

A REPORT OF THE
NATIONAL SMALL GRAIN VARIETY REVIEW BOARD



ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

NATIONAL SMALL GRAIN VARIETY REVIEW BOARD REPORT ©2008

Copyrighted Material of the Association of Official Seed Certifying Agencies (AOSCA)

APRIL 2008



NATIONAL SMALL GRAIN VARIETY REVIEW BOARD
ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES
April 2008

The Association of Official Seed Certifying Agencies (AOSCA), National Small Grain Variety Review Board (NSGVRB), reviewed the following varieties on February 27, 2008, in St. Paul, Minnesota. The Board recommended the inclusion of these varieties for certification. Seed of these varieties may be certified, providing production meets all standards of the Seed 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 Small Grain Variety Review Board by the applicants. The National Small Grain Variety Review Board makes judgments regarding recommendation of varieties for inclusion into certification based on the data supplied. Beyond that, the National Small Grain 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 detail regarding the National Small Grain Variety Review Board can be obtained from:

Chet Boruff, Chief Executive Officer
Association of Official Seed Certifying Agencies
1601 52nd Ave., Ste 1
Moline, IL 61265

Phone: 309-736-0120
Fax: 309-736-0115
E-Mail: cboruff@aosca.org

Respectfully submitted,

Roger Wippler, Chairman
National Small Grains Variety Review Board



Association of Official Seed Certifying Agencies
National Small Grain Variety Review Board

SMALL GRAIN VARIETIES RECOMMENDED FOR CERTIFICATION 2008

**PLACING THE CURSOR OVER THE DESIRED
VARIETY/EXPERIMENTAL DESIGNATION & CLICKING
WILL TAKE YOU DIRECTLY TO THE SUMMARY DESCRIPTION.**

<u>Pioneer Hi-Bred International, Inc.</u>	<u>Crop & Kind</u>	<u>Page</u>
XW06M (experimental designation)	Soft Red Winter Wheat	1
 <u>Syngenta Seeds, Inc.</u>		
9700 (DO2-8486)	Soft Red Winter Wheat	2
AP402 CL2 (CL03016)	Hard White Winter Wheat	3
AP503 CL2 (CLO 3040-5-2)	Hard Red Winter Wheat	4
AP700 CL (OSUPOP 28-13)	Soft White Winter Wheat	5
Art (98x0338-13)	Hard Red Winter Wheat	6
COKER 9804 (D03*9804)	Soft Red Winter Wheat	7
Culpeper (BC 960048-13)	Soft Red Winter Wheat	8
Doans (AP02T4342)	Hard Red Winter Wheat	9
Hawken (98x0435-15)	Hard Red Winter Wheat	10
Salute (99x1008-02)	Soft White Winter Wheat	11
W1377 (M01-4377)	Soft Red Winter Wheat	12
 <u>Trigen Seed LLC</u>		
Albany	Hard Red Spring Wheat	13
 <u>University of Nebraska</u>		
Camelot (NE01604)	Hard Red Winter Wheat	14
NH03614 CL (NH03614)	Hard Red Winter Wheat	15
 <u>USDA/ARS (Nebraska Crop Improvement)</u>		
Anton (NW98S097)	Hard White Winter Wheat	16
Mace (N02Y5117)	Hard Red Winter Wheat	17
 <u>WestBred, LLC</u>		
HV9W02-942R (experimental designation)	Hard Red Winter Wheat	18
Armour (HV9W96-1271R)	Hard Red Winter Wheat	19
Pacheco (ACS 55304)	Spring Triticale	20
Pivot (CA904-741)	Hard Red Spring Wheat	21
CA905-776 (experimental designation)	Hard Red Spring Wheat	22
 Amendment		
<u>Trigen Seed, LLC</u>		
Hat Trick (05M SP5) – amendment	Hard Red Spring Wheat	23

XW06M (experimental designation)

Soft Red Winter Wheat

XW06M is a soft red winter wheat that was developed by Pioneer Hi-Bred International, Inc., derived from a single cross of a Pioneer experimental variety and previously released Pioneer variety, using a modified pedigree selection breeding method. XW06M is primarily intended for grain production and it has shown good adaptation to the soft winter wheat region based on tests conducted in Arkansas, Kentucky, Missouri, Illinois, Indiana, Ohio, Michigan, Maryland and Ontario, Canada.

The coleoptile color of XW06M is white and the juvenile growth habit is semi-erect. Leaf color at booting is green and the flag leaf primarily is recurved, twisted and has a waxy bloom. Auricle color is white. Anther color is yellow. Spikes of XW06M are apically awnletted, lax, tapering in shape and inclined at maturity. The seed shape tends to be elliptical and it gives a light brown seed color phenol reaction. XW06M has shown no variants other than what would normally be expected due to environment.

XW06M has shown very good winter hardiness and resistance to straw lodging. It has demonstrated excellent resistance to leaf rust and stripe rust and moderate resistance to powdery mildew. It has also shown moderate resistance to the complex of fungal organisms that incite leaf blights.

