

A REPORT OF THE  
**NATIONAL SUNFLOWER VARIETY REVIEW BOARD**



**ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES**

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NATIONAL SUNFLOWER VARIETY REVIEW BOARD  
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The Association of Official Seed Certifying Agencies (AOSCA), National Sunflower Variety Review Board (NSFVRB), reviewed the following varieties on April 11, 2006, in Fargo, North Dakota. 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 state in which the seed is grown.

All variety information, including descriptions, claims and research data to support any claim was supplied to the NSFVRB by the applicants. The NSFVRB makes judgment regarding recommendation of varieties for inclusion in certification based on the data supplied. Beyond that, the NSFVRB 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 detail regarding the NSFVRB can be obtained from:

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Respectively submitted,

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National Sunflower Variety Review Board

Association of Official Seed Certifying Agencies  
National Sunflower Variety Review Board

SUNFLOWER VARIETIES RECOMMENDED FOR CERTIFICATION 2006

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## 25041

25041 is a high-oleic, downy-mildew (new races) resistant B line developed by Advanta from a B-line population (Donor89). Pedigree method was followed along with selection for good agronomics, earliness, oil content and PET1 sterility maintenance. The general and specific combining ability was tested in F5 and F6, respectively. 25041 is the B line of the female 15041 which produces early and mid-early IMI tolerant hybrids, adapted to short and mid season growing areas in the U.S. and Canada. It is an inbred line in normal cytoplasm and a sterility maintainer for cms PET1 sterility. In comparison with HA89, 25041 is 3 days earlier in blooming and 4 days earlier in maturity. It is 15 cm shorter and has 2 more leaves. The leaves are similar in size to HA89, narrower than long, cordate, acuminate, auriculate, finely serrate, with intermediate indentation, and horizontal attitude, smooth surface and of green color. Ray flowers are yellow, slightly longer and wider than the check. The disk flowers and pollen are yellow and pappi are green. The head is 2.5 cm larger in diameter, convex and ascending at maturity, containing more seeds (60) than HA89. Seeds are black with narrow dark-gray stripes, broadly ovate, 2 mm longer and heavier by 1.5g/100s, similar as hull percentage and almost 1% higher in oil content. Its oleic level is over 90%. It is more resistance to lodging, neck breakage, and Phomopsis. Its hybrids are early or mid-early, so adapted to short and mid season sunflower growing areas of the North Central part of the U.S. and Canada, especially on weedy grounds. The primary uses of the hybrids produced with 25041 are mid-oleic (Nusun) and high-oleic oils. Breeder seed is produced under bags and Foundation seed under cages or isolated plots. Production is conducted according to the seed certification regulations. If 25041 is accepted by official certifying agencies, certified seed will be first offered for sale in 2007. For present, application will not be made for P.V.P.

### **35041**

35041 is a sunflower elite restorer line developed by Advanta Pacific, LLC, by selfing in a single-cross hybrid between two Advanta experimental R lines. Pedigree method was followed, along with selection for pollen fertility restoration, downy mildew resistance (Race 4), Phomopsis tolerance, and good agronomics. A single F6 plant was selfed to produce the first Breeder seed of 35041. This line is a recessive branched restorer (with large central head), homozygous for the Rf1 gene in PET 1 cytoplasm. It is a very good combiner, producing high yielding medium-early hybrids. In comparison with RHA 801, 35041 is 5 days later in blooming and 6 days later in maturity, 5 cm taller and has 2 fewer leaves. The leaves are similar in size, wider than long, cordate, acuminate, auriculate, finely serrate, with intermediary indentations, ascending attitude, crinkled surface and of green color. Ray flowers are yellow and pappi green. The central head is 6.0 cm larger, convex and ascending at maturity, containing 255 more seeds than RHA801. Seeds are brown with yellow edge, narrowly ovate, similar in length, and heavier. In comparison with RHA801, 35041 is resistant to downy mildew (Race 4) and is more resistant to lodging, neck breakage, and Phomopsis. Hull percentage is similar to RHA801, and oil content around 3.5% higher. The sunflower line 35041 and its hybrids are medium-early in maturity, so adapted to short season sunflower growing areas of the U.S., especially where infection of new races of downy mildew resistance is a main concern. The primary uses of the hybrids produced with 35041 are conventional and NuSun (mid-oleic) oils. Breeder seed is produced under bags and Foundation and Basic seed are increased under cages or isolated plots. Production is conducted according to the seed certification regulations. If 35041 is accepted by official certifying agencies, certified seed will be first offered for sale in 2007. For present, application will not be made for P.V.P.

### 35042

The sunflower line 35042 was developed from a cross between two Advanta experimental R lines. Single seed descent (3 generations) method was followed along with selection for restoration, oil content, and downy-mildew (Race 2) resistance. F4 offspring were tested for combining ability. A single F6 plant from a selected offspring was selfed to produce next generations of 35042. It is a recessive branching restorer, homozygous for RF1 gene in CMS PET1 cytoplasm. It is fully branched with central head. Most of its hybrids are early and mid-early. In comparison with RHA274, it is 5 days earlier in flowering and 6 days earlier in maturity. It is 36 cm shorter, and shows 5 fewer leaves. The leaves are slightly smaller, wider than long, cordate, acuminate, truncate, medium serrate, with intermediate indentation, descending, with rather crinkled surface, and light green (lighter than RHA274). The petiole is about 3 cm shorter. Ray flowers are yellow, slightly shorter and narrower than RHA274. The anthocyanin is present on stigmas. The disk flower and pollen are yellow, and the pappi is green. The head is 1.5 cm smaller in diameter than RHA274 (1.5 cm in, flat and of ascending attitude by maturity. Seed are near solid black color, and are close to RHA274 in size and form, but they are smaller and lighter (-1.0gr/100 seed). 35042 is resistant to downy-mildew (Race 2) and to Phomopsis. It shows better resistance to lodging and neck breakage, lower hull percentage (-2%), and higher oil content (8.3%) than RHA274. The sunflower line 35042 and its hybrids are early or mid-early, so well adapted to short and mid-season sunflower growing areas of the North Central U.S. The primary uses of hybrids produced with 35042 are conventional (high linoleic) and NuSun (mid-oleic) oils. Breeder seed is produced under bags, and Foundation and Basic seed is increased under cages or in isolated plots. Production is conducted according to the seed certification regulations. If 35042 is accepted by official certifying agencies, certified seed will be first offered for sale in 2007. For present, application will not be made for P.V.P.

