Variety Protection Act.

**INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY**

Date this application was submitted: Mar 5, 2018  
Date recommended by the VRB: Jul 23, 2018

Association of Official Seed Certifying Agencies  
2018 SUNFLOWER VRB
**Sunflower**

**KHM3010B**

KHM3010B is a high oleic, imidazolinone resistant, oilseed maintainer line developed by the pedigree method of selection from the cross SA944B/SA9768B. Both SA944B and SA9768B are proprietary high oleic, imidazolinone resistant maintainers that have been described and previously approved by the NSVRB.

The pedigree method of selection was used for the development of KHM3010B. 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 KHM3010B are adapted to major sunflower growing regions of North America, and SE Europe: the hybrids will be primarily for vegetable oil.

| Flowering (relatively early, medium, or late?) | medium |
| Height (relatively short, medium, or tall?) | tall |
| Branching Type | absent, only basal |
| Distal Leaf Shape | broad triangular |
| Leaf Attitude | low |
| Leaf Color | dark green |
| Ray Flowers | medium density, broad ovate |
| Disk Flower Color | yellow |
| Pollen Color | yellow |
| Receptacle Shape | flat |
| Seed Outer Pericarp Color | black |
| Stripe Appearance | marginal: none or weakly expressed center; none or weakly expressed color: black |

| Leaf Serration | very coarse |
| Leaf Blistering | absent or very weak |
| Ray Flower Color | light yellow |
| Stigma Anthocyanin | absent, |
| Pappi Color | green |
| Head (neck) Attitude | half-turned down with curved stem |
| Seed Shape | ovoid elongated |
| Seed Thickness | thin |
| Hypocotyl Anthocyanin | absent, |

State expected variants or other varietal information not described above:

None.

KHM3010B is resistant to imidazolinone herbicide, and Downy mildew races that are controlled by the PL6 gene.

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 the production of foundation seed. Isolation and other requirements will be in accordance with the seed certification regulations of the state where it is produced.

2018, do not publish production acreage.

INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY

Date this application was submitted: **Mar 6, 2018**

Date recommended by the VRB: **Jul 12, 2018**

Association of Official Seed Certifying Agencies  2018 SUNFLOWER VRB
## Sunflower

**KHM3011B**

KHM3011B is a high oleic, imidazolinone resistant, oilseed maintainer line developed by the pedigree method of selection from the cross SA970B/SA6835B//SA878B. SA970B, SA6835B, and SA878B are proprietary maintainers that have been described and previously approved by the NSVRB.

The pedigree method of selection was used for the development of KHM3011B. 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.

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

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

### Branching Type
- **absent, only basal**

### Distal Leaf Shape
- **broad triangular**

### Leaf Attitude
- **low**

### Leaf Color
- **medium green**

### Ray Flowers
- **medium density, broad ovate**

### Disk Flower Color
- **yellow**

### Pollen Color
- **yellow**

### Receptacle Shape
- **flat**

### Seed Outer Pericarp Color
- **black**

### Stripe Appearance
- **marginal: none or weakly expressed center: none or weakly expressed color: black**

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

KHM3011B is resistant to imidazolinone herbicide, and Downy mildew races that are controlled by the PL6 gene.

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 the production of foundation seed. Isolation and other requirements will be in accordance with the seed certification regulations of the state where it is produced.

2018, do not publish production acreage.

Date this application was submitted: **Mar 6, 2018**

Date recommended by the VRB: **Jul 12, 2018**
THM4201R is a high oleic, imidazolinone resistant, oilseed restorer line developed by the pedigree method of selection from the cross 6301R/6258R. Both 6301R and 6258R are proprietary Nuseed Americas Inc. lines.

The pedigree method of selection was used for the development of THM4201R. 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.

THM4201R is resistant to imidazolinone herbicide.

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 the production of foundation seed. Isolation and other requirements will be in accordance with the seed certification regulations of the state where it is produced.