The breeder, foundation, and registered seed classes will be maintained and controlled by the Pioneer Parent Wheat Seed headquarters at Mt. Vernon, IN. Foundation seed will be initially produced from breeders seed, and thereafter foundation seed will be produced from foundation seed: maintaining the specific identity and purity of the variety as released by the breeding department. Registered seed will be grown from foundation or breeder seed, and maintained at a purity level satisfactory to Pioneer Parent Seed Operations, Supply Management, or the appropriate certifying agency. Production of certified seed will be controlled by Supply Management, Pioneer Hi-Bred Int'l., Inc. Certified seed of XW06M will potentially first be offered for sale in the fall of 2008. Application for Plant Variety Protection is anticipated and the certification option will not be chosen. Certified acreage is not to be published by AOSCA and certifying agencies.



9700 (DO2-8486) Soft Red Winter Wheat

9700 (DO2-8486) is a soft red winter wheat bred and developed by Syngenta Seeds, Inc and its legacy companies under the AgriPro Brand. A bulk breeding system was used to develop 9700 which was derived from a head that was selected in spring of 2000 from an F4 bulk population with the parentage of NEPAL133/91D-2085(F1)//2580(F1)./3/SAVANNAH. The F5 head row that produced 9700 was selected for height, appearance, early maturity, and kernel soundness. Selection in advanced generations was based on yield, test weight, early maturity, plant height, appearance and resistance to the then current foliar disease pathogens. 9700 is adapted to and will be marketed in the lower Mississippi Valley and the southern east coast. Testing in Missouri, Tennessee, Kentucky, Arkansas, Louisiana, Mississippi, Georgia, South Carolina, North Carolina, and Virginia for the past 3 years has shown that 9700 is adapted in these areas. 9700 was tested in the Uniform Southern Soft Red Winter Wheat Nursery 2005-2006 as D02-8486. 9700 has competitive yields and good agronomic characteristics in the adapted area. 9700 is intended for grain production.

9700 is resistant to moderately resistant to prevalent field races of stripe rust in the area. It is moderately susceptible to susceptible prevalent field races of powdery mildew in the east coast areas and moderately resistant in the Delta region. 9700 is resistant to moderately resistant to prevalent field races of leaf rust in the adapted area. 9700 is susceptible to Hessian fly. Acceptable baking qualities as compared to company and industry standards has been expressed.

9700 is a medium short in height with early season heading. Juvenile growth habit is semierect. Plant color at boot stage is blue green. Flag leaf at boot stage is erect and twisted. Waxy bloom is present on the head, stem and flag leaf sheath. Anther color is yellow. Head shape is tapering and apically awnletted. Glumes are glabrous, wide in width and midlong in length with oblique shoulders and obtuse beaks. Seed shape is ovate. Brush hairs are midlong in length and occupy a large area of the seed tip. Seed crease depth is shallow and width is narrow. Seed cheeks are rounded.

Purity of 9700 has been established using the headrow method. These heads are compared to the morphological characteristics for the variety and any variant rows are discarded. These headrows are then individually harvested and grown as progeny plots. These progeny are compared to the morphological characteristics for the variety and any variant progeny are discarded. The selected progeny plots are then bulked to produce Breeders seed.

9700 has been uniform and stable since 2006. Less than 0.8% of the plants were rogued from the Breeder's seed increase in 2006. Approximately 90% of the rogued variant plants were taller awned wheat plants and 10% were awnless wheat plants. Up to 1.0% variant plants may be encountered in subsequent generations.

Syngenta maintains seed stock and certified classes of Foundation, Registered and Certified. Registered and certified seed stocks of 9700 were sold in the fall of 2007. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection is anticipated in the Fall of 2007 and 9700 may only be sold as a class of Certified seed.



AP402 CL2 (CL03016)

Hard White Winter Wheat

AP402 CL2 (CL03016) is a hard white winter wheat bred and developed by Syngenta Seeds, Inc and its legacy companies under the AgriPro Brand. AP402 CL2 is derived from the cross iW98363W-A4/iW98363W-A10 made in Junction City, Kansas in the fall of 2003. Both iW98363W-A4 and iW98363W-A10 are mutation lines derived from NuHills that contain different genes for resistance to the Beyond herbicide from BASF. CL03016 was grown as an F1 in the summer of 2003 in Junction City, KS (JCKS). F2 seedlings were sprayed with 18oz Beyond in the fall/winter 2003-2004 and resistant plants grown to seed. F3 seedlings were sprayed with 18oz in the spring of 2004 and resistant plants grown for seed. F4 seedlings were sprayed with 18oz Beyond in the late summer 2004. Resistant seedlings were potted and grown to seed during the winter in Berthoud, CO. F5 seed was harvested in February 2005 and planted in the field as F5 plant plots in March 2005 near Berthoud, CO. In July 2005 F5 plots were selected based upon vigor, phenotype equal to NuHills and stripe rust tolerance. 26 individual plant plots were selected. F6 seed from the 26 selections were planted in replicated yield trials at Salina, Goodland and JCKS in the fall 2005. Disease and observation single rows were planted at an additional 6 locations in the central plains. Multiple location yield and observation testing was conducted in 2007 on the bulk of six of these original selections. AP402 CL2 is intended for grain production. AP402 CL2 contains patented traits and will be managed under a Stewardship Agreement.