### 35043

35043 is a sunflower restorer line developed by Advanta Pacific, LLC, by incorporating the downy mildew resistance gene PI6 into the elite line AD 35021. The conversion was finalized after 5 backcross generations, followed by three selfing and selection generations. A single BC5F3 selected plant was selfed to produce the first Breeder seed of 35043. The restorer line AD 35021 was developed by selfing in a hybrid between two proprietary R lines (R180/R102). Pedigree method was followed, along with selection for pollen fertility restoration, Phomopsis tolerance, and good agronomics. 35043 is a recessive fully branched restorer, homozygous for the Rf1 gene in PET 1 cytoplasm. It is a very good combiner, producing high yielding hybrids of a large maturity range. It is a restorer line for CMS Pet 1 sterility. In comparison with RHA801, 35043 is 3 days earlier in blooming and 2 days earlier in maturity, 30 cm shorter and has 4 fewer leaves. The leaves are similar in size, wider than long, cordate, acuminate, auriculate, finely serrate, with intermediary indentations, ascending attitude, crinkled surface and of green color. Ray flowers are yellow and pappi green. The central head is similar in size, convex and ascending at maturity, containing a similar amount of seed as RHA801. Seeds are nearly solid black, oblong, similar in length, and heavier. In comparison with RHA274, 35043 is total resistant to downy mildew (Race 4), and is more resistant to lodging, neck breakage, and Phomopsis. Hull percentage is 1% less, and oil content around 4.1% higher than RHA801. 35043 produces hybrids of a large maturity range, are adapted to all growing areas of the U.S., especially where infection of new races of downy-mildew is a serious problem. The primary uses of the hybrids produced with 35043 are conventional and NuSun (mid-oleic) oils. Breeder seed is produced under bags and Foundation and Basic seed are increased under cages or isolated plots. Production is conducted according to the seed certification regulations. If 35043 is accepted by official certifying agencies, certified seed will be first offered for sale in 2007. For present, application will not be made for P.V.P.

### 35044

35044 is a sunflower restorer line developed by Advanta Pacific, LLC, by incorporating the downy mildew resistance gene PI8 into the elite line IS 35330. The conversion was finalized after five backcross generations, followed by three selfing and selection generations. A single BC5F3 selected plant was selfed to produce the first Breeder seed of 35044. The restorer line IS 35330 was developed by selfing in an experimental R line population (PAG 100-5-3-3-1). Pedigree method was followed, along with selection for pollen fertility restoration, Phomopsis tolerance, and good agronomics. This line is a recessive fully branched restorer, homozygous for the Rf1 gene in PET 1 cytoplasm. It is a very good combiner. In comparison with RHA801, 35044 is 4 days later in blooming and 5 days later in maturity, 35 cm shorter and has 2 fewer leaves. The leaves are similar in size, wider than long, cordate, acuminate, auriculate, finely serrate, with intermediary indentations, ascending attitude, crinkled surface and of green color. Ray flowers are yellow and pappi green. The central head is similar in size, convex and ascending at maturity, containing 50 more seeds than RHA801. Seeds are nearly solid black, broadly ovate, similar in length, and heavier. In comparison with RHA801, 35044 is resistant to downy mildew (Race 4), and is more resistant to lodging, neck breakage, and Phomopsis. Hull percentage is similar to RHA801, and oil content around 4.2% higher. The sunflower line 35044 and its hybrids are of a large maturity range, so adapted to all growing areas of the U.S., especially where infection of new races of downy-mildew is a serious concern. The primary uses of the hybrids produced with 35044 are conventional and NuSun (mid-oleic) oils. Breeder seed is produced under bags and Foundation and Basic seed are increased under cages or isolated plots. Production is conducted according to the seed certification regulations. If 35044 is accepted by official certifying agencies, certified seed will be first offered for sale in 2007. For present, application will not be made for P.V.P.

### **35045**

35045 is a sunflower restorer line developed by Advanta Pacific, LLC, by incorporating the downy mildew resistance gene PI8 into the elite line AD 35019. The conversion was finalized after five backcross generations, followed by three selfing and selection generations. A single BC5F3 selected plant was selfed to produce the first Breeder seed of 35045. The restorer line AD 35019 was developed from a cross between two Advanta R lines (551/550). Pedigree method was followed, along with selection for pollen fertility restoration, Phomopsis tolerance, and good agronomics. This line is a recessive top branched restorer, homozygous for the Rf1 gene in PET 1 cytoplasm. It is a very good combiner. In comparison with RHA801, 35045 is 5 days later in blooming and 6 days later in maturity, 18 cm taller and has 5 fewer leaves. The leaves are similar in size, wider than long, cordate, acuminate, auriculate, finely serrate, with shallow indentations, ascending attitude, smooth surface and of green color. Ray flowers are yellow and pappi green. The central head is 8.0 cm larger, convex and ascending at maturity, containing 110 more seeds than RHA801. Seeds are nearly solid black, oblong, 3.3 mm longer, and heavier. In comparison with RHA801, 35045 is resistant to the new downy mildew races 3 and 4, and it is more resistant to lodging, neck breakage, and Phomopsis. Hull percentage is around 1.2% lower, and oil content around 1.9% higher. The sunflower line 35045 and its hybrids are medium to m. late in maturity, so adapted to mid and long season sunflower growing areas of the U.S., especially in areas with severe downy mildew infection. The primary uses of the hybrids produced with 35045 are conventional and NuSun (mid-oleic) oils. Breeder seed is produced under bags and Foundation and Basic seed are increased under cages or isolated plots. Production is conducted according to the seed certification regulations. If 35045 is accepted by official certifying agencies, certified seed will be first offered for sale in 2007. For present, application will not be made for P.V.P.

### **35046**

35046 is a sunflower restorer line developed by Advanta Pacific, LLC, by incorporating the downy mildew resistance gene Pl6 into the elite line IS 32000. The conversion was finalized after 4 backcross generations, followed by three selfing and selection generations. A single BC5F3 selected plant was selfed to produce the first Breeder seed of 35046. The restorer line IS 32000 was developed by selfing in a complex R line population, formed making the following crosses: P1380-2/25330//37180///35000. Pedigree method was followed, along with selection for pollen fertility restoration, Phomopsis tolerance, and good agronomics. This line is a recessive fully branched restorer, homozygous for the Rf1 gene in PET 1 cytoplasm. It is a very good combiner, producing high yielding hybrids. In comparison with RHA801, 35046 is 2 days earlier in blooming and 3 days earlier in maturity, 14 cm shorter and has 5 fewer leaves. The leaves are similar in size, wider than long, cordate, acuminate, auriculate, finely serrate, with intermediary indentations, ascending attitude, crinkled surface and of green color. Ray flowers are yellow and pappi green. The central head is 1 cm wider, convex and ascending at maturity, containing a similar amount of seed as RHA801. Seeds are nearly solid black, broadly ovate, similar in length, and heavier. In comparison with RHA274, 35046 is resistant to downy mildew (Race 4), and is more resistant to lodging, neck breakage, and Phomopsis. Hull percentage is similar to RHA801, and oil content around 4.1% higher. The sunflower line 35046 and its hybrids are of a large maturity range, so adapted to all growing areas of the U.S., especially where infection of new races of downy mildew is a serious problem. The primary uses of the hybrids produced with 35046 are conventional and NuSun (mid-oleic) oils. Breeder seed is produced under bags and Foundation and Basic seed are increased under cages or isolated plots. Production is conducted according to the seed certification regulations. If 35046 is accepted by official certifying agencies, certified seed will be first offered for sale in 2007. For present, application will not be made for P.V.P.

