

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



ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

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ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES
(April 2011)

The Association of Official Seed Certifying Agencies (AOSCA) National Sunflower Variety Review Board (NSFVRB), reviewed the following varieties on April 21, 2011, 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 jurisdiction in which the seed is grown.

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

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Respectfully submitted,

Dale Williams, Chairman
National Sunflower Variety Review Board

**2011 AOSCA SUNFLOWER NVRB
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CN9416B

1. CN9416B was developed by Mycogen Seeds. It is a linoleic maintainer derived from the pedigree 3B/CN1703B. 3B and CN1703B are Mycogen Seeds proprietary maintainer inbreds. The pedigree breeding method was used as the process for the development of CN9416B. CN9416B is derived from a bulk of an F7 family tracing to a single F6 plant selected for purity per isozyme analysis. The male-sterile component of CN9416B has cms PET 1 cytoplasm derived from H. petiolaris (French). The cms designation is CN9416A.
2. Hybrids utilizing CN9416B are adapted to the major sunflower growing regions of North America and Europe, and will be used primarily for vegetable oil production.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium
Stem branching: No
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Descending Leaf surface: Crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: White
Stripe appearance: Narrow dark-gray striping Seed shape: Broadly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

CN9416B is a medium height, medium maturing linoleic maintainer line. It is approximately 13 cm taller and 4 days later flowering than HA89. Ray flowers appear dense in number due to longer and wider than average individual petals. Stigma anthocyanin is absent and pappi are green. CN9416B appears to have a dense canopy due to higher number of leaves and shorter internodes relative to other inbreds of similar height. Seeds of CN9416B are nearly solid black. In some environments, up to 15% of plants may express basal branching.

4. CN9416B does not appear to have obvious qualitative genetic resistance to major diseases, insects, or herbicides.
5. Breeder seed increases are maintained by Mycogen Seeds under cloth bagged heads in nursery rows or in isolation cages. Up to two generations beyond breeder's seed are allowed for increase by open pollination in isolated fields for production of Foundation Seed. Isolation and other requirements will be according to the Seed Certification regulations of the state where seed is grown.
6. Certified seed of hybrids using this variety may be made available for the 2011 season. Please do not publish certified acreage.
7. It is not anticipated that a PVP application will be made on this variety.



CND757B

1. CND757B was developed by Mycogen Seeds. It is a linoleic downy mildew resistant maintainer line derived from the backcross pedigree H757B*4/OND251B. The recurrent parent, H757B, and downy mildew resistant donor, OND251B, are both Mycogen Seeds proprietary inbred lines. CND757B is derived from a bulk of a BC3F5 family tracing to a single BC3F4 plant homozygous for downy mildew resistance. The male-sterile component of CND757B has cms PET 1 cytoplasm derived from *H. petiolaris* (French). The cms designation is CND757A.
2. Hybrids utilizing CND757B are adapted to the major sunflower growing regions of North America and Europe, and will be used primarily for vegetable oil production.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium
Stem branching: No
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Descending Leaf surface: Crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: Dark Yellow Stigma anthocyanin: Absent
Pollen color: Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: White
Stripe appearance: Narrow dark-gray striping Seed shape: Broadly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

CND757B ray flower petals appear wider than average. Stigma anthocyanin is absent and pappi are green. Anther tube pigment appears darker brown than average, and disk florets are noticeably darker yellow in color. Seeds of CND757B are nearly solid black with thin hulls that can be easily removed. CND757B is approximately 2 days later flowering and maturing, 5 cm shorter height, and 2% higher in oil than its isoline OIN757B. In some environments, up to 15% of plants may express basal branching.

4. CND757B is resistant to downy mildew races 730, 733, and 770. It does not appear to have qualitative resistance to other diseases, major insects, or herbicides.
5. Breeder seed increases are maintained by Mycogen Seeds under cloth bagged heads in nursery rows or in isolation cages. Up to two generations beyond breeder's seed are allowed for increase by open pollination in isolated fields for production of Foundation Seed. Isolation and other requirements will be according to the Seed Certification regulations of the state where seed is grown.
6. Certified seed of hybrids using this variety may be made available for the 2011 season. Please do not publish certified acreage.
7. It is not anticipated that a PVP application will be made on this variety.



CP5110R

1. CP5110R was developed by Mycogen Seeds. It is a confectionery restorer derived from the backcross pedigree CN5110R*4/BTI-1R. The recurrent parent CN5110R is a Mycogen Seeds proprietary confectionery restorer. BTI-1R is an imidazolinone herbicide resistant donor inbred with the CLHAplus imi gene developed by Nidera and BASF, and licensed to the seed industry in 2008. CP5110R is derived from a bulk of a BC3F4 family tracing to a single BC3F3 plant homozygous for CLHAplus and recessive branching. CP5110R has the male sterile inducing cytoplasm from PET1 [*H. petiolaris* (French)] and gene conferring fertility restoration.
2. Hybrids utilizing CP5110R are adapted to the major sunflower growing regions of North America and Europe, and will be used primarily for the in-shell confectionery market.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium-tall
Stem branching: Fully branched
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Descending Leaf surface: Crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Black w white striping Seed middle pericarp color: White
Stripe appearance: Narrow white Seed shape: Broadly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

CP5110R is approximately 11 cm taller than RHA294, and 4 days later flowering and maturing. Leaves are obviously large with intermediate margin indentations. Pappi and stigmas do not have anthocyanin. Ray flowers are uniquely fused into tubes and are longer than most other R-lines. Seeds of CP5110R are large, plump, and dark color with fine white marginal and lateral stripes.

4. CP5110R is resistant to imidazolinone herbicides. It does not appear to have qualitative resistance to major diseases or insects.
5. Breeder seed increases are maintained by Mycogen Seeds under cloth bagged heads in nursery rows or in isolation cages. Up to two generations beyond breeder's seed are allowed for increase by open pollination in isolated fields for production of Foundation Seed. Isolation and other requirements will be according to the Seed Certification regulations of the state where seed is grown.
6. Certified seed of hybrids using this variety may be made available for the 2011 season. Please do not publish certified acreage.
7. It is not anticipated that a PVP application will be made on this variety.