AP402 CL2 has been stable and uniform since 2006. AP402 CL2 is a semi-dwarf variety, awned and has white chaff. It has medium maturity and good straw strength. AP402 CL2 is susceptible to leaf rust but is resistant to Wheat Soil Borne Mosaic Virus. It contains Als-1(122) and Als-3(653) genes conferring tolerance to the BASF herbicide 'Beyond'. AP402 CL2 is similar in everyway to NuHills except that it contains 2 genes for herbicide tolerance. NuHills is primarily adapted to the Great Plains states of Colorado and Kansas. Juvenile growth habit is semi-erect. Auricle anthocyanin and auricle hairs are present. Plant color at boot stage is blue green. Anther color is yellow. Flag leaf at boot stage is erect and twisted. Head shape is tapering and awned. Glume shoulder shape is square with an acuminate beak. Chaff color is white at maturity. Seed shape is ovate. Brush hairs on the seed are medium in length and occupy a medium area of the seed tip. Seed depth is shallow and width is narrow. Seed cheeks are rounded.

Purity of AP402 CL2 has been established using a progeny purification. Progeny plots from single plants were planted in an isolated block in Berthoud Colorado. These progeny are compared to the morphological characteristics for the variety and any variant progeny are discarded. The selected progeny plots are then bulked to produce Breeders seed.

AP402 CL2 has been uniform and stable since 2006. Less than 0.8% of the plants were rogued from the Breeders seed increase in 2002. Approximately 82% of the rogued variant plants were taller height wheat plants (5 to 15 cm), 3% were green at boot stage, 3 % were red chaffed, and 2% were awnletted wheat plants. Up to 1% variant plants may be encountered in subsequent generations. A red seeded variant of approximately 0.5% has also been identified in the Breeders seed production plots. Up to 0.7% red seeds may be encountered in subsequent generations.

Syngenta maintains Breeders seed stock and certified classes of Foundation, Registered and Certified. Foundation and Registered seed stocks of AP402 CL2 will be sold in the Fall of 2008. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection is anticipated in 2008 and AP402 CL2 may only be sold as a class of Certified seed.



AP503 CL2 (CLO 3040-5-2) Hard Red Winter Wheat

AP503 CL2 (CLO 3040-5-2) is a hard red winter wheat bred and developed by Syngenta Seeds, Inc and its legacy companies under the AgriPro Brand. It was derived from the cross between iW98-362A1 (Als3-653) / AP502 CL (Als1-653). The purpose of the cross was to combine two Clearfield resistance genes, Als1 & Als3 into a common genetic background. CL03040-5-2 was grown as an F1 in the summer of 2003 in Junction City, KS (JCKS). F2 seedlings were sprayed with 18oz Beyond in the fall/winter 2003-2004 and resistant plants grown to seed. F3 seedlings were sprayed with 18oz in the spring of 2004 and resistant plants grown for seed. F4 seedlings were sprayed with 18oz Beyond in the late summer 2004. Resistant seedlings were potted and grown to seed during the winter in Berthoud, CO. F5 seed was harvested in February 2005 and planted in the field as F5 plant plots in March 2005 near Berthoud, CO. In July 2005 F5 plots were selected based upon vigor, phenotype equal to Jagalene and stripe rust tolerance. 245 individual plant plots were selected. F6 seed from 90 selections were planted in replicated yield trials at Salina, Goodland and JCKS in the fall 2005. One of these selections was designated CL03040-5-2 and tested regionally in 2007. AP503 CL2 is intended for grain production. AP503 CL2 contains patented traits and will be managed under a Stewardship Agreement.

AP503 CL2 is semidwarf in plant height and has white chaff at maturity. It has medium maturity and good straw strength. AP503 CL2 is resistant to Stem Rust, and Soil Borne Wheat Mosaic Virus. It contains Als-1(653) and Als-3(653) genes conferring tolerance to the BASF herbicide 'Beyond'. AP503 CL2 is adapted to the Great Plains states of Colorado, South Dakota, Nebraska, and Kansas. AP503 CL2 is most similar to the variety 'Jagalene', which is one of the parents in the cross.

Juvenile growth habit is semi-erect. Auricle anthocyanin and auricle hairs are present. Plant color at boot stage is blue green. Anther color is yellow. Flag leaf at boot stage is erect and twisted. Head shape is tapering and awned. Glume shoulder shape is oblique with an acuminate beak. Chaff color is white at maturity. Seed shape is ovate. Brush hairs on the seed are medium in length and occupy a medium area of the seed tip. Seed depth is shallow and width is narrow. Seed cheeks are rounded.

Purity of AP503 CL2 has been established using a progeny purification. Progeny plots from single plants were planted on an isolated block in Berthoud Colorado. These progeny are compared to the morphological characteristics for the variety and any variant progeny are discarded. The selected progeny plots are then bulked to produce Breeders seed.