### **35047**

35047 is a high oleic sunflower restorer inbred line developed by Advanta Pacific, LLC. Selection was derived from a cross of 3 Advanta elite restorer lines. Pedigree method was followed, along with selection for pollen fertility restoration, high oleic, high oil content, and desired agronomics. Selection was performed each generation. This line is a recessive branched restorer, homozygous for the Rf1 gene in PET1 sterile cytoplasm. The sunflower line 35047 is a recessive branched restorer, homozygous for Rf1 gene in PET1 sterile cytoplasm, of mid-early maturity. In comparison with RHA274, 35047 is 2 days later in blooming and 3 days later in maturity. It is around 8 cm shorter and has 8 leaves more than RHA274. The leaves are shorter and narrower than RHA274, narrow triangular to broad triangular, acuminate, truncate, medium serrate, with shallow indentation, and ascending attitude, medium crinkled surface and of green color. Ray flowers are orange yellow, shorter and wider than RHA274. The disk flowers and pollen are yellow and pappi are green. Anthocyanin in stigmas is present. The head is 4.8 cm wider than the heads of RHA274, it is convex and horizontal at maturity, containing more seeds than RHA274. Seeds are nearly solid black, narrowly ovate, shorter and heavier than the seeds of RHA274. 35047 shows good resistance to Verticillium wilt, lodging and neck breakage. It has lower hull percentage and higher oil content (+5.1%) than RHA274. The sunflower line 35047 and its hybrids, are considered early and medium-early in maturity, so adapted to short and mid season sunflower growing areas. The primary use of the hybrids produced with 35047 is high oleic and mid oleic (NuSun) oils. Breeder seed is produced under bags, and Foundation and Basic seed is increased under cages or isolated plots. Production is conducted according to the seed certification regulations. For present, application will not be made for P.V.P.

### **35048**

35048 is a sunflower restorer line developed by Advanta Pacific, LLC, by incorporating the downy mildew resistance gene PI8 into the elite line AD 65101. The conversion was finalized after four backcross generations, followed by three selfing and selection generations. A single BC5F3 selected plant was selfed to produce the first Breeder seed of 35048. The restorer line AD 65101 is a confection type sunflower restorer line developed by Advanta from a confection R line population, resulting from 5 confection R entries (including the variety Sundak) in a half diallel cross. Pedigree method was followed, along with selection for pollen fertility restoration, downy mildew resistance (race 4), and good agronomics. A F7 selected sub-line was increased under the bag to produce the first Breeder seed of 35048. This line is a recessive fully branched restorer, homozygous for the Rf1 gene in PET 1 cytoplasm. It is a very good combiner, producing high yielding confection hybrids of different maturities. In comparison with RHA294, 35048 is 2 days earlier in blooming and 3 days earlier in maturity, 35 cm taller and has the same number of leaves. The leaves are similar in size, wider than long, cordate, acuminate, auriculate, finely serrate, with shallow indentations, ascending attitude, smooth surface and of green color. Ray flowers are yellow and pappi green. The central head is 4.0 cm larger, flat and ascending at maturity, containing 40 more seeds than RHA294. Seeds are brownish with white edge, oblong, 6.3 mm longer, and heavier. In comparison with RHA294, 35048 is resistant to downy mildew (races 4), and is more resistant to lodging and neck breakage. Hull percentage is similar to the check. The sunflower line 35048 and most of its hybrids, are considered of early and medium – early maturity, so adapted to short and mid season sunflower growing areas of the U.S., especially where downy mildew is a serious concern. The primary uses of the hybrids produced with 35048 are confection seeds and kernels. Breeder seed is produced under bags and Foundation and Basic seed are increased under cages or isolated plots. Production is conducted according to the seed certification regulations. If 35048 is accepted by official certifying agencies, certified seed will be first offered for sale in 2007. For present, application will not be made for P.V.P.

## 24364

24364 is a high-oleic oil seed sunflower B-line developed by Advanta from a cross between two high oleic inbred lines (60120/B8400-1-1-2). Pedigree method was followed along with selection for good agronomics, oil content, high oleic, and PET1 sterility maintenance. The general and specific combining ability was tested in F5 and F6, respectively. 24364 is the B line of the female 14364 which produces medium and medium-late hybrids, adapted to mid and long season growing areas of the US. It is an inbred line in normal cytoplasm and a sterility maintainer for cms PET1 sterility. Subsequent selections were performed for high oil content and high oleic (over 90%). 24364 is the B line, pollen fertility maintainer of the sterile line 14364 (CMS PET1). In comparison with HA89, 24364 is 3 days later in blooming and 5 days later in maturity. It is 6 cm taller and has 2 more leaves. The leaves are similar in size to HA89, narrower than long, cordate, acuminate, auriculate, finely serrate, with intermediate indentation, and horizontal attitude, smooth surface and of green color. Ray flowers are yellow, slightly longer and wider than the check. The disk flowers and pollen are yellow and pappi are green. The head is 3.5 cm larger in diameter, convex and ascending at maturity, containing 80 more seeds than HA89. Seeds are black with very narrow dark-gray stripes, broadly ovate, 2 mm longer and 1.5g/100s heavier, has 1.8% lower hull percentage and is almost 2% higher in oil content. Its oleic level is over 90%. 24364 is more resistant to lodging, neck breakage, Phomopsis, and rust. 24364 was tested for the main agronomic traits in the sunflower breeding nursery located in Mapleton, ND, in 2001 – 2003. The line 24364 and its hybrids are considered of medium or medium-late maturity, so adapted to mid and long season sunflower growing areas of the US. The primary uses of the hybrids produced with 24364 are mid-oleic (Nusun) and high-oleic oils. Breeder seed is produced under bags, with direct Sunflower Breeder's supervision, and Foundation and Basic seed is produced under cages or in isolated plots. Production is conducted according to the seed certification regulations. If 24364 is accepted by official certifying agencies, certified seed will be first offered for sale in 2007. For present, application will not be made for P.V.P.