OI9218R

1. OI9218R was developed by Mycogen Seeds. It is a high oleic, downy mildew and imidazolinone resistant restorer derived from the pedigree OND163R/OIN163R//CNE922R. OND163R, OIN163R, and CNE922R are Mycogen Seeds proprietary restorer lines. The pedigree breeding method was used as the process for development of OI9218R. The imidazolinone donor comes from the 1998 USDA release IMISUN-2R, introgressed into OIN163R from the backcross H1063R*6/IMISUN-2R. OI9218R is derived from a bulk of an F7 family tracing to a single F6 plant selected for purity per isozyme analysis. OI9218R has the male sterile inducing cytoplasm from PET1 [*H. petiolaris* (French)] and gene conferring fertility restoration.
2. Hybrids utilizing OI9218R are adapted to the northern sunflower growing regions of North America and Europe, and will be used primarily for vegetable oil production.
3. Maturity (relatively early, medium or late?): Early
Height (relatively short, medium or tall?): Short
Stem branching: Fully branched
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Descending Leaf surface: Crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Present strong
Pollen color: Yellow Pappi color: Rust
Receptacle shape: Convex Head (neck) attitude: Horizontal
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: White
Stripe appearance: Narrow dark-gray striping Seed shape: Broadly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

OI9218R is an obvious very early branching restorer inbred, flowering and maturing 10 and 11 days earlier than RHA274. OI9218R has a short plant height, approximately 51 cm less than RHA274. Its leaf canopy has a narrow appearance due to shorter petioles and leaves relative to most oilseed branching restorers. Stigma anthocyanin has a strong presence, and pappi are rust colored. Seed color is nearly solid black and much plumper and wider than RHA274 and most other branching oilseed R-lines.

4. OI9218R has resistance to imidazolinone herbicides, and downy mildew races 730, 733, and 770. It does not appear to have qualitative resistance to other major diseases or insects.
5. Breeder seed increases are maintained by Mycogen Seeds under cloth bagged heads in nursery rows or in isolation cages. Up to two generations beyond breeder's seed are allowed for increase by open pollination in isolated fields for production of Foundation Seed. Isolation and other requirements will be according to the Seed Certification regulations of the state where seed is grown.
6. Certified seed of hybrids using this variety may be made available for the 2012 season. Please do not publish certified acreage.
7. It is not anticipated that a PVP application will be made on this variety.



OIN757B

- OIN757B was developed by Mycogen Seeds. It is a imidazolinone resistant high oleic maintainer derived from the pedigree CIN757B/ONN757B. CIN757B and ONN757B are Mycogen Seeds proprietary imidazolinone and high oleic isolines, respectively. The USDA IMISUN-1.1XB, released in 1998, is the imidazolinone resistant donor used to develop CIN757B derived from the backcross pedigree H757B*6/IMISUN-1.1XB. H757B is a Mycogen Seeds proprietary inbred. OIN757B is derived from a bulk of an F5 family tracing to a single F4 plant homozygous for high oleic and imidazolinone resistant traits. The male-sterile component of OIN757B has cms PET 1 cytoplasm derived from H. petiolaris (French). The cms designation is OIN757A.
- Hybrids utilizing OIN757B are adapted to the major sunflower growing regions of North America, Argentina, and Europe, and will be used primarily for vegetable oil production.
- Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium
Stem branching: No
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Descending Leaf surface: Crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: Dark Yellow Stigma anthocyanin: Absent
Pollen color: Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: White
Stripe appearance: Narrow dark-gray striping Seed shape: Broadly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

OIN757B ray flower petals appear wider than average. Stigma anthocyanin is absent and pappi are green. Anther tube pigment appears darker brown than average, and disk florets are noticeably darker yellow in color. Seeds of OIN757B are nearly solid black with thin hulls that can be easily removed. In some environments, up to 15% of plants may express basal branching.

- OIN757B is resistant to imidazolinone herbicides. It does not appear to have qualitative resistance to major diseases or insects.
- Breeder seed increases are maintained by Mycogen Seeds under cloth bagged heads in nursery rows or in isolation cages. Up to two generations beyond breeder's seed are allowed for increase by open pollination in isolated fields for production of Foundation Seed. Isolation and other requirements will be according to the Seed Certification regulations of the state where seed is grown.
- Certified seed of hybrids using this variety may be made available for the 2011 season. Please do not publish certified acreage.
- It is not anticipated that a PVP application will be made on this variety.



ON7385R

1. ON7385 was developed by Mycogen Seeds. It is a high oleic restorer derived from the pedigree HO274570R/HO274518R. HO274570R and HO274518R are Mycogen Seeds proprietary restorer lines. The pedigree breeding method was used as the process for development of ON7385R. ON7385R is derived from a bulk of an F7 family tracing to a single F6 plant selected for purity per isozyme analysis.
2. Hybrids utilizing ON7385R are adapted to the major sunflower growing regions of North America and Europe, and will be used primarily for vegetable oil.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium
Stem branching: Fully branched
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Descending Leaf surface: Crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Present strong
Pollen color: Yellow Pappi color: Rust
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: White
Stripe appearance: Narrow dark-gray striping Seed shape: Broadly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

ON7385R is similar to days to flowering and maturing, and plant height as RHA274. Number of leaves per plant average about 6 less than RHA274 and obviously appears less dense than most R-line inbreds. However ON7385R ray petals are significantly longer and wider than RHA274 making it appear more dense. Stigma anthocyanin has a strong presence, and pappi are rust colored. Seed color is nearly solid black and much plumper and wider than RHA274 and most other branching oilseed R-lines.

4. ON7385R does not appear to have qualitative resistance to major diseases, insects, and herbicides.
5. Breeder seed increases are maintained by Mycogen Seeds under cloth bagged heads in nursery rows or in isolation cages. Up to two generations beyond breeder's seed are allowed for increase by open pollination in isolated fields for production of Foundation Seed. Isolation and other requirements will be according to the Seed Certification regulations of the state where seed is grown.
6. Certified seed of hybrids using this variety may be made available for the 2012 season. Please do not publish certified acreage.
7. It is not anticipated that a PVP application will be made on this variety.



ON9411B

1. ON9411B was developed by Mycogen Seeds. It is a high oleic maintainer derived from the pedigree ON1604B/03317B. ON1604B and 03317B are Mycogen Seeds proprietary maintainer inbreds. The pedigree breeding method was used as the process for the development of ON9411B. ON9411B is derived from a bulk of an F7 family tracing to a single F6 plant selected for purity per isozyme analysis. The male-sterile component of ON9411B has cms PET 1 cytoplasm derived from H. petiolaris (French). The cms designation is ON9411A.
2. Hybrids utilizing ON9411B are adapted to the major sunflower growing regions of North America and Europe, and will be used primarily for vegetable oil production.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium-tall
Stem branching: No
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Descending Leaf surface: Crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: White
Stripe appearance: Narrow dark-gray striping Seed shape: Broadly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

ON9411B is approximately 39 cm taller and 2 days later flowering than HA89. Leaves are obviously wider than long. Stigma anthocyanin is absent and pappi are green. Stalks have a slight bend at each internode giving vague zig-zag appearance. Seeds of ON9411B are nearly solid black and larger/plumper than average maintainer oilseed types. In some environments, up to 15% of plants may express basal branching.