AP503 CL2 has been uniform and stable since 2006. Less than 0.8% of the plants were rogued from the Breeder seed increase in 2007. Approximately 90% of the rogued variant plants were taller height wheat plants (8 to 15 cm), 5% were bronze chaffed and 5% of the rogued plants were awnless. Up to 1% variant plants may be encountered in subsequent generations.

Syngenta maintains Breeders seed stock and certified classes of Foundation, Registered and Certified. Foundation and Registered seed stocks of AP503 CL2 were planted in the Fall of 2007 with seed sales anticipated in the Fall of 2008. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection is anticipated in 2008 and AP503 CL2 may only be sold as a class of certified seed.



AP700 CL (OSUPOP 28-13) Soft White Winter Wheat

AP700 CL (OSUPOP 28-13) is an imi-tolerant, soft white winter wheat bred and developed by Syngenta Seeds, Inc and its legacy companies under the AgriPro Brand. It has been tested under the experimental designation of 99x1009-28-3 or OSU POP-28-13. AP700 CL contains single gene tolerance to BASF's grass herbicide 'Beyond'. AP700 CL was an F3 derived, single plant selection from the cross: 939515 (Tubbs Sib) / Stephens 3*/SF4. The final cross for AP700 CL was made in 1999 and the plant selection based upon plant height, fertility and the absence of stripe rust was made in Walla Walla, Washington in 2001. The resulting F3:4 plant-row was screened for tolerance to BASF's grass herbicide 'Beyond' in 2003 and advanced to preliminary trials in 2004 on the basis of tolerance to the Beyond chemistry, uniform plant height, standability, fertility and the absence of stripe rust. AP700 CL is a medium height semidwarf variety and has white chaff at maturity. It has early maturity and good straw strength. AP700 CL is resistant to the prevalent races of stripe rust. AP700 CL is best adapted to higher rainfall dryland production in Eastern Washington, Northeastern Oregon, and dryland production along the Highway 2 corridor of Washington. AP700 CL is intended for grain production. AP700 CL contains patented traits and will be managed under a Stewardship Agreement.

Juvenile growth habit is semi-erect. Plant color at boot stage is blue green. Anther color is yellow. Auricle anthocyanin and auricle hairs are present. Flag leaf at boot stage is erect and twisted. Head shape is strap and awned. Glumes are long in length and wide in width. Glume shoulder shape is wanting with an acuminate beak. Chaff color is white at maturity. Seed shape is ovate. Brush hairs on the seed are medium in length and occupy a large area of the seed tip. Seed depth is shallow and width is narrow. Seed cheeks are rounded.

Purity of AP700 CL has been maintained by the headrow method. These heads are compared to the morphological characteristics for the variety and any variant rows are discarded. The selected headrow plots are then bulked to produce Breeders seed.

AP700 CL has been uniform and stable since 2005. Less than 0.7% of the plants were rogued from the Breeder seed increase in 2006. Approximately 96% of the variant plants were taller height wheat plants and approximately 4% were awnletted wheat plants. Up to 1% variant plants may be encountered in subsequent generations.

Syngenta maintains Breeders seed stock and certified classes of Foundation, Registered and Certified. Registered and limited certified seed stocks of AP700 CL were available in the fall of 2007. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection is anticipated in 2008 and AP700 CL may only be sold as a class of Certified seed.



Art (98x0338-13)

Hard Red Winter Wheat

Art (98x0338-13) is a hard red winter wheat bred and developed by Syngenta Seeds, Inc and its legacy companies under the AgriPro Brand. Art was developed from the cross Jagger/W94-244-132 made in 1998 and grown as a F1 in the spring of 1999. F2 seed was planted in the fall of 1999 in Nardin, OK. Approximately 50 F2 heads were selected based upon plant height, maturity and green leaf duration and bulked together. A similar procedure in 2000 was used to generate F3 seed in Ashland Bottoms, KS. Approximately 200 F4 heads were planted as head rows in the fall of 2001 in Junction City, KS. F4 rows were selected in the spring of 2002 based upon spring vigor, maturity, plant height and disease resistance. One of these rows was designated 98x0338-13 and was advanced in further generations based on yield, test weight, maturity, plant height, appearance and resistance to the then current foliar disease pathogens. This variety is intended for grain production.

Art is a semidwarf variety similar in height to Postrock. Art is approximately 2 days earlier in heading than Postrock. Art has white chaff at maturity. It has medium maturity and excellent straw strength. Art is best adapted to north central Oklahoma, south central, central and eastern Kansas. Art has resistance to leaf rust, stripe rust and stem rust. Art is resistant to Soil Borne Wheat Mosaic Virus. Art has an intermediate reaction to Powdery mildew and is moderately resistant to Tan Spot and moderately susceptible to Speckled leaf blotch and Wheat Streak Mosaic Virus. Art has tolerance to aluminum toxicity caused by low soil pH.