### **SA314**

SA314 is a non-oilseed maintainer selected by the pedigree method from the cross D99\*2/7835B. Selection was for uniform plant type, self compatibility, large seed, and downy mildew resistance (race 5). The male sterile component of SA314 has cms PET 1 cytoplasm derived from H. petiolaris (French). The cms designation is SA314A.

Hybrids involving SA314 are adapted to the major sunflower growing regions of North America. Hybrids utilizing SA314 have been tested in Minnesota, North and South Dakota, and Canada. The primary purpose of hybrids developed using SA314 will be for human consumption.

Compared to the public line HA288, SA314 is four days earlier to flower, five days earlier to reach physiological maturity, and similar in height. Leaves of SA314 are larger and darker green in color than leaves of HA288. Heads of SA314 are similar in size to heads of HA288 but are more convex and held more upright than heads of HA288. Seed length of SA314 is similar to HA288 but seed of SA314 is wider and heavier than seed of HA288. Seed color of SA314 is grayer in color than seed of HA288.

Breeders seed will be maintained by Seeds 2000 under bags in nursery rows, 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 according to the seed certification regulations of the state where seed is grown. Certified seed of hybrids using SA314 will be offered for sale in 2007. Application will not be made for PVP.

### **SA321**

SA321 is a non-oilseed maintainer selected by the pedigree method from the cross SA398\*2/7835B. Selection was for uniform plant type, self-compatibility, large seed and downy mildew resistance (race 5). The male sterile component of SA321 has cms PET 1 cytoplasm derived from H. petiolaris (French). The cms designation is SA321A.

Hybrids involving SA321 are adapted to the major sunflower growing regions of North America. Hybrids utilizing SA321 have been tested in Minnesota, North and South Dakota, and Canada. The primary purpose of hybrids developed using SA321 will be for human consumption.

Compared to the public line HA288, SA321 is 2 days later to flower and reach physiological maturity and approximately 30 cm taller in height. Leaves of SA321 are similar in color but larger in size. Heads of SA321 are larger in size and flatter in shape than heads of HA288. Seed of SA321 is larger, longer, and heavier than seed of HA288. Seed color of SA321 is brown and white striped compared to the black and white striped seed of HA288.

Breeders seed will be maintained by Seeds 2000 under bags in nursery rows, 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 according to the seed certification regulations of the state where seed is grown. Certified seed of hybrids using SA321 will be offered for sale in 2007. Application will not be made for PVP.

### **SA354**

SA354 is a non-oilseed maintainer selected by the pedigree method from the cross SA398\*2/P54. Selection was for uniform plant type, self-compatibility, and large seed. The male sterile component of SA354 has cms PET 1 cytoplasm derived from H. petiolaris (French). The cms designation is SA354A.

Hybrids involving SA354 are adapted to the major sunflower growing regions of North and South America. Hybrids utilizing SA354 have been tested in Minnesota, North and South Dakota, and Argentina.

Compared to the public line HA288, SA354 is two days later to flower, three days later to reach physiological maturity, and approximately 23 cm taller in height. Leaves of SA354 are similar in color but larger in size than leaves of HA288. Heads of SA354 are similar in size but flatter in shape than heads of HA288. Seed of SA354 is larger, longer, and heavier than seed of HA288. Seed color of SA354 is similar to that of HA288.

Breeders seed will be maintained by Seeds 2000 under bags in nursery rows 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 according to the seed certification regulations of the state where seed is grown. Certified seed of hybrids utilizing SA354 will be offered for sale in 2007. Application will not be made for PVP.

### **SA360**

SA360 is a non-oilseed maintainer selected by the pedigree method from the cross SA110B/SA65B. Selection was for uniform plant type, self-compatibility, and large seed. The male sterile component of SA360 has cms PET 1 cytoplasm derived from H. petiolaris (French). The cms designation is SA360A.

Hybrids involving SA360 are adapted to the major sunflower growing regions of North and South America. Hybrids utilizing SA360 have been tested in North and South Dakota, and in Argentina.

Compared to the public line HA288, SA360 is 3 days later to flower and 6 days later to reach physiological maturity, and is approximately 25 cm taller in height. Leaves of SA360 are similar in color but larger in size than leaves of HA288. Heads of SA360 are 6 cm larger in size and flatter in shape than heads of HA288. Seed of SA360 is larger, longer, and heavier than seed of HA288. Seed color of SA360 is darker black in color than seed of HA288.

Breeders seed will be maintained by Seeds 2000 under bags in nursery rows, 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 according to the seed certification regulations of the state where seed is grown. Certified seed of hybrids using SA360 will be offered for sale in 2007. Application will not be made for PVP.

### **SA365**

SA365 is a non-oilseed maintainer selected by the pedigree method from the cross SA398B/SA110B. Selection was for uniform plant type, self compatibility, and large seed. The male sterile component of SA365 has cms PET 1 cytoplasm derived from H. Petiolaris (French). The cms designation is SA365A.

Hybrids involving SA365 are adapted to the major sunflower growing regions of North and South America. Hybrids utilizing SA365 have been tested in North and South Dakota, and in Argentina.

Compared to the public line HA288, SA365 is 3 days earlier to flower, similar in days to physiological maturity, and approximately 10 cm shorter in height. Leaves of SA365 are similar in color but larger in size than leaves of HA288. Heads of SA365 are larger in size and flatter in shape than heads of HA288. Seed of SA365 is larger, longer, and heavier than seed of HA288. Seed color of SA365 is similar to that of HA288.

Breeders seed will be maintained by Seeds 2000 under bags in nursery rows, 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 according to the seed certification regulations of the state where seed is grown. Certified seed of hybrids using SA365 will be offered for sale in 2007. Application will not be made for PVP.

### **SA545R**

SA545R is an oilseed restorer selected by the pedigree method from the cross SD342/2/RHA801/KSW. Selection was for uniform plant type, self-compatibility, high oil content, and resistance to imazamox herbicide. SA545R has upper stem branching controlled by a recessive gene, and genes for fertility restoration of PET 1 cytoplasm.

Hybrids involving SA545R are adapted to major sunflower growing regions of North and South America. Hybrids utilizing SA545R have been tested in North and South Dakota, and Argentina, and will be used primarily for vegetable oil.