4. ON9411B does not appear to have obvious qualitative genetic resistance to major diseases, insects, or herbicides.
5. Breeder seed increases are maintained by Mycogen Seeds under cloth bagged heads in nursery rows or in isolation cages. Up to two generations beyond breeder's seed are allowed for increase by open pollination in isolated fields for production of Foundation Seed. Isolation and other requirements will be according to the Seed Certification regulations of the state where seed is grown.
6. Certified seed of hybrids using this variety may be made available for the 2011 season. Please do not publish certified acreage.
7. It is not anticipated that a PVP application will be made on this variety.



OP6725R

1. OP6725R was developed by Mycogen Seeds. It is a high oleic restorer derived from the backcross pedigree ON6725R*4/BTI-1R. The recurrent parent ON6725R is a Mycogen Seeds proprietary high oleic restorer. BTI-1R is an imidazolinone herbicide resistant donor inbred with the CLHApplus imi gene developed by Nidera and BASF, and licensed to the seed industry in 2008. OP6725R is derived from a bulk of a BC3F4 family tracing to a single BC3F3 plant homozygous for high oleic, CLHApplus, and recessive branching. OP6725R has the male sterile inducing cytoplasm from PET1 [*H. petiolaris* (French)] and gene conferring fertility restoration.
2. Hybrids utilizing OP6725R are adapted to the longer season sunflower growing regions of North America, Argentina, and Europe, and will be used primarily for vegetable oil.
3. Maturity (relatively early, medium or late?): Late
Height (relatively short, medium or tall?): Medium
Stem branching: Fully branched
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Descending Leaf surface: Crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Present weak
Pollen color: Yellow Pappi color: Rust
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: White
Stripe appearance: Narrow dark-gray striping Seed shape: Narrowly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

OP6725R is an inbred line obviously later flowering and maturing than RHA274 by approximately 11 and 14 days, respectively. OP6725R has rust colored pappi, a weak expression of stigma anthocyanin, and ray flower length approximately 10 mm longer than RHA274. Leaves of OP6725R are obviously wider than long with tips that have a tendency to curl up. Seeds of OP6725R are mostly black with narrow dark gray lateral striping.

4. OP6725R is resistant to imidazolinone herbicides. It does not appear to have obvious qualitative resistance to major diseases or insects.
5. Breeder seed increases are maintained by Mycogen Seeds under cloth bagged heads in nursery rows or in isolation cages. Up to two generations beyond breeder's seed are allowed for increase by open pollination in isolated fields for production of Foundation Seed. Isolation and other requirements will be according to the Seed Certification regulations of the state where seed is grown.
6. Certified seed of hybrids using this variety may be made available for the 2012 season. Please do not publish certified acreage.
7. It is not anticipated that a PVP application will be made on this variety.



OPD163R

1. OPD163R was developed by Mycogen Seeds. It is a high oleic restorer derived from the backcross pedigree OND163R*4/BTI-1A. The recurrent parent OND163R is a Mycogen Seeds proprietary high oleic restorer with the PI7 gene for downy mildew resistance. BTI-1A is an imidazolinone herbicide resistant donor inbred with the CLHAplus imi gene developed by Nidera and BASF, and licensed to the seed industry in 2008. OPD163R is derived from a bulk of a BC3F4 family tracing to a single BC3F3 plant homozygous for high oleic, PI7, CLHAplus, and recessive branching. OPD163R has the male sterile inducing cytoplasm from PET1 [*H. petiolaris* (French)] and gene conferring fertility restoration.
2. Hybrids utilizing OPD163R are adapted to the major sunflower growing regions of North America and Europe, and will be used primarily for vegetable oil.
3. Maturity (relatively early, medium or late?): Medium
 Height (relatively short, medium or tall?): Medium
 Stem branching: Fully branched
 Leaf shape: Cordate Leaf margins: Medium serrate
 Leaf attitude: Descending Leaf surface: Crinkled
 Leaf color: Green
 Ray flowers: Present Ray flower color: Yellow
 Disk flower color: Yellow Stigma anthocyanin: Present strong
 Pollen color: Yellow Pappi color: Rust
 Receptacle shape: Convex Head (neck) attitude: Descending
 Seed outer pericarp color: Brown Seed middle pericarp color: White
 Stripe appearance: Narrow white marginal stripes Seed shape: Narrowly ovate
 Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

OPD163R is 3 and 4 days later flowering and maturing than RHA274. OPD163R has rust colored pappi, a strong expression of stigma anthocyanin, and ray flower length approximately 2 mm shorter than RHA274. OPD163R is approximately 8 cm taller in height with larger leaves compared to RHA274. Seeds of OPD163R are short, plump, and brown with fine white marginal stripes.

4. OPD163R is resistant to imidazolinone herbicides and downy mildew races 730, 733, and 770. It does not appear to have obvious qualitative resistance to other major diseases or insects.
5. Breeder seed increases are maintained by Mycogen Seeds under cloth bagged heads in nursery rows or in isolation cages. Up to two generations beyond breeder's seed are allowed for increase by open pollination in isolated fields for production of Foundation Seed. Isolation and other requirements will be according to the Seed Certification regulations of the state where seed is grown.
6. Certified seed of hybrids using this variety may be made available for the 2011 season. Please do not publish certified acreage.
7. It is not anticipated that a PVP application will be made on this variety.



PH1021B

1. PH1021B is an Express resistant, linoleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T9704LG*4/[B0535LG/B0504LG]. T9704LG, B0535LG and B0504LG are all Pioneer proprietary lines. Selections were made for Express resistance and recurrent parent traits. The backcross and pedigree methods were used in the development of PH1021B. It is a bulk of BC3F6 seed tracing back to a single BC3F5 selection. The sterile analog derives from the CMS PET1 cytoplasm following 5 generations of backcrossing. It is homozygous dominant for single heads.
2. Hybrids utilizing PH1021B are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Late
Height (relatively short, medium or tall?): Tall
Stem branching: None
Leaf shape: Cordate Leaf margins: Coarse Serrations
Leaf attitude: Ascending Leaf surface: Smooth
Leaf color: Light green
Ray flowers: Narrowly Ovate and flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Concave Head (neck) attitude: Descending
Seed outer pericarp color: Nearly Solid Black Seed middle pericarp color: White
Stripe appearance: Absent Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin.

4. PH1021B is resistant to tribenuron-methyl.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



PH1023B

1. PH1023B is an Express resistant, oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0243HG*3/B0503HG. T0243HG and B0503HG are both Pioneer proprietary lines. Selections were made for Express resistance and recurrent parent traits. The backcross and pedigree methods were used in the development of PH1023B. It is a bulk of BC2F6 seed tracing back to a single BC2F5 selection. The sterile analog derives from the CMS PET1 cytoplasm following 5 generations of backcrossing. It is homozygous dominant for single heads.
2. Hybrids utilizing PH1023B are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Tall
Stem branching: None
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Descending Leaf surface: Smooth
Leaf color: Light green
Ray flowers: Broadly ovate and flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light yellow Pappi color: Green
Receptacle shape: Flat Head (neck) attitude: Descending
Seed outer pericarp color: Striped black Seed middle pericarp color: White
Stripe appearance: Lateral and marginal grey stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a weak intensity of hypocotyl anthocyanin.