2018, do not publish production acreage.
Sunflower

**7PFVG77B**

1. **7PFVG77B** is a linoleic oil type, tribenuron-methyl resistant, maintainer line developed by Pioneer Hi-Bred International that derives from the cross U0954LG/U1052SULG. Both U0954LG & U1052SULG are Pioneer proprietary lines. U1052SULG is a tribenuron-methyl resistant line used as the donor for herbicide resistance. Selections were made for tribenuron-methyl resistance, shorter plant stature, earlier flowering and yield, as assessed in hybrid combination. The pedigree methods was used in the development of 7PFVG77B. 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 7PFVG77B have been tested in and are adapted to the growing regions of Central, Eastern, and Western Europe.

3. | Flowering (relatively early, medium, or late?): | early |
   | Height (relatively short, medium or tall?): | medium |
   | Branching Type: | absent, |
   | Distal Leaf Shape: | broad triangular |
   | Leaf Attitude: | high |
   | Leaf Color: | medium green |
   | Ray Flowers: | dense, narrow ovate, longitudinal recurved, medium length |
   | Disk Flower Color: | orange |
   | Pollen Color: | yellow |
   | Receptacle Shape: | weakly convex |
   | Seed Outer Pericarp Color: | black |
   | Stripe Appearance: | marginal: strongly expressed center: none or weakly expressed color: grey |

4. None

5. This variety is resistant to tribenuron-methyl herbicide.

6. 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.

7. Certified seed is first expected to be available in 2018. 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: **Mar 7, 2018**  Date recommended by the VRB: **Jul 12, 2018**
Sunflower

7PGQF84R

7PGQF84R is a linoleic oil type, tribenuron-methyl resistant, restorer line developed by Pioneer Hi-Bred International that derives from the cross U09SKSULM/U11TAIMLM. Both U09SKSULM & U11TAIMLM are all Pioneer proprietary lines. U09SKSULM is a tribenuron-methyl resistant line used as the donor for herbicide resistance. Selections were made for tribenuron-methyl resistance, shorter plant stature, earlier flowering and yield, as assessed in hybrid combination. The pedigree methods was used in the development of 7PGQF84R. 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.

Hybrids utilizing 7PGQF84R 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, predominantly apical
Distal Leaf Shape: broad triangular to rounded
Leaf Attitude: high
Leaf Color: medium green
Leaf Serration: fine
Leaf Blisterring: weak
Ray Flowers: medium density, narrow ovate
Longitudinal recurved, medium length
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: yellow
Seed Shape: ovoid elongated
Receptacle Shape: strongly convex
Seed Thickness: medium
Hypocotyl Anthocyanin: present, medium
Stripe Appearance: marginal: none or weakly expressed center: none or weakly 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 2018. 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: Mar 7, 2018  Date recommended by the VRB: Jul 12, 2018
7PMXE72R is a linoleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross U01P6LH1LM/U09KJLM. Both U01P6LH1LM & U09KJLM 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 7PMXE72R. It is a bulk of F7 seed tracing back to a single F6 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.

Hybrids utilizing 7PMXE72R have been tested in and are adapted to the growing regions of Central, Eastern, and Western Europe.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Details</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>present, overall</td>
</tr>
<tr>
<td>Distal Leaf Shape</td>
<td>broad triangular</td>
</tr>
<tr>
<td>Leaf Attitude</td>
<td>high</td>
</tr>
<tr>
<td>Leaf Color</td>
<td>dark 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>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: 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>turned down with straight stem</td>
</tr>
<tr>
<td>Seed Shape</td>
<td>ovoid elongated</td>
</tr>
<tr>
<td>Seed Thickness</td>
<td>medium</td>
</tr>
<tr>
<td>Hypocotyl Anthocyanin</td>
<td>present, medium</td>
</tr>
</tbody>
</table>

State expected variants or other varietal information not described above:

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 2018. Please do not publish certified seed production acreage.

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

7PBNQ89R

1. 7PBNQ89R is a tribenuron-methyl resistant, linoleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross PH5000R/T1074LM. PH5000R and T1074LM are Pioneer proprietary lines. PH5000R 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 content and yield, as assessed in hybrid combination. The pedigree method was used in the development of 7PBNQ89R. It is a bulk of F7 seed tracing back to a single F6 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.