Compared to the public line RHA274, SA545R is similar in days to flowering, 5 days later to reach physiological maturity, approximately 6 cm taller, and is similar in leaf color, but has smaller and narrower leaves. Seed color and seed size of SA545R is similar to seed of RHA274, however seed length of SA545R is longer and seed weight of SA545R is heavier than seed of RHA274. Heads of SA545R are smaller in size and similar in shape to heads of RHA274, however heads of SA545R are held more upright than heads of RHA274.

Breeders seed will be maintained by Seeds 2000 under bags in nursery rows, 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 according to the seed certification regulations of the state where seed is grown. Certified seed of hybrids utilizing SA545R will be offered for sale in 2007. Application will not be made for PVP.

### **SA6356R**

SA6356R is a high oleic oilseed restorer selected by the pedigree method from the cross SA556R/RHA340. Selection was for uniform plant type, self-compatibility, high oleic acid content (90.9%), resistance to imazamox herbicide, and resistance to downy mildew (race 5). SA6356R has upper stem branching controlled by a recessive gene, and genes for fertility restoration of PET 1 cytoplasm.

Hybrids involving SA6356R are adapted to major sunflower growing regions of North and South America, and Europe. Hybrids utilizing SA6356R have been tested in North and South Dakota, Argentina, and France, and will be used primarily for vegetable oil.

Compared to the public line RHA274, SA6356R is 3 days earlier to flower, similar in days to reach physiological maturity, approximately 13 cm taller, and is similar in leaf color, but has smaller and narrower leaves. Seed color, seed length, and seed size of SA6356R is similar to RHA274, however seed shape is more broadly ovate and seed weight is heavier than seed of RHA274. Heads of SA6356R are larger, flatter in shape, and held more upright than heads of RHA274.

Breeders seed will be maintained by Seeds 2000 under bags in nursery rows, 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 according to the seed certification regulations of the state where seed is grown. Certified seed of hybrids utilizing SA6356R will be offered for sale in 2007. Application will not be made for PVP.

### **B0386LG**

Hybrids utilizing B0386LG are adapted to the growing regions of the Northern Plains of the U.S. and Central Europe.

B0386LG is an oil seed maintainer line. It blooms at 67 days, which is 2 days earlier than HA371, and matures at 96 days, which is 5 days earlier than HA371. B0386LG is 140 cm tall, which is 20 cm shorter than HA371. It has large, green, cordate leaves with medium serrations that have a horizontal attitude. B0386LG has 38 leaves, which is 5 more leaves than HA371, and the leaves are 29 cm long and 27 cm wide, which are 7 cm longer and 3 cm wider than the leaves of HA371. The yellow ray flowers are 56 mm long and 21 mm wide, which are 9 mm shorter and 4 mm wider than HA371. The large convex head is 20 cm wide, which is 1 cm narrower than the head of HA371, and it is held in a descending position. The narrowly ovate seeds are 11 mm long and weigh 6 grams per 100 seeds, which are the same length and 1 gram lighter per 100 seeds than HA371, and are black with gray stripes both laterally and marginally. B0386LG yields 800 seeds per head compared to 1000 seeds per head for HA371. The percent oil content is about 6% less than HA89.

Resistant to tribenuron-methyl. See Appendix 1 for herbicide resistance data.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## **B0387HG**

Hybrids utilizing B0387HG are adapted to the growing regions of the Northern Plains of the U.S. and Central Europe.

B0387HG is a high oleic oil seed maintainer line. It blooms at 65 days, which is 2 days earlier than HA89, and matures at 94 days, which is 5 days earlier than HA89. Hypocotyl anthocyanin is weak. B0387HG is 102 cm tall, which is 12 cm shorter than HA89. It has large, green, cordate leaves with medium serrations that have a descending attitude. B0387HG has 30 leaves, which is 3 more leaves than HA89, and the leaves are 29.5 cm long and 28.5 cm wide, which are 9.5 cm longer and 7.5 cm wider than the leaves of HA89. The yellow ray flowers are 63 mm long and 18 mm wide, which are 1 mm shorter than HA89 and 4 mm wider than HA89. The large convex head is 25 cm wide, which is 7 cm wider than the head of HA89, and it is held in a descending position. The broadly ovate seeds are 12 mm long and weigh 8.1 grams per 100 seeds, which are 2 mm longer than HA89 and 3.2 grams heavier per 100 seeds than HA89, and are black with gray stripes both laterally and marginally. B0387HG yields 1,100 seeds per head compared to 900 seeds per head for HA89. The percent oil content is about 8% less than HA89. The oleic acid and linoleic acid percentages are 90% and 2.7%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## **B0423LM**

Hybrids utilizing B0423LM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

B0423LM is a fully branching oil seed type restorer line. It blooms at 70 days, which is 6 days later than RHA801, and matures at 94 days, which is 1 day earlier than RHA801. B0423LM is 118 cm tall, which is 6 cm taller than RHA801. It has medium sized, green, cordate leaves with fine serrations that have a horizontal attitude. B0423LM has 19 leaves, which is 7 fewer leaf than RHA801, and the leaves are 23 cm long and 24 cm wide, which are 5 cm longer and 6 cm wider than RHA801. The sulfur yellow ray flowers are 57 mm long and 15 mm wide, which are 6 mm longer and 5 mm wider than RHA801. The medium convex head is 13 cm wide, which is 2 cm wider than RHA801, and it is held in a descending position. The narrowly ovate seeds are 11 mm long and weigh 3.9 grams per 100 seeds, which are 2 mm longer and 0.4 grams heavier per 100 seeds than RHA801. The seeds are dark brown to solid black, but there is a possibility of some light to medium brown seeds coming from the centers of the head. B0423LM yields 850 seeds per head, which is 50 seeds more than RHA346. The percent oil content is about 4% less than RHA271. The oleic acid and linoleic acid percentages are 32.4% and 56.7%, respectively.

Resistant to tribenuron-methyl. See Appendix 1 for herbicide resistance data.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## **B0428HG**

Hybrids utilizing B0428HG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

B0428HG is a high oleic oil seed maintainer line. It blooms at 71 days, which is 4 days later than HA89, and matures at 103 days, which is 4 days later than HA89. Hypocotyl anthocyanin coloration is medium density. B0428HG is 106 cm tall, which is 8 cm shorter than HA89. It has medium, green, cordate leaves with fine serrations that have an ascending attitude. B0428HG has 22 leaves, which is 5 fewer leaves than HA89, and the leaves are 25 cm long and 23 cm wide, which are 5 cm longer and 2 cm wider than the leaves of HA89. The yellow ray flowers are 53 mm long and 13 mm wide, which are 11 mm shorter than HA89 and 1 mm narrower than HA89. The large, weakly concave head is 19 cm wide, which is 1 cm wider than the head of HA89, and it is held in an ascending position. The broadly ovate seeds are 11 mm long and weigh 6.7 grams per 100 seeds, which are 1 mm longer than HA89 and 0.3 grams lighter per 100 seeds than HA371, and are black with narrow, dark gray marginal stripes. B0428HG yields 500 seeds per head compared to 900 seeds per head for HA89. The percent oil content is about 0.6 % more than HA89. The oleic acid and linoleic acid percentages are 91.8% and 2.6%, respectively.