4. PH1023B is resistant to tribenuron-methyl.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



PH1024B

1. PH1024B is an Express resistant, linoleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0514LG*5/[U0572LG/B0648LG]. T0514LG, U0572LG and B0648LG are all Pioneer proprietary lines. Selections were made for Express resistance and recurrent parent traits. The backcross and pedigree methods were used in the development of PH1024B. It is a bulk of BC4F6 seed tracing back to a single BC3F5 selection. The sterile analog derives from the CMS PET1 cytoplasm following 5 generations of
2. Hybrids utilizing PH1024B are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Tall
Stem branching: None
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Ascending Leaf surface: Medium Blistering
Leaf color: Light green
Ray flowers: Narrowly Ovate and flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped black Seed middle pericarp color: White
Stripe appearance: Lateral and marginal grey stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin.

4. PH1024B is resistant to tribenuron-methyl.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



PH5033R

1. PH5033R is an Express resistant, linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross U9849LM*3/B0642LM. U9849LM and B0642LM are both Pioneer proprietary lines. Selections were made for Express resistance and recurrent parent traits. The backcross and pedigree methods were used in the development of PH5033R. It is a bulk of BC2F5 seed tracing back to a single BC2F4 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
2. Hybrids utilizing PH5033R are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Early
Height (relatively short, medium or tall?): Short
Stem branching: Top branching
Leaf shape: Cordate Leaf margins: Fine serrations
Leaf attitude: Ascending Leaf surface: Medium blistering
Leaf color: Green
Ray flowers: Narrowly Ovate and flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Vertical
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: White
Stripe appearance: Absent Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

Hypocotyl anthocyanin is absent.

4. PH5033R is resistant to tribenuron-methyl.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



PH5034R

1. PH5034R is an Express resistant, linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross S9867LM*6/B0349LM. S9867LM and B0349LM are both Pioneer proprietary lines.
2. The backcross and pedigree methods were used in the development of PH5034R. It is a bulk of BC5F5 seed tracing back to a single BC5F4 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Short
Stem branching: Top Branching
Leaf shape: Cordate Leaf margins: Medium Serrate
Leaf attitude: Ascending Leaf surface: Smooth
Leaf color: Green
Ray flowers: Narrowly Ovate and Flat Ray flower color: Light Yellow
Disk flower color: Yellow Stigma anthocyanin: Weak
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped Black Seed middle pericarp color: White
Stripe appearance: Brown marginal stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin.

4. PH5034 is resistant to tribenuron-methyl.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



PH5037R

1. PH5037R is an Express resistant, linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross F0009LM/5*B0642LM. F0009LM and B0642LM are both Pioneer proprietary lines. **Selections were made for Express resistance and recurrent parent traits.** The backcross and pedigree methods were used in the development of PH5037R. It is a bulk of BC4F6 seed tracing back to a single BC4F5 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
2. Hybrids utilizing PH5037R are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Late
Height (relatively short, medium or tall?): Medium
Stem branching: Top branching
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Ascending Leaf surface: Weak Blistering
Leaf color: Light green
Ray flowers: Fusiform Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Weak
Pollen color: Light yellow Pappi color: Green
Receptacle shape: Concave Head (neck) attitude: Descending
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: White
Stripe appearance: None Seed shape: Narrowly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin.

4. PH5037R is resistant to tribenuron-methyl.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0772LM

1. T0772LM is a linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross T9647LM/S9867LM. T9647LM and S9867LM are both Pioneer proprietary lines. The pedigree method was used in the development of T0772LM. 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 T0772LM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Short
Stem branching: Top Branching
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Descending Leaf surface: Medium Blistering
Leaf color: Green
Ray flowers: Narrowly Ovate and Flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: None
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Flat Head (neck) attitude: Descending
Seed outer pericarp color: Striped Black Seed middle pericarp color: White
Stripe appearance: Dark Brown Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

Hypocotyl anthocyanin is absent.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0812LG

1. T0812LG is a linoleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0001LG/T9933LG. T0001LG and T9933LG are both Pioneer proprietary lines. Selections were made for earlier flowering, shorter stature, oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of T0812LG. It is a bulk of F9 seed tracing back to a single F8 selection. The sterile analog derives from the CMS PET1 cytoplasm following 6 generations of backcrossing. It is homozygous dominant for single heads.
2. Hybrids utilizing T0812LG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Early
Height (relatively short, medium or tall?): Taller
Stem branching: None
Leaf shape: Cordate Leaf margins: Fine Serrations
Leaf attitude: Horizontal Leaf surface: Weak Blistering
Leaf color: Light Green
Ray flowers: Narrowly Ovate and Flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: None
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Solid Black Seed middle pericarp color: White
Stripe appearance: Absent Seed shape: Narrowly Ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

Hypocotyl anthocyanin is absent.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0817LG

1. T0817LG is a linoleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T00D3HG/T9933LG. T00D3HG and T9933LG are both Pioneer proprietary lines. Selections were made for earlier flowering, shorter stature, fatty acid & oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of T0817LG. 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 heads.
2. Hybrids utilizing T0817LG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Tall
Stem branching: None
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Ascending Leaf surface: Medium Blistering
Leaf color: Green
Ray flowers: Narrowly ovate and Flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Weak
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Flat Head (neck) attitude: Descending
Seed outer pericarp color: Striped black Seed middle pericarp color: White
Stripe appearance: Marginal Grey Stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0833HG

1. T0833HG is an oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0001LG/T9819QG. T0001LG and T9819QG are both Pioneer proprietary lines. Selections were made for earlier flowering, shorter stature, fatty acid & oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of T0833HG. It is a bulk of F9 seed tracing back to a single F8 selection. The sterile analog derives from the CMS PET1 cytoplasm following 6 generations of backcrossing. It is homozygous dominant for single heads.
2. Hybrids utilizing T0833HG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium
Stem branching: None
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Descending Leaf surface: Medium Blistering
Leaf color: Green
Ray flowers: Narrowly ovate and flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: None
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped black Seed middle pericarp color: White
Stripe appearance: Lateral dark grey stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a weak intensity of hypocotyl anthocyanin.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0862LM

1. T0862LM is a linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross PHA305/U01P6LM. PHA305 and U01P6LM are both Pioneer proprietary lines. The pedigree method was used in the development of T0862LM. 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 T0862LM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Tall
Stem branching: Top Branching
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Descending Leaf surface: Smooth
Leaf color: Green
Ray flowers: Narrowly Ovate and Flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Weak
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped Black Seed middle pericarp color: White
Stripe appearance: Narrow, marginal grey Seed shape: Oblong
striping
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a weak intensity of hypocotyl anthocyanin