Juvenile growth habit is semierect. Plant color at boot stage is dark green. Flag leaf at boot stage is erect and twisted. Auricle anthocyanin is present and auricle hairs are absent. Waxy bloom is present on the head, stem and flag leaf sheath. Anther color is yellow. Head shape is tapering, middense and awned. Glumes are glabrous, narrow in width and short in length with wanting shoulders and acuminate beaks. Seed shape is ovate. Seed crease depth is shallow and width is narrow. Seed cheeks are rounded.

Purity of Art has been established using the headrow method. These heads are compared to the morphological characteristics for the variety and any variant rows are discarded. These headrows are then individually harvested and grown as progeny plots. These progeny are compared to the morphological characteristics for the variety and any variant progeny are discarded. The selected progeny plots are then bulked to produce Breeders seed.

Art has been uniform and stable since 2005. Less than 0.8% of the plants were rogued from the Breeder seed increase in 2006. Approximately 90% of the variant plants were taller height wheat plants and approximately 10% were awnletted wheat plants. Up to 1.0% variant plants may be encountered in subsequent generations.

Syngenta maintains Breeders seed stock and certified classes of Foundation, Registered and Certified. Foundation and Registered seed stocks of Art were sold in the fall of 2007. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection Certificate has been issued and Art may only be sold as a class of Certified seed.



COKER 9804 (D03*9804) Soft Red Winter Wheat

COKER 9804 (D03*9804) is a soft red winter wheat bred and developed by AgriPro COKER (Syngenta Brands) for grain production. COKER 9804 was derived from a head that was selected in spring of 2001 from a composite F4 bulk population that included three single crosses and one three-way cross made by AgriPro personnel in the greenhouse at Brookston, IN, in December of 1997. This variety is intended for grain production with grain yield data that indicates it is adapted to most of the midsouth and southeastern soft wheat areas.

COKER 9804 is resistant to moderately resistant to stripe rust field races prevalent in 2005, 2006 and 2007. COKER 9804 has shown moderate susceptibility to susceptibility to leaf rust field races prevalent in the midsouth and southeastern US in 2005, 2006 and 2007. COKER 9804 is moderately resistant to powdery mildew in the southeast. COKER 9804 is moderately resistant to moderately susceptible to Wheat Spindle Streak Virus and Soil Borne Mosaic Virus. COKER 9804 is susceptible to Hessian Fly.

COKER 9804 is medium-height wheat with medium season heading. In 2005 and 2006 COKER 9804 (94 cm) averaged 10 cm (4 inches) shorter than Dixie 900 (104 cm). COKER 9804 also headed 2 days earlier than Dixie 900 in 2005 and 2006. Juvenile growth habit is semi-erect. Auricle anthocyanin and auricle hairs are present. Plant color at boot stage is green with a lighter green head color. Anther color is yellow. Flag leaf at boot stage is erect and twisted. Head shape is strap and awned. Glume shoulder shape is oblique with an acuminate beak. Glumes are medium in length and medium in width. Chaff color is white at maturity. Seed shape is ovate. Brush hairs on the seed are long in length and occupy a large area of the seed tip. Seed depth is shallow and width is narrow. Seed cheeks are rounded.

Purity of COKER 9804 will be maintained by AgriPro in Berthoud, Colorado by the headrow method. These heads are compared to the morphological characteristics for the variety and any variant rows are discarded. These headrows are then individually harvested and grown as progeny plots. The selected progeny plots are then bulked to produce Breeders Seed.

COKER 9804 has been uniform and stable since 2006. Less than 0.8% of the plants were rogued from the Breeders seed increase in 2007. Approximately 90% of the rogued variant plants were taller height wheat plants (3 to 10 cm), and 10% were awnless. Up to 1% variant plants may be encountered in subsequent generations.

AgriPro maintains Breeders seed stock and certified classes of Foundation, Registered and Certified. Foundation and Registered seed stocks of COKER 9804 will be available in the fall of 2008. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection is anticipated in 2008 and COKER 9804 may only be sold as a class of Certified seed.



Culpeper (BC960048-13) Soft Red Winter Wheat

Culpeper (BC960048-13) is a special quality soft red winter wheat adapted to the soft red winter wheat region of the US. It has been developed by Syngenta Seeds, Inc and its legacy companies under the AgriPro Brand. Culpeper was derived from the cross Coronado / VBF0589-1 made at Kansas State University in 1996. The F1 was grown in the greenhouse in the spring of 1996 and the F2 grown at Ashland Bottoms, KS in 1997. The population was shared with Dr. John Moffatt, AgriPro wheat breeder in 1997. F3 seed was grown in Nardin, Oklahoma during 1998 and the population was selected based upon plant height, disease resistance (green leaf appearance) and earlier maturity. F4 seed was space planted at Berthoud, CO in 1999 and a single plant was selected based upon stiffer straw, early maturity and green leaf duration resulted in an F5 row that was selected based upon earlier maturity, disease resistance and short stature and designated BC960048-13. Seed was shared with the eastern breeder at Brookston, IN location and a short row was planted in 2002 for observation. Showing potentially good adaptation to the eastern regions due to its mildew and over-all disease resistance, The line was yield tested in the eastern US and northern corn belt in replicated trials from 2003 – 2007.