Resistant to Downy Mildew Race 710. See Appendix 1 for resistance data.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## **E0012LG**

Hybrids utilizing E0012LG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

E0012LG is an oil seed maintainer line. It blooms at 66 days, which is 1 day earlier than HA89, and matures at 101 days, which is 2 days later than HA89. E0012LG is 135 cm tall, which is 21 cm taller than HA89. It has medium, light green, cordate leaves with fine serrations that have a horizontal attitude. E0012LG has 23 leaves, which is 4 fewer than HA89, and the leaves are 22 cm long and 22 cm wide, which are 2 cm longer and 1 cm wider than the leaves of HA89. The sulfur yellow ray flowers are 69 mm long and 19 mm wide, which is 5 mm longer and 5 mm wider than HA89. The large, convex head is 23 cm wide, which is 5 cm wider than the head of HA89, and is held in a descending position. The broadly ovate seeds are 13 mm long and weigh 9.5 grams per 100 seeds, which is 2 mm longer and 2.5 grams heavier per 100 seeds than HA371. The seeds are black with narrow, dark gray lateral and marginal stripes. E0012LG yields 700 seeds per head, which is 200 seeds less than HA89. The percent oil content is about 0.7 % less than RHA271. The oleic acid and linoleic acid percentages are 27.0% and 64.0%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

### **F0009LM**

Hybrids utilizing F0009LM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

F0009LM is a top branching oil seed restorer line. It blooms at 65 days, which is 1 day later than RHA274, and matures at 94 days, which is the same as RHA274. F0009LM is 140 cm tall, which is 24 cm taller than RHA274. It has horizontal, small sized, green, cordate leaves with medium serrations of intermediate depth. F0009LM has 24 leaves, which is 6 fewer than RHA274. The leaves are 19 cm long and 18 cm wide, which is 5 cm shorter and 6 cm narrower than the leaves of RHA274. The yellow ray flowers are 70 mm long and 15 mm wide, which is 12 mm longer and 1 mm wider than the ray flowers of RHA274. The medium sized, descending, convex head is 12 cm wide, which is 1 cm wider than RHA274. The broadly ovate seeds are 8 mm long and weigh 2.9 grams per 100 seeds, which is 1 mm shorter and 0.6 grams lighter per 100 seeds than RHA801. The seeds are dark brown to solid black, but there is a possibility of some light to medium brown seeds coming from the centers of the head. F0009LM yields 400 seeds per head, which the same as RHA801. The % oil content is about 0.7% more than HA89. The oleic acid and linoleic acid percentages are 34.0% and 53.0%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## T02C6

Hybrids utilizing T02C6 are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

T02C6 is a fully branched, high oleic oil seed restorer line. It blooms at 72 days, which is 3 days later than RHA271, and matures at 101 days, which is 3 days earlier than RHA271. T02C6 is 148 cm tall, which is 11 cm shorter than RHA271. It has descending, medium sized, green, cordate leaves with fine serrations of shallow depth. T02C6 has 24 leaves, which is 3 fewer than RHA271. The leaves are 17 cm long and 22 cm wide, which is 10 cm shorter and 1 cm narrower than the leaves of RHA271. The sulfur yellow ray flowers are 72 mm long and 18 mm wide, which is 12 mm longer and 2 mm wider than the ray flowers of RHA271. The medium sized, descending, convex head is 14 cm wide, which is 3 cm wider than RHA271. The broadly ovate seeds are 9 mm long and weigh 4.3 grams per 100 seeds, which is 1 mm shorter and 0.5 grams heavier per 100 seeds than RHA271. The seeds are solid dark brown, but there is a possibility of some light to medium brown seeds coming from the centers of the head. T02C6 yields 700 seeds per head, which is 200 more than RHA271. The % oil content is about 1.4% more than RHA271. The oleic acid and linoleic acid percentages are 90.9% and 1.5%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

### **T0032LG**

Hybrids utilizing T0032LG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

T0032LG is an oil seed maintainer line. It blooms at 66 days, which is 1 day earlier than HA89, and matures at 99 days, which is the same as HA89. Hypocotyl anthocyanin coloration is weak density. T0032LG is 100 cm tall, which is 14 cm shorter than HA89. It has medium, green, cordate leaves with medium serrations that have a horizontal attitude. T0032LG has 34 leaves, which is 7 more leaves than HA89, and the leaves are 25 cm long and 20 cm wide, which is 5 cm longer and 1 cm narrower than the leaves of HA89. The yellow ray flowers are 65 mm long and 15 mm wide, which is 1 mm longer and 1 mm wider than HA89. The medium size, convex head is 12 cm wide, which is 6 cm narrower than the head of HA89, and it is held in a descending position. The narrowly ovate seeds are 13 mm long and weigh 4.8 grams per 100 seeds, which is 3 mm longer and 0.1 grams lighter per 100 seeds than HA89. The seeds are black with narrow, dark gray lateral and marginal stripes. T0032LG yields 600 seeds per head compared to 900 seeds per head for HA89. The percent oil content is about 1.2% more than HA89. The oleic acid and linoleic acid percentages are 30.0% and 59.5%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## **T0162LM**

Hybrids utilizing T0162LM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

T0162LM is a fully branched oil seed restorer line. It blooms at 60 days, which is 1 day later than RHA346, and matures at 94 days, which is 2 days later than RHA346. T0162LM is 136 cm tall, which is 7 cm taller than RHA346. It has ascending, medium sized, green, cordate leaves with medium serrations of intermediate depth. T0162LM has 22 leaves, which is 7 fewer than RHA346. The leaves are 21 cm long and 19 cm wide, which is 2 cm shorter and 2 cm narrower than the leaves of RHA271. The yellow ray flowers are 61 mm long and 14 mm wide, which is 3 mm shorter and 2 mm narrower than the ray flowers of RHA346. The medium sized, erect, concave head is 11 cm wide, which is 1 cm narrower than RHA346. The narrowly ovate seeds are 10 mm long and weigh 3.5 grams per 100 seeds, which is the same length but 0.3 grams lighter per 100 seeds than RHA346. The seeds are striped black, with narrow white lateral and marginal stripes. T0162LM yields 800 seeds per head, which the same as RHA346. The % oil content is about 0.1% less than RHA271. The oleic acid and linoleic acid percentages are 28.7% and 60.0%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## **T0229LG**