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0864LM

1. T0864LM is a linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross PHA232/32104TM. PHA232 and 32104TM are both Pioneer proprietary lines. The pedigree method was used in the development of T0864LM. It is a bulk of F8 seed tracing back to a single F7 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
2. Hybrids utilizing T0864LM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Short
Stem branching: Top Branching
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Ascending Leaf surface: Weak Blistering
Leaf color: Dark Green
Ray flowers: Narrowly Ovate and flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Flat Head (neck) attitude: Descending
Seed outer pericarp color: Brown Seed middle pericarp color: White
Stripe appearance: Absent Seed shape: Narrowly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a weak intensity of hypocotyl anthocyanin

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0866LM

1. T0866LM is a linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross PHA232/TEKNY. PHA232 is a Pioneer proprietary line. TEKNY is a commercial hybrid sold by Syngenta. The pedigree method was used in the development of T0866LM. 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 T0866LM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Tall
Stem branching: Top branching
Leaf shape: Cordate Leaf margins: Fine Serrations
Leaf attitude: Erect Leaf surface: Medium Blistering
Leaf color: Green
Ray flowers: Narrowly ovate and flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped black Seed middle pericarp color: White
Stripe appearance: Lateral grey stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0899HM

1. T0899HM is an oleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross T00A9HM/W9721QM//T00A6HM. T00A9HM, W9721QM & T00A6HM are all Pioneer proprietary line. The pedigree method was used in the development of T0899HM. 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 T0899HM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Tall
Stem branching: Fully Branched
Leaf shape: Cordate Leaf margins: Fine Serrations
Leaf attitude: Horizontal Leaf surface: Medium Blistering
Leaf color: Green
Ray flowers: Narrowly Ovate and Flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: None
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Nearly Solid Black Seed middle pericarp color: White
Stripe appearance: None Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

Hypocotyl anthocyanin is absent.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0916LG

1. T0916LG is an oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T0001LG/N0031LG. T0001LG and N0031LG are both Pioneer proprietary lines. Selections were made for earlier flowering, shorter stature, adaptation to dry growing conditions, fatty acid & oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of T0916LG. It is a bulk of F8 seed tracing back to a single F7 selection. The sterile analog derives from the CMS PET1 cytoplasm following 7 generations of backcrossing. It is homozygous dominant for single heads.
2. Hybrids utilizing T0916LG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Early
Height (relatively short, medium or tall?): Tall
Stem branching: None
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Horizontal Leaf surface: Smooth
Leaf color: Green
Ray flowers: Fusiform Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped black Seed middle pericarp color: White
Stripe appearance: Lateral and marginal grey stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

Hypocotyl anthocyanin is absent.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0941HG

1. T0941HG is an oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T9819QG/VK816G//T00D3HG. T9819QG, VK816G and T00D3HG are all Pioneer proprietary lines. Selections were made for earlier flowering, shorter stature, fatty acid & oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of T0941HG. It is a bulk of F8 seed tracing back to a single F7 selection. The sterile analog derives from the CMS PET1 cytoplasm following 5 generations of backcrossing. It is homozygous dominant for single heads.
2. Hybrids utilizing T0941HG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium
Stem branching: None
Leaf shape: Cordate Leaf margins: Medium Serrate
Leaf attitude: Descending Leaf surface: Medium Blistering
Leaf color: Green
Ray flowers: Narrowly Ovate and flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: None
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped Black Seed middle pericarp color: White
Stripe appearance: Grey marginal stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



T0942HG

1. T0942HG is an oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross T9819QG/VK816G//T00D3HG. T9819QG, VK816G and T00D3HG are all Pioneer proprietary lines. Selections were made for earlier flowering, shorter stature, fatty acid & oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of T0942HG. It is a bulk of F8 seed tracing back to a single F7 selection. The sterile analog derives from the CMS PET1 cytoplasm following 5 generations of backcrossing. It is homozygous dominant for single heads.
2. Hybrids utilizing T0942HG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Tall
Stem branching: None
Leaf shape: Cordate Leaf margins: Strong Serrations
Leaf attitude: Ascending Leaf surface: Medium Blistering
Leaf color: Dark Green
Ray flowers: Narrowly Ovate and Flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: None
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped Black Seed middle pericarp color: White
Stripe appearance: Marginal Dark Grey Stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

Hypocotyl anthocyanin is absent.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



U06TNLM

1. U06TNLM is a linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross F0001LM/U01P4LM. F0001LM and U01P4LM are both Pioneer proprietary lines. The pedigree method was used in the development of U06TNLM. It is a bulk of F6 seed tracing back to a single F5 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
2. Hybrids utilizing U06TNLM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Short
Stem branching: Top Branching
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Ascending Leaf surface: Weak Blistering
Leaf color: Green
Ray flowers: Fusiform Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped Black Seed middle pericarp color: White
Stripe appearance: Marginal grey stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

Hypocotyl anthocyanin is absent.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



U0954LG

1. U0954LG is an oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross U0553LG/U0457HG. U0553LG and U0457HG are both Pioneer proprietary lines. Selections were made for earlier flowering, shorter stature, adaptation to dry growing conditions, fatty acid & oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of U0954LG. It is a bulk of F6 seed tracing back to a single F5 selection. The sterile analog derives from the CMS PET1 cytoplasm following 5 generations of backcrossing. It is homozygous dominant for single heads.
2. Hybrids utilizing U0954LG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Early
Height (relatively short, medium or tall?): Short
Stem branching: None
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Descending Leaf surface: Medium Blistering
Leaf color: Green
Ray flowers: Fusiform Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped Black Seed middle pericarp color: White
Stripe appearance: Lateral grey stripes. Seed shape: Narrowly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a weak intensity of hypocotyl anthocyanin.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



U09KJLM

1. U09KJLM is a linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross U06TJLM/U05SILM. U06TJLM and U05SILM are both Pioneer proprietary lines. The pedigree method was used in the development of U09KJLM. It is a bulk of F6 seed tracing back to a single F5 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
2. Hybrids utilizing U09KJLM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Very Early
Height (relatively short, medium or tall?): Short
Stem branching: Fully Branched
Leaf shape: Cordate Leaf margins: Fine Serrations
Leaf attitude: Descending Leaf surface: Medium Blistering
Leaf color: Green
Ray flowers: Narrowly ovate and flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Flat Head (neck) attitude: Descending
Seed outer pericarp color: Striped Black Seed middle pericarp color: White
Stripe appearance: Marginal and lateral grey stripes Seed shape: Narrowly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