2. Hybrids utilizing 7PBNQ89R have been tested 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: present, predominantly apical
   Distal Leaf Shape: broad triangular to rounded
   Leaf Attitude: medium
   Leaf Color: medium green
   Ray Flowers: medium density, narrow ovate
   flat, medium length
   Disk Flower Color: orange
   Pollen Color: yellow
   Receptacle Shape: strongly convex
   Seed Outer Pericarp Color: medium brown
   Stripe Appearance: marginal: none or weakly expressed center: none or weakly expressed color: brown

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

4. This variety 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 2018. 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: Mar 7, 2018  Date recommended by the VRB: Jun 12, 2018

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Sunflower

7PEQD61R

7PEQD61R is a tribenuron-methyl resistant, high oleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross B0345JB3HM/T0989HM. B0345JB3HM and T0989HM are Pioneer proprietary lines. B0345JB3HM is a tribenuron-methyl resistant line used as the donor for herbicide resistance. Selections were made for tribenuron-methyl resistance, fatty acid content, earlier flowering, shorter stature and yield, as assessed in hybrid combination. The pedigree method was used in the development of 7PEQD61R. It is a bulk of F7 seed tracing back to a single F6 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.

Hybrids utilizing 7PEQD61R have been tested 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?): medium
Branching Type: present, predominantly apical
Distal Leaf Shape: broad triangular to rounded
Leaf Attitude: medium
Leaf Color: light green
Ray Flowers: medium density, fusiform
Ray Flower Color: orange
Pappi Color: green
Disk Flower Color: yellow
Head (neck) Attitude: turned down with straight stem
Pollen Color: orange
Seed Shape: elongated
Seed Thickness: thin
Receptacle Shape: strongly convex
Seed Outer Pericarp Color: medium brown
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:

None

This variety is resistant to tribenuron-methyl herbicide.

Certified seed is first expected to be available in 2018. 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: Mar 7, 2018
Date recommended by the VRB: Jun 12, 2018
Sunflower

7PJQS48B

1. **7PJQS48B** is a tribenuron-methyl resistant, linoleic oil type, maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0514LG/B0701LG. T0514LG and B0701LG are Pioneer proprietary lines. B0701LG is a tribenuron-methyl resistant line used as the donor for herbicide resistance. Selections were made for tribenuron-methyl resistance, shorter plant stature, earlier flowering and yield, as assessed in hybrid combination. The pedigree method was used in the development of 7PJQS48B. 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 7PJQS48B have been tested 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?): | very 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: | weak     |
| Ray Flowers: | medium density, fusiform          |
| 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: | deformed     |
| 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

4. This variety 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 2018. 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: Mar 7, 2018  Date recommended by the VRB: Jun 12, 2018
7PMZW93R is an linoleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross U07VFBM/B0533LM/J9893BM. B0533LM, J9893BM and U07VFBM are all Pioneer proprietary lines. Selections were made for striped seed, earlier flowering, shorter plant height, low oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of 7PMZW93R. It is a bulk of F7 seed tracing back to a single F6 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.

Hybrids utilizing 7PMZW93R have been tested 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?): medium
Branching Type: present, predominantly apical
Distal Leaf Shape: broad triangular
Leaf Attitude: high
Leaf Color: medium green
Ray Flowers: medium density, broad ovate
Disk Flower Color: orange
Pollen Color: yellow
Receptacle Shape: weakly convex
Seed Outer Pericarp Color: black
Stripe Appearance: marginal: strongly expressed center: strongly expressed color: white

Leaf Serration: medium
Leaf Blistering: weak
Ray Flower Color: medium yellow
Stigma Anthocyanin: present, strong
Pappi Color: green
Head (neck) Attitude: vertical
Seed Shape: ovate elongated
Hypocotyl Anthocyanin: absent

State expected variants or other varietal information not described above:

None

7PMZW93R 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 seed is first expected to be available in 2018. 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: Mar 7, 2018
Date recommended by the VRB: Jun 12, 2018
Sunflower