Hybrids utilizing T0229LG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

T0229LG is an oil seed maintainer line. It blooms at 69 days, which is the same as HA371, and matures at 103 days, which is 2 days later than HA371. T0229LG is 147 cm tall, which is 13 cm shorter than HA371. It has large, green, cordate leaves with medium serrations that have a horizontal attitude. T0229LG has 32 leaves, which is 1 fewer than HA371, and the leaves are 28 cm long and 30 cm wide, which are 6 cm longer and 6 cm wider than the leaves of HA371. The yellow ray flowers are 66 mm long and 16 mm wide, which is 1 mm longer and 1 mm narrower than HA371. The large, flat head is 19 cm wide, which is 2 cm narrower than the head of HA371, and is held in a descending position. The broadly ovate, black seeds are 11 mm long and weigh 6.4 grams per 100 seeds, which is the same length and 0.6 grams lighter per 100 seeds than HA371. T0229LG yields 850 seeds per head, which is 50 seeds less than HA89. The percent oil content is about 0.2 % less than HA89. The oleic acid and linoleic acid percentages are 24.5% and 62.7%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

### **T0267LM**

Hybrids utilizing T0267LM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

T0267LM is a fully branched oil seed restorer line. It blooms at 69 days, which is the same as RHA271, and matures at 103 days, which is 1 day earlier than RHA271. T0267LM is 144 cm tall, which is 15 cm shorter than RHA271. It has ascending, medium sized, green, cordate leaves with fine serrations of shallow depth. T0267LM has 26 leaves, which is 1 fewer than RHA271. The leaves are 20 cm long and 21 cm wide, which is 7 cm shorter and 2 cm narrower than the leaves of RHA271. The yellow ray flowers are 60 mm long and 15 mm wide, which is the same length and 1 mm narrower than the ray flowers of RHA271. The medium sized, descending, flat head is 13 cm wide, which is 2 cm wider than RHA271. The narrowly ovate seeds are 10 mm long and weigh 3.6 grams per 100 seeds, which is the same length as RHA271 but 0.1 grams heavier per 100 seeds than RHA274. The seeds are dark brown to solid black, but there is a possibility of some light to medium brown seeds coming from the centers of the head. T0267LM yields 800 seeds per head, which is the same as RHA346. The % oil content is about 1.3% less than RHA271. The oleic acid and linoleic acid percentages are 29.5% and 59.8%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## **T0428LG**

Hybrids utilizing T0428LG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

T0428LG is an oil seed maintainer line. It blooms at 69 days, which is the same as HA371, and matures at 103 days, which is 2 days later than HA371. T0428LG is 134 cm tall, which is 26 cm shorter than HA371. It has large, light green, cordate leaves with a horizontal attitude and coarse serrations of intermediate depth. T0428LG has 28 leaves, which is 5 fewer than HA371, and the leaves are 26 cm long and 30 cm wide, which are 4 cm longer and 6 cm wider than the leaves of HA371. The sulfur yellow ray flowers are 69 mm long and 16 mm wide, which is 4 mm longer and 1 mm narrower than HA371. The large, convex head is 21 cm wide, which is the same diameter as HA371, and is held in a descending position. The broadly ovate seeds are 12 mm long and weigh 7.9 grams per 100 seeds, which is 1 mm longer and 0.9 grams heavier per 100 seeds than HA371. The seeds are black with narrow, dark gray marginal stripes. T0428LG yields 800 seeds per head, which is 100 seeds less than HA89. The percent oil content is about 2.4 % more than HA89. The oleic acid and linoleic acid percentages are 22.6% and 64.9%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

### **T9940QG**

Hybrids utilizing T9940QG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

T9940QG is a high oleic oil seed maintainer line. It blooms at 65 days, which is 4 days earlier than HA371, and matures at 101 days, which is the same as HA371. Hypocotyl anthocyanin coloration is weak density. T9940QG is 145 cm tall, which is 15 cm shorter than HA371. It has medium, green, cordate leaves with medium serrations that have an ascending attitude. T9940QG has 36 leaves, which is 3 more leaves than HA371, and the leaves are 22 cm long and 23 cm wide, which is the same length and 1 cm narrower than the leaves of HA371. The yellow ray flowers are 78 mm long and 18 mm wide, which is 13 mm longer and 1 mm wider than HA371. The large, convex head is 18 cm wide, which is 3 cm narrower than the head of HA371, and it is held in a descending position. The broadly ovate seeds are 12 mm long and weigh 6.5 grams per 100 seeds, which is 1 mm longer and 0.5 grams lighter per 100 seeds than HA371. The seeds are black with narrow, dark gray marginal stripes. T9940QG yields 800 seeds per head compared to 900 seeds per head for HA89. The percent oil content is about 1.0 % more than HA89. The oleic acid and linoleic acid percentages are 91.8% and 1.3%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## U02S5

Hybrids utilizing U02S5 are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

U02S5 is a top branching oil seed restorer line. It blooms at 62 days, which is 2 days earlier than RHA801, and matures at 94 days, which is 1 day earlier than RHA801. U02S5 is 92 cm tall, which is 20 cm shorter than RHA801. It has medium sized, green, cordate leaves with a horizontal attitude and medium serrations of intermediate depth. U02S5 has 26 leaves, which is 4 more than RHA801. The leaves are 26 cm long and 20 cm wide, which is 8 cm longer and 2 cm wider than the leaves of RH271. The sulfur yellow ray flowers are 59 mm long and 14 mm wide, which is 8 mm longer and 4 mm wider than the ray flowers of RHA801. The medium sized, descending, weakly convex head is 12 cm wide, which is 1 cm wider than RHA801. The narrowly ovate seeds are 10 mm long and weigh 3.6 grams per 100 seeds, which is the same length and 0.1 grams heavier per 100 seeds than RHA801. The seeds are whitish grey with narrow, black marginal and lateral stripes. U02S5 yields 350 seeds per head, which is 50 seeds less than RHA801. The % oil content is about 3.3% less than RHA801. The oleic acid and linoleic acid percentages are 55.8% and 35.9%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## U04T6