U09KNLM

1. U09KNLM is a linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross U06TJLM/U05SILM. U06TJLM and U05SILM are both Pioneer proprietary lines. The pedigree method was used in the development of U09KNLM. It is a bulk of F6 seed tracing back to a single F5 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
2. Hybrids utilizing U09KNLM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Early
Height (relatively short, medium or tall?): Short
Stem branching: Top Branching
Leaf shape: Cordate Leaf margins: Fine Serrations
Leaf attitude: Descending Leaf surface: Smooth
Leaf color: Green
Ray flowers: Narrowly Ovate and Flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Vertical
Seed outer pericarp color: Nearly Solid Black Seed middle pericarp color: White
Stripe appearance: None Seed shape: Narrowly Ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a strong intensity of hypocotyl anthocyanin.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



U09MSLM

1. U09MSLM is a linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross N06GFHM/U05SILM. N06GFHM and U05SILM are both Pioneer proprietary lines. The pedigree method was used in the development of U09MSLM. It is a bulk of F6 seed tracing back to a single F5 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
2. Hybrids utilizing U09MSLM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Early
Height (relatively short, medium or tall?): Short
Stem branching: Fully Branched
Leaf shape: Cordate Leaf margins: Fine Serrations
Leaf attitude: Erect Leaf surface: Strong Blistering
Leaf color: Green
Ray flowers: Broadly Ovate Ray flower color: Light Yellow
Disk flower color: Yellow Stigma anthocyanin: Weak
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped Black Seed middle pericarp color: White
Stripe appearance: Marginal grey stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin.

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



U09RKSULM

1. U09RKSULM is an Express resistant, linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross U06TNLM/B0627LM. U06TNLM and B0627LM are both Pioneer proprietary lines. The pedigree method was used in the development of U09RKSULM. It is a bulk of F6 seed tracing back to a single F5 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
2. Hybrids utilizing U09RKSULM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Short
Stem branching: Fully Branched
Leaf shape: Cordate Leaf margins: Fine serrations
Leaf attitude: Descending Leaf surface: Medium blistering
Leaf color: Green
Ray flowers: Narrowly ovate and flat Ray flower color: Light yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped black Seed middle pericarp color: White
Stripe appearance: Marginal grey stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a weak intensity of hypocotyl anthocyanin.

4. U09RKSULM is resistant to tribenuron-methyl.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



U09WTIMLM

1. U09WTIMLM is an Imidazilnone resistant, linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross B0624LM/SANAY. B0624LM is a Pioneer proprietary line. Sanay is a commercially sold hybrid from Syngenta. The pedigree method was used in the development of U09WTIMLM. It is a bulk of F4 seed tracing back to a single F3 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
2. Hybrids utilizing U09WTIMLM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.

3. Maturity (relatively early, medium or late?): Late
Height (relatively short, medium or tall?): Short
Stem branching: Top Branching
Leaf shape: Cordate Leaf margins: Coarse serrations
Leaf attitude: Ascending Leaf surface: Smooth
Leaf color: Dark green
Ray flowers: Fusiform Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped black Seed middle pericarp color: White
Stripe appearance: Marginal and lateral grey stripes Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



U1051SUHG

1. U1051SUHG is an Express resistant, oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross B0632HG/U0752HG. B0632HG and U0752HG are both Pioneer proprietary lines. Selections were made for Express resistance, earlier flowering, shorter stature, fatty acid & oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of U1051SUHG. It is a bulk of F6 seed tracing back to a single F5 selection. The sterile analog derives from the CMS PET1 cytoplasm following 5 generations of backcrossing. It is homozygous dominant for single heads.
2. Hybrids utilizing U1051SUHG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium
Stem branching: None
Leaf shape: Cordate Leaf margins: Fine Serrations
Leaf attitude: Erect Leaf surface: Medium Blistering
Leaf color: Green
Ray flowers: Fusiform Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Vertical
Seed outer pericarp color: Nearly Solid Black Seed middle pericarp color: White
Stripe appearance: None Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a weak intensity of hypocotyl anthocyanin.

4. U1051SUHG is resistant to tribenuron-methyl.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



U1052SULG

1. U1052SULG is an Express resistant, oleic oil type maintainer line developed by Pioneer Hi-Bred International that derives from the cross B0632HG/U0586LG. B0632HG and U0586LG are both Pioneer proprietary lines. Selections were made for Express resistance, earlier flowering, shorter stature, fatty acid & oil content and yield, as assessed in hybrid combination. The pedigree method was used in the development of U1052SULG. It is a bulk of F6 seed tracing back to a single F5 selection. The sterile analog derives from the CMS PET1 cytoplasm following 5 generations of backcrossing. It is homozygous dominant for single heads.
2. Hybrids utilizing U1052SULG are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium
Stem branching: None
Leaf shape: Cordate Leaf margins: Medium Serrations
Leaf attitude: Erect Leaf surface: Medium Blistering
Leaf color: Green
Ray flowers: Narrowly ovate and flat Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light Yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: White
Stripe appearance: Marginal and lateral grey stripes Seed shape: Narrowly ovate
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a weak intensity of hypocotyl anthocyanin.

4. U1052SULG is resistant to tribenuron-methyl.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



U10KZLM

1. U10KZLM is a linoleic oil type, restorer line developed by Pioneer Hi-Bred International that derives from the cross U05SJHM/U06TNLM. U05SJHM and U06TNLM are both Pioneer proprietary lines. The pedigree method was used in the development of U09MSLM. It is a bulk of F6 seed tracing back to a single F5 selection. It is homozygous for dominant fertility restoration of the CMS PET 1 cytoplasm.
2. Hybrids utilizing U10KZLM are adapted to the growing regions of the Northern Plains of the U.S. and Central, Eastern, and Western Europe.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Taller
Stem branching: Top Branching
Leaf shape: Cordate Leaf margins: Fine serrations
Leaf attitude: Descending Leaf surface: Medium blistering
Leaf color: Green
Ray flowers: Narrowly ovate Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Light yellow Pappi color: Green
Receptacle shape: Convex Head (neck) attitude: Descending
Seed outer pericarp color: Striped Black Seed middle pericarp color: White
Stripe appearance: Marginal and lateral grey stripes
Seed shape: Oblong
Seed cross-section: Curved

State expected variants or other varietal traits that will assist in identification in the field:

It has a medium intensity of hypocotyl anthocyanin

4. None.
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 2012. Please do not publish certified seed production acreage.
7. Application for protection under the Plant Variety Protection Act will not be made.



SA213R

1. SA213R is a Seeds 2000, Inc. non-oilseed restorer line derived from the USDA release CONFSCLR3. The pedigree method of selection was used for the development of SA213R. It is a bulk of F8 plants derived from a single F7 plant. Selection was for uniform plant type, self compatibility, and large seed size.
2. Hybrids utilizing SA213R are adapted to major sunflower growing regions of North America and have been tested in North and South Dakota and will be marketed in North and South Dakota. Hybrids utilizing SA213R will be used primarily for human consumption.
3. Maturity (relatively early, medium or late?): early
Height (relatively short, medium or tall?): short
Stem branching: top
Leaf shape: cordate Leaf margins: Medium serrate
Leaf attitude: horizontal Leaf surface: crinkled
Leaf color: green
Ray flowers: Present
Disk flower color: Yellow Stigma anthocyanin: absent
Pollen color: Yellow Pappi color: green
Receptacle shape: Convex Head (neck) attitude: horizontal
Seed outer pericarp color: Brown striped Seed middle pericarp color: white
Stripe appearance: Narrow white Seed shape: Broadly ovate
Seed cross-section: Not curved

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

4. No claims or statements are made concerning pest reaction or agronomic traits.
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage.
7. No PVP application is planned.