7PNCD67B

7PNCD67B is a tribenuron-methyl resistant, high oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the backcross B0632HG/5*T0514LG. B0632HG and T0514LG are Pioneer proprietary lines. B0632HG 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 7PNCD67B. 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 7PNCD67B have been tested 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?): early
Height (relatively short, medium or tall?): medium
Branching Type: absent,
Distal Leaf Shape: broad triangular to rounded
Leaf Serration: medium
Leaf Attitude: high
Leaf Blistering: weak
Leaf Color: light green
Ray Flower Color: medium yellow
Ray Flowers: medium density, narrow ovate
Pappi Color: orange
Disk Flower Color: yellow
Stigma Anthocyanin: absent,
Head (neck) Attitude: turned down with straight stem
Pollen Color: yellow
Seed Shape: ovoid wide
Seed Thickness: medium
Receptacle Shape: strongly convex
Hypocotyl Anthocyanin: absent,
Seed Outer Pericarp Color: black
ApplicationContext: marginal: strongly expressed center: weakly 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 2018. 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: Mar 7, 2018
Date recommended by the VRB: Jul 13, 2018
**Sunflower**

### 7PVCD71B

7PVCD71B is a linoleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross J9848BG/T0511LG. J9848BG and T0511LG are Pioneer proprietary lines. Selections were made for striped seed, shorter plant stature, earlier flowering, oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of 7PVCD71B. 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 7PVCD71B have been tested and are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

#### 3.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
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</tr>
<tr>
<td>Height (relatively short, medium or tall?)</td>
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<tr>
<td>Branching Type</td>
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<td>Distal Leaf Shape</td>
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</tr>
<tr>
<td>Leaf Attitude</td>
<td>high</td>
</tr>
<tr>
<td>Leaf Color</td>
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</tr>
<tr>
<td>Leaf Serration</td>
<td>medium</td>
</tr>
<tr>
<td>Leaf Blistering</td>
<td>medium</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>present, medium</td>
</tr>
<tr>
<td>Pappi Color</td>
<td>green</td>
</tr>
<tr>
<td>Disk Flower Color</td>
<td>orange</td>
</tr>
<tr>
<td>Pollen Color</td>
<td>yellow</td>
</tr>
<tr>
<td>Head (neck) Attitude</td>
<td>turned down with straight stem</td>
</tr>
<tr>
<td>Seed Shape</td>
<td>ovoid wide</td>
</tr>
<tr>
<td>Seed Thickness</td>
<td>medium</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>Hypocotyl Anthocyanin</td>
<td>absent,</td>
</tr>
<tr>
<td>Stripe Appearance</td>
<td>marginal: strongly expressed center: strongly expressed color: white</td>
</tr>
</tbody>
</table>

State expected variants or other varietal information not described above:

**None**

#### 4.

This variety 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 2018. 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: **Mar 7, 2018** Date recommended by the VRB: **Jun 12, 2018**
Sunflower

7PVVA96R

7PVVA96R is a linoleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross PH5015R/T0866LM. PH5015R and T0866LM 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 7PVVA96R. It is a bulk of F7 seed tracing back to a single F6 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.

Hybrids utilizing 7PVVA96R have been tested 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?): late
Height (relatively short, medium or tall?): medium
Branching Type: present, overall
Distal Leaf Shape: broad triangular to rounded
Leaf Attitude: medium
Leaf Color: dark green
Leaf Serration: fine
Leaf Blistering: weak
Ray Flowers: medium density, narrow ovate
Stigma Anthocyanin: absent
Ray Flower Color: medium yellow
Pappi Color: green
Disk Flower Color: orange
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: black
Hypocotyl Anthocyanin: absent
Stripe Appearance: marginal: none or weakly expressed center: weakly expressed color: brown

State expected variants or other varietal information not described above:

None

7PVVA96R 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 seed is first expected to be available in 2018. 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: Mar 7, 2018
Date recommended by the VRB: Jun 12, 2018
Sunflower

7PWVZ88B

1. 7PWVZ88B is a tribenuron-methyl resistant, high oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross B0632HG/PH1023B. Both B0632HG and PH1023B are all Pioneer proprietary lines, tribenuron-methyl resistant and high oleic oil type. Selections were made for earlier flowering, shorter plant height, oil and fatty acid content and yield, as assessed in hybrid combination.