Heading date is medium and it is a short semidwarf similar to USG 3209 or Berretta. It has intermediate resistance to the prevalent races of leaf rust and mildew. In AgriPro's and industry quality evaluations, Culpeper has been characterized as a strong mixing type with a broad range of end use applications. It is anticipated to be grown only under Identity Preservation for delivery to targeted mills in Virginia, Pennsylvania, North Carolina, Ohio, and Michigan. It has shown agronomic adaptation to those states.

Juvenile growth habit is semi-erect. Auricle anthocyanin and auricle hairs are present. Plant color at boot stage is green. Anther color is yellow. Flag leaf at boot stage is erect and twisted. Head shape is strap and awned. Glume shoulder shape is oblique with an acuminate beak. Glumes are medium in length and narrow in width. Chaff color is white at maturity. Seed shape is ovate. Brush hairs on the seed are medium in length and occupy a small area of the seed tip. Seed depth is shallow and width is narrow. Seed cheeks are rounded.

Purity of Culpeper has been maintained by the headrow method. These heads are compared to the morphological characteristics for the variety and any variant rows are discarded. The selected headrow plots are then bulked to produce Breeders seed.

Culpeper has been uniform and stable since 2004. Less than 0.8% of the plants were rogued from the Breeder seed increase in 2005. Approximately 90% of the rogued variant plants were taller height wheat plants (3 to 10 cm), 5% were bronze chaffed and 5% were awnless. Up to 1% variant plants may be encountered in subsequent generations.

AgriPro maintains Breeders seed stock and certified classes of Foundation, Registered and Certified. Limited Registered and Certified seed stocks of Culpeper were be available in the fall of 2007. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection is anticipated in 2008 and Culpeper may only be sold as a class of Certified seed.



Doans (AP02T4342) Hard Red Winter Wheat

Doans (AP02T4342) is a hard red winter wheat developed by Syngenta Seeds, Inc and its legacy companies under the AgriPro Brand. Doans is a hard red winter wheat developed from the cross Coronado//PI572542/Karl92/3/Jagger/2137. The cross was made at Kansas State University and the early generation, non-selected populations were grown by Kansas State University near Manhattan, Kansas. A subsample of F3 seed was shared with AgriPro and a portion of the shared seed was planted in research nurseries near Vernon, Texas in 1999. Doans resulted from an F4 derived F5 headrow from this unselected seed. Selection in advanced generations was based on yield, test weight, maturity, plant height, appearance and resistance to the then current foliar disease pathogens.

Doans is a hard red winter wheat with medium height and midseason maturity. Doans is adapted to and will be marketed in the in the southern Great Plains with the primary area of adaptation being Oklahoma and the area of Texas north of I-20. Testing in throughout this region for the past 6 years has shown that Doans is adapted. Doans has competitive yields and good agronomic characteristics in the adapted area when compared to our current varieties. Doans is intended for grain production but also can be used in grazing/grain production systems.

Doans is resistant to prevalent field races of leaf rust and stripe rust and moderately susceptible to powdery mildew in its area of adaptation. Acceptable baking qualities as compared to company and industry standards has been expressed.

Juvenile growth habit is semi erect. Plant color at boot stage is dark green. Flag leaf at boot stage is erect and twisted. Waxy bloom is present on the head, stem and flag leaf sheath. Anther color is yellow. Head shape is tapering and awned. Glumes are glabrous, medium in width and short in length with oblique shoulders and acuminate beaks. Seed shape is ovate. Brush hairs are long in length and occupy a large area of the seed tip. Seed crease depth is shallow and width is narrow. Seed cheeks are rounded.

Doans has been uniform and stable since initial testing in 2001. Approximately 90% of variants in breeder seed were taller height (1-3 inches) wheat plants and 10% were awnless wheat plants. Up to 1.0% variant plants may be encountered in subsequent generations.

Purity of Doans has been established using the headrow method. These heads are compared to the morphological characteristics for the variety and any variant rows are discarded. These headrows are then individually harvested and grown as progeny plots. These progeny are compared to the morphological characteristics for the variety and any variant progeny are discarded. The selected progeny plots are then bulked to produce Breeders seed.

Syngenta maintains Breeders seed stock and certified classes of Foundation, Registered and Certified. Foundation and Registered seed stocks of Doans were sold in the Fall of 2007. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection is anticipated in 2008 and Doans may only be sold as a class of Certified seed.



Hawken (98x0435-15) Hard Red Winter Wheat

Hawken (98x0435-15) is a hard red winter wheat bred and developed by Syngenta Seeds, Inc and its legacy companies under the AgriPro Brand. Hawken was developed from the cross W95-091/W96-427. It was tested and evaluated under the experimental designation 98x0435-15. 98x0435-15 was grown as a F1 in the spring of 1999 and bulked F2 seed planted in the fall of 1999 in Nardin, OK. Approximately 50 F2 heads were selected based upon plant height, maturity and green leaf duration and bulked together. A similar procedure in 2000 was used to generate F3 seed in Ashland Bottoms, KS. Approximately 200 F4 heads were planted as head rows in the fall of 2001 in Junction City, KS. A single F4 row was selected in the spring of 2002 based upon spring vigor, maturity, plant height and disease resistance. Selection in advanced generations was based on yield, test weight, early maturity, plant height, appearance and resistance to the then current foliar disease pathogens. This variety is intended for grain production.