SA307R

1. SA307R is a Seeds 2000, Inc. non-oilseed restorer line derived from a Seeds 2000 proprietary restorer gene pool. The pedigree method of selection was used for the development of SA307R. It is a bulk of S6 plants derived from a single S5 plant. Selection was for uniform plant type, self compatibility, and long, dark black seed type.
2. Hybrids utilizing SA307R are adapted to major sunflower growing regions of North and South America and have been tested in the Upper Midwest and Central Plains states of the USA and central and western regions of Argentina. Hybrids utilizing SA307R will be marketed in the above mentioned regions of North and South America. Hybrids utilizing SA307R will be used primarily for human consumption
3. Maturity (relatively early, medium or late?): early
Height (relatively short, medium or tall?): medium
Stem branching: Top
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Horizontal Leaf surface: crinkled
Leaf color: Green
Ray flowers: present Ray flower color: yellow
Disk flower color: Yellow Stigma anthocyanin: absent
Pollen color: Yellow Pappi color: green
Receptacle shape: Convex Head (neck) attitude: horizontal
Seed outer pericarp color: Nearly solid black Seed middle pericarp color: white
Stripe appearance: absent Seed shape: Narrowly ovate
Seed cross-section: Not curved

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

4. No claims or statements are made concerning pest reactions or agronomic traits.
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage.
7. No PVP application is planned.



SA414

1. SA414 is a Seeds 2000, Inc. non-oilseed, imidazolinone resistant maintainer line derived from the cross C9841/SA440. The pedigree method of selection was used for the development of SA414. It is a bulk of F6 plants tracing to a single F5 plant. Selection was for uniform plant type, self compatibility, and resistance to imidazolinone herbicide.
2. Hybrids utilizing SA414 are adapted to major sunflower growing regions of North America and have been tested in North and South Dakota and will be marketed in North and South Dakota. Hybrids utilizing SA414 will be used primarily for human consumption.
3. Maturity (relatively early, medium or late?): Late
Height (relatively short, medium or tall?): tall
Stem branching: Absent
Leaf shape: cordate Leaf margins: Medium serrate
Leaf attitude: horizontal Leaf surface: crinkled
Leaf color: green
Ray flowers: present Ray flower color: yellow
Disk flower color: Yellow Stigma anthocyanin: absent
Pollen color: yellow Pappi color: green
Receptacle shape: flat Head (neck) attitude: descending
Seed outer pericarp color: Striped brown Seed middle pericarp color: white
Stripe appearance: Narrow white Seed shape: Broadly ovate
Seed cross-section: Not curved

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

4. SA414 is resistant to imidazolinone herbicide
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage.
7. No PVP application is planned.



SA425

1. SA425 is a Seeds 2000, Inc., non-oilseed, imidazolinone resistant maintainer line derived from the cross 6182/SA443. The pedigree method of selection was used for the development of SA425. It is a bulk of F6 plants tracing to a single F5 plant. Selection was for uniform plant type, self compatibility, white seed color, and resistance to imidazolinone herbicide.
2. Hybrids utilizing SA425 are adapted to major sunflower growint regions of North America and have been tested in North and South Dakota and will be marketed in North and South Dakota. Hybrids utilizing SA425 will be used primarily for human consumption.
3. Maturity (relatively early, medium or late?): medium
Height (relatively short, medium or tall?): tall
Stem branching: Absent
Leaf shape: Cordate Leaf margins: Medium Serrate
Leaf attitude: Descending Leaf surface: crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: yellow Stigma anthocyanin: absent
Pollen color: Yellow Pappi color: green
Receptacle shape: Flat Head (neck) attitude: descending
Seed outer pericarp color: white Seed middle pericarp color: white
Stripe appearance: absent Seed shape: Broadly ovate
Seed cross-section: Not curved

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

4. SA425 is resistant to imidazolinone herbicide
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage
7. No PVP application is planned.



SA451R

1. SA451R is a Seeds 2000, Inc. non-oilseed, imidazolinone resistant restorer line derived from the cross SA293R/SA430R. The pedigree method of selection was used for the development of SA451R. It is a bulk of F6 plants derived from a single F5 plant. Selection was for uniform plant type, self compatibility, and resistance to imidazolinone herbicide
2. Hybrids utilizing SA451R are adapted to major sunflower growing regions of North America and have been tested in North and South Dakota and will be marketed in North and South Dakota. Hybrids utilizing SA451R will be used primarily for human consumption.
3. Maturity (relatively early, medium or late?): Late
Height (relatively short, medium or tall?): Tall
Stem branching: Top
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Horizontal Leaf surface: Crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: absent
Pollen color: Yellow Pappi color: green
Receptacle shape: Flat Head (neck) attitude: descending
Seed outer pericarp color: Striped brown Seed middle pericarp color: white
Stripe appearance: Narrow white Seed shape: Narrowly ovate
Seed cross-section: curved

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

4. SA451R is resistant to imidazolinone herbicide
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage.
7. No PVP application is planned.



SA480R

1. SA480R is a Seeds 2000, Inc. non-oilseed, tribenuron methyl resistant restorer line derived from the cross 477SU/SA374R. The pedigree method of selection was used for the development of SA480R. It is a bulk of F6 plants derived from a single F5 plant. Selection was for uniform plant type, self compatibility, and resistance to tribenuron methyl herbicide.
2. Hybrids utilizing SA480R are adapted to major sunflower growing regions of North America and have been tested in North and South Dakota and will be marketed in North and South Dakota. Hybrids utilizing SA480R will be used primarily for human consumption.
3. Maturity (relatively early, medium or late?): medium
Height (relatively short, medium or tall?): medium
Stem branching: Top
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Horizontal Leaf surface: crinkled
Leaf color: Green
Ray flowers: present Ray flower color: yellow
Disk flower color: yellow Stigma anthocyanin: absent
Pollen color: yellow Pappi color: green
Receptacle shape: flat Head (neck) attitude: horizontal
Seed outer pericarp color: Striped brown Seed middle pericarp color: white
Stripe appearance: Narrow white Seed shape: Broadly ovate
Seed cross-section: curved

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

4. SA480R is resistant to tribenuron methyl herbicide
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage.
7. No PVP application is planned.