Hybrids utilizing U04T6 are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

U04T6 is a fully branched oil seed restorer line. It blooms at 65 days, which is 1 day later than RHA801, and matures at 94 days, which is 1 day earlier than RHA801. U04T6 is 103 cm tall, which is 9 cm shorter than RHA801. It has ascending, small sized, green, cordate leaves with medium serrations of intermediate depth. U04T6 has 21 leaves, which is 5 fewer than RHA801. The leaves are 15 cm long and 14 cm wide, which is 3 cm shorter and 4 cm narrower than the leaves of RHA801. The sulfur yellow ray flowers are 50 mm long and 15 mm wide, which is 1 mm shorter and 5 mm wider than the ray flowers of RHA801. The medium sized, descending, weakly convex head is 11 cm wide, which is the same width as RHA801. The narrowly ovate seeds are 9 mm long and weigh 3.4 grams per 100 seeds, which is the same length and 0.1 grams lighter per 100 seeds than RHA801. The seeds are solid black, but there is a possibility of some medium brown seeds coming from the centers of the head. U04T6 yields 300 seeds per head, which is 100 seeds less than RHA801. The % oil content is about 2.9% less than RHA801. The oleic acid and linoleic acid percentages are 34.9% and 55.9%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## U05SJHM

Hybrids utilizing U05SJHM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

U05SJHM is a fully branched, high oleic oil seed restorer line. It blooms at 65 days, which is 1 day earlier than RHA801, and matures at 99 days, which is 4 days later than RHA801. U05SJHM is 115 cm tall, which is 3 cm taller than RHA801. It has ascending, medium sized, green, cordate leaves with medium serrations of intermediate depth. U05SJHM has 24 leaves, which is 2 fewer than RHA801. The leaves are 23 cm long and 22 cm wide, which is 5 cm longer and 4 cm wider than the leaves of RHA274. The yellow ray flowers are 66 mm long and 17 mm wide, which is 15 mm longer and 7 mm wider than the ray flowers of RHA801. The medium sized, descending, flat head is 12 cm wide, which is 2 cm wider than RHA801. The narrowly ovate seeds are 11 mm long and weigh 2.4 grams per 100 seeds, which is the same length and 1.1 grams lighter per 100 seeds than RHA801. The seeds are black with narrow, dark-gray stripes both laterally and marginally. U05SJHM yields 500 seeds per head, which is 100 more than RHA801. The % oil content is about 0.1% less than HA89. The oleic acid and linoleic acid percentages are 89.3% and 2.2%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

### U0353LG

Hybrids utilizing U0353LG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

U0353LG is an oil seed maintainer line. It blooms at 64 days, which is 3 days earlier than HA89, and matures at 99 days, which is the same as HA89. U0353LG is 114 cm tall, which is the same height as HA89. It has medium, dark green, cordate leaves with fine serrations that have a horizontal attitude. U0353LG has 19 leaves, which is 8 fewer than HA89, and the leaves are 20 cm long and 25 cm wide, which is the same length and 4 cm wider than the leaves of HA89. The sulfur yellow ray flowers are 62 mm long and 20 mm wide, which is 2 mm shorter and 6 mm wider than HA89. The large, convex head is 20 cm wide, which is 2 cm narrower than the head of HA89, and is held in a descending position. The broadly ovate seeds are 11 mm long and weigh 8.0 grams per 100 seeds, which is the same length and 1.0 grams heavier per 100 seeds than HA371. The seeds are black with narrow, dark gray marginal and lateral stripes. U0353LG yields 650 seeds per head, which is 250 seeds less than HA89. The percent oil content is about 0.4 % less than HA89. The oleic acid and linoleic acid percentages are 29.1% and 60.8%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## U0458HG

Hybrids utilizing U0458HG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

U0458HG is a high oleic, oil seed maintainer line. It blooms at 65 days, which is 2 days earlier than HA89, and matures at 98 days, which is 1 day earlier than HA89. U0458HG is 85 cm tall, which is 29 cm shorter than HA89. It has medium, green, cordate leaves with fine serrations that have an ascending attitude. U0458HG has 24 leaves, which is 3 fewer than HA89, and the leaves are 21 cm long and 22 cm wide, which is 1 cm longer and 1 cm wider than the leaves of HA89. The yellow ray flowers are 71 mm long and 24 mm wide, which is 7 mm longer and 10 mm wider than HA89. The large, convex head is 22 cm wide, which is 4 cm wider than the head of HA89, and is held in a descending position. The narrowly ovate, solid black seeds are 12 mm long and weigh 5.6 grams per 100 seeds, which is 2 mm longer and 0.7 grams heavier per 100 seeds than HA89. U0458HG yields 900 seeds per head, which is the same as HA89. The percent oil content is about 6.9% less than HA89. The oleic acid and linoleic acid percentages are 92.1% and 3.1%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## U0572LG

Hybrids utilizing U0572LG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

U0572LG is an oil seed maintainer line. It blooms at 65 days, which is 2 days earlier than HA89, and matures at 98 days, which is 1 day earlier than HA89. U0572LG is 99 cm tall, which is 15 cm shorter than HA89. It has medium, green, cordate leaves, with an ascending attitude and medium serrations of intermediate depth. U0572LG has 24 leaves, which is 3 fewer than HA89, and the leaves are 23 cm long and 22 cm wide, which is 3 cm longer and 1 cm wider than the leaves of HA89. The yellow ray flowers are 66 mm long and 17 mm wide, which is 2 mm longer and 3 mm wider than HA89. The large, convex head is 18 cm wide, which is the same width as HA89, and is held in a descending position. The broadly ovate seeds are 11 mm long and weigh 5.6 grams per 100 seeds, which is 1 mm longer and 0.7 grams heavier per 100 seeds than HA89. The seeds are black with narrow, dark gray marginal and lateral stripes. U0572LG yields 900 seeds per head, which is the same as HA89. The percent oil content is about 4.4% less than HA89. The oleic acid and linoleic acid percentages are 38.2% and 51.1%, respectively.

No specific disease resistance or tolerance.

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.

Seed will be offered for sale in 2007.

Yes, an application may be made for protection under the Plant Variety Protection Act and the "Certification Option" will be elected if so made.

## **B912**

B912 is a mono headed confectionery type maintainer inbred line developed by CHS INC. of Grandin, North Dakota. It was derived from a cross of CHS B92054xB225. Plants were selfed 5 generations. Plants were then crossed to PET 1 CMS and backcrossed for 7 generations. Achene and plant selections were made at each generation.

B912 is a very uniform inbred. Compared to the public line HA 304, B912 is 4 days later to flower, 2 days later to reach physiological maturity, approximately 8 cm taller, darker in leaf color, has larger leaves, larger heads, and similar head shape. Seed of B912 is larger and longer than HA 304. Seed color of HA304 is black with a white margin and occasional stripe compared to black and white fully striped seed of HA 304.

Seed increases will be limited to 2 generations as foundation seed. Seed of certified hybrids using this inbred would be available for sale for 2006 planting season. Application will not be made for PVP.