Hawken is a medium short semidwarf height variety, approximately 2-3cm shorter than NuDakota. Hawken has white chaff at maturity. It has medium-late in maturity and has excellent straw strength. Hawken is resistant to Leaf rust, Stem rust, Stripe rust and Soil Borne mosaic virus. Hawken is moderately resistant to Tan spot and moderately susceptible to Wheat streak mosaic virus and Septoria leaf blotch and has intermediate tolerance to Powdery mildew and Wheat spindle streak mosaic virus. Hawken is best adapted to northern Kansas, north east Colorado, Nebraska and South Dakota.

Juvenile growth habit is semi erect. Plant color at boot stage is green. Flag leaf at boot stage is erect and twisted. Auricle anthocyanin and auricle hairs are present. Waxy bloom is present on the head, stem and flag leaf sheath. Anther color is yellow. Head shape is tapering, middense and awned. Glumes are glabrous, narrow in width and short in length with oblique shoulders and long acuminate beaks. Seed shape is ovate. Seed crease depth is shallow and width is narrow. Seed cheeks are rounded.

Purity of Hawken has been established using the headrow method. These heads are compared to the morphological characteristics for the variety and any variant rows are discarded. These headrows are then individually harvested and grown as progeny plots. These progeny are compared to the morphological characteristics for the variety and any variant progeny are discarded. The selected progeny plots are then bulked to produce Breeders seed.

Hawken has been uniform and stable since 2005. Less than 0.8% of the plants were rogued from the Breeder seed increase in 2006. Approximately 90% of the variant plants were taller height wheat plants and approximately 10% were awnletted wheat plants. Up to 1.0% variant plants may be encountered in subsequent generations.

Syngenta maintains Breeders seed stock and certified classes of Foundation, Registered and Certified. Foundation and Registered seed stocks of Hawken were sold in the Fall of 2007. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection Certificate has been issued and Hawken may only be sold as a class of Certified seed.



Salute (99x1008-02) Soft White Winter Wheat

Salute (99x1008-02) is a soft white winter wheat bred and developed by Syngenta Seeds, Inc and its legacy companies under the AgriPro Brand. Salute was tested under the experimental designation, 99x1008-02. Salute was an F3 derived, single plant selection from the cross: Rod / Stephens 3*/SF4. The final cross for Salute was made in 1999 and the plant selection based upon plant height, fertility and the absence of stripe rust was made in Walla Walla, Washington in 2001. The resulting F3:4 plant-row was tested in preliminary yield trials in 2003 and advanced on the basis of uniform plant height, standability, fertility and resistance to stripe rust. Salute is a medium height semidwarf variety and has white chaff at maturity. It has medium-early maturity and good straw strength. Salute is best adapted to higher rainfall dry land production in Eastern Washington, Northeastern Oregon, and dry land production along the Highway 2 corridor of Washington. This variety is intended for grain production.

Juvenile growth habit is semi-erect. Plant color at boot stage is blue green. Anther color is yellow. Auricle anthocyanin and auricle hairs are present. Flag leaf at boot stage is erect and twisted. Head shape is strap and awned. Glumes are long in length and wide in width. Glume shoulder shape is oblique with long acuminate beaks. Chaff color is white at maturity. Seed shape is ovate. Brush hairs on the seed are long in length and occupy a large area of the seed tip. Seed depth is shallow and width is narrow. Seed cheeks are rounded.

Purity of Salute has been maintained by the headrow method. These heads are compared to the morphological characteristics for the variety and any variant rows are discarded. The selected headrow plots are then bulked to produce Breeders seed.

Salute has been uniform and stable since 2005. Less than 0.8% of the plants were rogued from the Breeder seed increase in 2006. Approximately 95% of the variant plants were taller height wheat plants and approximately 5% were awnletted wheat plants. Up to 1% variant plants may be encountered in subsequent generations.

Syngenta maintains Breeders seed stock and certified classes of Foundation, Registered and Certified. Registered and limited certified seed stocks of Salute were sold in the Fall of 2007. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection is anticipated in the Fall of 2007 and Salute may only be sold as a class of Certified seed.



W1377 (M01-4377)

Soft Red Winter Wheat

W1377(M01-4377) is a soft red winter wheat bred and developed by Syngenta Seeds, Inc and its legacy companies under the AgriPro Brand for grain production. A bulk breeding system was used to develop W1377, which was derived from a head that was selected in spring of 2000 from an F4 bulk population grown near Lafayette, IN, with the parentage of COKER 9663 / VA91-54-219. The F5 head row that produced W1377 was selected for height, maturity, appearance, and kernel soundness. Selection in advanced generations was based on yield, test weight, plant height, maturity, foliar pathogens and appearance.