SA491

1. SA491 is a Seeds 2000, Inc, non-oilseed, tribenuron methyl resistant maintainer line derived from the cross SA321/2/C9841*2/SU7G. The pedigree method of selection was used for the development of SA491. It is a bulk of F6 plants tracing to a single F5 plant. Selection was for uniform plant type, self compatibility, and resistance to tribenuron methyl herbicide.
2. Hybrids utilizing SA491 are adapted to major sunflower growing regions of North America and have been tested in North and South Dakota and will be marketed in North and South Dakota. Hybrids utilizing SA491 will be used primarily for human consumption.
3. Maturity (relatively early, medium or late?): medium
Height (relatively short, medium or tall?): medium
Stem branching: Absent
Leaf shape: cordate Leaf margins: Medium serrate
Leaf attitude: Horizontal Leaf surface: crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: yellow
Disk flower color: Yellow Stigma anthocyanin: absent
Pollen color: Yellow Pappi color: green
Receptacle shape: Convex Head (neck) attitude: Horizontal
Seed outer pericarp color: Striped brown Seed middle pericarp color: white
Stripe appearance: Narrow white Seed shape: Broadly ovate
Seed cross-section: Not curved

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

4. SA491 is resistant to tribenuron methyl herbicide
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage.
7. No PVP application is planned.



SA1619R

1. SA1619R is a Seeds 2000, Inc. linoleic, tribenuron methyl resistant oilseed restorer line derived from the cross SA616/SA219/2/KS-SUR. The pedigree method of selection was used for the development of SA1619R. It is a bulk of F6 plants tracing to a single F5 plant. Selection was for uniform plant type, self compatibility, and resistance to tribenuron methyl herbicide.
2. Hybrids utilizing SA1619R are adapted to major sunflower growing regions of North America and have been tested in North Dakota, South Dakota and Colorado and will be marketed in the southern ½ of North Dakota, South Dakota, and Colorado. Hybrids utilizing SA1619R will be used primarily for vegetable oil.
3. Maturity (relatively early, medium or late?): late
Height (relatively short, medium or tall?): Medium
Stem branching: Top
Leaf shape: cordate Leaf margins: Medium serrate
Leaf attitude: Horizontal Leaf surface: crinkled
Leaf color: Medium green
Ray flowers: Present Ray flower color: Yellow
Disk flower color: Yellow Stigma anthocyanin: Absent
Pollen color: Yellow Pappi color: green
Receptacle shape: Convex Head (neck) attitude: Ascending
Seed outer pericarp color: Black Seed middle pericarp color: White
Stripe appearance: Absent Seed shape: Narrowly ovate
Seed cross-section: Not curved

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

4. SA1619R is resistant to tribenuron methyl herbicide
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage.
7. No PVP application is planned.



SA5722R

1. SA5722R is a Seeds 2000, Inc. high oleic, imidazolinone resistant oilseed restorer derived from the cross SA578R/6356R. The pedigree method of selection was used for the development of SA5722R. It is a bulk of F7 plants derived from a single F6 plant. Selection was for uniform plant type, self compatibility, high oleic acid content, and resistance to imidazolinone herbicide.
2. Hybrids utilizing SA5722R are adapted to major sunflower growing regions of North and South America and S.E. Europe and have been tested in North Dakota, South Dakota, Argentina and Turkey and will be marketed in those states and countries. Hybrids utilizing SA5722R will be used primarily for vegetable oil.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Short
Stem branching: Top
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Horizontal Leaf surface: crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: yellow
Disk flower color: yellow Stigma anthocyanin: absent
Pollen color: Yellow Pappi color: green
Receptacle shape: Convex Head (neck) attitude: ascending
Seed outer pericarp color: Striped black Seed middle pericarp color: white
Stripe appearance: Narrow dark grey Seed shape: Narrowly ovate
Seed cross-section: Not curved

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

4. SA5722R is resistant to imidazolinone herbicide
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage.
7. No PVP application is planned.



SA6575

1. SA6575 is a Seeds 2000, Inc. high oleic, downy mildew resistant, oilseed maintainer derived from the cross SA6835B/7835B. The pedigree method of selection was used for the development of SA6575. It is a bulk of F7 plants derived from a single F6 plant. Selection was for uniform plant type, self compatibility, and downy mildew resistance.
2. Hybrids utilizing SA6575 are adapted to major sunflower growing regions of North and South America and have been tested in North and South Dakota and Argentina and will be marketed in those states and countries. Hybrids utilizing SA6575 will be used primarily for vegetable oil.
3. Maturity (relatively early, medium or late?): late
Height (relatively short, medium or tall?): medium
Stem branching: Absent
Leaf shape: Cordate Leaf margins: Medium serrate
Leaf attitude: Horizontal Leaf surface: crinkled
Leaf color: Green
Ray flowers: Present Ray flower color: yellow
Disk flower color: Yellow Stigma anthocyanin: absent
Pollen color: Yellow Pappi color: green
Receptacle shape: Convex Head (neck) attitude: horizontal
Seed outer pericarp color: Striped black Seed middle pericarp color: white
Stripe appearance: Narrow dark-gray Seed shape: Narrowly ovate
Seed cross-section: Not curved

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

4. SA6575 is resistant to race 730 of downy mildew
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage.
7. No PVP application is planned.



SA6896

1. SA6896 is a Seeds 2000, Inc. high oleic, imidazolinone resistant, downy mildew resistant, oilseed maintainer derived from the cross SA970B/SA6835B//SA878B. The pedigree method of selection was used for the development of SA6896. It is a bulk of F6 plants derived from a single F5 plant. Selection was for uniform plant type, self compatibility, high oleic acid content, imidazolinone herbicide resistance, and downy mildew resistance.
2. Hybrids utilizing SA6896 are adapted to major sunflower growing regions of North America and have been tested in North and South Dakota and will be marketed in those states. Hybrids utilizing SA6896 will be used primarily for vegetable oil.
3. Maturity (relatively early, medium or late?): Medium
Height (relatively short, medium or tall?): Medium
Stem branching: Absent
Leaf shape: cordate Leaf margins: Medium serrate
Leaf attitude: Horizontal Leaf surface: crinkled
Leaf color: Green
Ray flowers: present Ray flower color: yellow
Disk flower color: yellow Stigma anthocyanin: absent
Pollen color: yellow Pappi color: green
Receptacle shape: convex Head (neck) attitude: horizontal
Seed outer pericarp color: Striped black Seed middle pericarp color: white
Stripe appearance: Narrow dark grey Seed shape: Narrowly ovate
Seed cross-section: Not curved

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

4. SA6896 is resistant to imidazolinone herbicide and is resistant to race 730 of downy mildew.
5. Breeder's seed will be maintained by Seeds 2000 in nursery rows under bags, or by open pollination in isolated fields. Up to two generations beyond breeder's seed will be allowed for production of foundation seed. Isolation and other requirements will be according to the seed certification regulations of the state where seed is grown.
6. Certified seed will be available in 2012. Do not publish certified seed production acreage.
7. No PVP application is planned.