   The pedigree method was used in the development of 7PWVZ88B. 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 7PWVZ88B have been tested 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?): medium
   Branching Type: absent,
   Distal Leaf Shape: broad triangular to rounded
   Leaf Attitude: high
   Leaf Color: medium green
   Leaf Serration: fine
   Leaf Blistering: absent or very weak
   Ray Flowers: medium density, fusiform
   Ray Flower Color: medium green
   Stigma Anthocyanin: absent,
   Pappi Color: green
   Disk Flower Color: orange
   Head (neck) Attitude: turned down with slightly curved stem
   Pollen Color: yellow
   Seed Shape: ovoid wide
   Receptacle Shape: strongly convex
   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 variety 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 2018. 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: Mar 7, 2018  Date recommended by the VRB: Jun 12, 2018
**Sunflower**

**T1312LG**

1. **T1312LG** is a linoleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0511LG/U0586LG. T0511LG and U0586LG are Pioneer proprietary lines. Selections were made for shorter plant stature, earlier flowering, oil content and yield, as assessed in hybrid combination.

The pedigree method was used in the development of T1312LG. 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 T1312LG have been tested 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?):** early  
   **Height (relatively short, medium or tall?):** medium  
   **Branching Type:** absent,  
   **Distal Leaf Shape:** broad triangular  
   **Leaf Attitude:** high  
   **Leaf Color:** light green  
   **Ray Flowers:** medium density, narrow ovate  
   **Disk Flower Color:** orange  
   **Pollen Color:** yellow  
   **Receptacle Shape:** weakly convex  
   **Seed Outer Pericarp Color:** black  
   **Stripe Appearance:** marginal: weakly expressed center: strongly expressed color: grey

   - **Leaf Serration:** medium  
   - **Leaf Blistering:** weak  
   - **Ray Flower Color:** medium yellow  
   - **Stigma Anthocyanin:** absent,  
   - **Pappi Color:** green  
   - **Head (neck) Attitude:** 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

4. This variety 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 2018. please do not publish certified seed production acreage.

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

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**INFORMATION BELOW FOR AOSCA INTERNAL USE ONLY**

Date this application was submitted: **Mar 7, 2018**  
Date recommended by the VRB: **Jun 12, 2018**
### Sunflower

**7PZSJ18R**

1. **7PZSJ18R** is a tribenuron-methyl resistant, linoleic oil type restorer line developed by Pioneer Hi-Bred International that derives from the cross F0968LM&U06TNLH1LM. Both, F0968LM and U06TNLH1LM are Pioneer proprietary lines. U06TNLH1LM is a tribenuron-methyl resistant line used as the donor for herbicide resistance. Selections were made for tribenuron-methyl resistance, medium flowering, medium plant height, oil content and yield, as assessed in hybrid combination.

   The pedigree method was used in the development of **7PZSJ18R**. It is a bulk of F7 seed tracing back to a single F6 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.

2. Hybrids utilizing **7PZSJ18R** have been tested in and are adapted to the growing regions of the Central, Eastern, and Western Europe.

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 to rounded |
   | Leaf Attitude: | low |
   | Leaf Color: | medium green |
   | Ray Flowers: | medium density, fusiform |
   | Disk Flower Color: | orange |
   | Pollen Color: | orange |
   | Receptacle Shape: | weakly convex |
   | Seed Outer Pericarp Color: | black |
   | Stripe Appearance: | marginal: weakly expressed center: strongly expressed color: grey |

   **Leaf Serration:** fine
   **Leaf Blistering:** medium
   **Ray Flower Color:** orange yellow
   **Stigma Anthocyanin:** absent
   **Pappi Color:** 
   **Head (neck) Attitude:** half-turned down with straight stem
   **Seed Shape:** ovoid elongated
   **Seed Thickness:** thin
   **Hypocotyl Anthocyanin:** absent

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

4. This variety 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 2018. Please do not publish certified seed production acreage.

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

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**INFORMATION BELOW FOR AOS AL USE ONLY**

Date this application was submitted: Mar 6, 2018  
Date recommended by the VRB: Jun 13, 2018