W1377 is a medium-tall height wheat. W1377 has shown tolerance to the stripe rust field races prevalent in 2005. W1377 has shown intermediate reaction to leaf rust field races prevalent in the Midwest and upper midsouthern US in 2004, 2005 and 2006. W1377 has shown intermediate reaction to Fusarium head scab. W1377 has shown susceptibility to powdery mildew in Michigan and in the East. W1377 has shown resistance to Biotypes B & E of Hessian Fly. This variety is intended for grain production with grain yield data that indicates it is adapted to most of the midwestern and upper midsouthern soft wheat areas.

Juvenile growth habit is semi erect. Plant color is green at boot stage. Flag leaf at boot stage is erect and twisted. Waxy bloom is present on the head, stem and flag leaf sheath. Anther color is yellow. Head shape is tapering and apically awnletted. Glumes are glabrous, medium in width and midlong in length with square shoulders and obtuse beaks. Seed shape is ovate. Brush hairs are midlong in length and occupy a large area of the seed tip. Seed crease depth is shallow and width is narrow. Seed cheeks are rounded.

Purity of W1377 has been established using the headrow method. These heads are compared to the morphological characteristics for the variety and any variant rows are discarded. These headrows are then individually harvested and grown as progeny plots. These progeny are compared to the morphological characteristics for the variety and any variant progeny are discarded. The selected progeny plots are then bulked to produce Breeders seed.

W1377 has been uniform and stable since 2005. Less than 0.8% of the plants were rogued from the Breeder's seed increase in 2006. Approximately 90% of the rogued variant plants were taller (1-3") wheat plants and 10% were awned wheat plants. Up to 1.0% variant plants may be encountered in subsequent generations.

Syngenta maintains Breeders seed stock and certified classes of Foundation, Registered and Certified. Foundation, Registered and limited Certified seed stocks of W1377 were sold in the fall of 2007. Certified acreage is not to be published by AOSCA and certifying agencies. Plant Variety Protection was completed and a final certificate issued in 2007 and W1377 may only be sold as a class of Certified seed.



Albany (06MSP 18) Hard Red Spring Wheat

Variety Albany, experimental 06MSP 18, is a hard red spring wheat developed by Trigen Seed LLC. It is a selection from a cross Alsen//Buck 1021/Norm we made in the summer of 2001. We grew the F₂ to F₆ generations as bulk populations alternating with nurseries in Minnesota, Arizona, Minnesota, New Zealand, and Minnesota, respectively. Seeds for planting from these bulk populations were subjected to an air column separation process to remove light weight seeds. We selected heads in Minnesota in the F₆ population (F₇ seed) from the more attractive plants in the population. We planted these as individual head-rows in New Zealand and harvested the uniform rows. From here, the individual head-rows entered into a performance trial in Minnesota in the spring of 2005. We advanced the best of these lines for promotion to further performance testing. In 2006, we chose the line that has become Albany for further evaluation. We subsequently grew a small increase of this line in the Imperial Valley, California to provide seed for a breeder seed production at Foxhome, Minnesota in 2007. Albany was entered as line 06MSP 18 in the 2007 Hard Red Spring Wheat Uniform Regional Performance Nursery.

The primary area of adaptation will be the Northern Plains where its purpose will be for breadstuffs.

Albany resembles Freyr but heads about 4 days later than Freyr. Albany is about 5 cm shorter than Freyr, but has about the same straw strength. Albany has a white coleoptile color, an erect seedling growth, a green leaf color at boot, (Royal Horticultural Society 137A), and a recurved flag leaf with a waxy bloom. Auricle color is white. Stem color is white. Stem internodes are hollow. Anther color is yellow. Spikes of Albany are awned, tapering, mid-dense and nodding at maturity. Awns are white. Glumes are light tan. Variants that may occur include taller plants at a rate of up to 0.1%.

Albany is susceptible to stripe rust in the Pacific Northwest. It is postulated to have gene Lr24 for leaf rust resistance. Leaf rust field notes in 2007 were 5MR-MS at Morris, MN and 10MR-MS at Crookston, MN. Albany is moderately resistant to Fusarium Head Blight (*Fusarium graminearum* Schwabe) with low levels of DON.

Seedstock will be maintained by a conventional head-row procedure. Classes to be recognized are breeder, foundation, registered, and certified. Breeder seed will likely be sold in 2008 for the production of Foundation class seed. Application will be made for protection under the Plant Variety Protection Act with the "Certification Option" elected. Acreages are to be published by AOSCA certifying agencies.



Camelot (NE01604) Hard Red Winter Wheat

Camelot (formerly NE01604) is a hard red winter wheat (*Triticum aestivum* L.) cultivar developed cooperatively by the Nebraska Agricultural Experiment Station and the USDA-ARS and expected to be released in 2008 by the developing institutions. Camelot was released primarily for its superior adaptation to rainfed wheat production systems in Nebraska and adjacent areas in the northern Great Plains. Camelot was selected from the cross KS91H184/Arlin Sib//KS91HW29 /3/NE91631/4/ VBF0168 that was made in 1995. The F₁ generation was grown in the greenhouse in 1996 and the F₂ to F₃ generations were advanced using the bulk breeding method in the field at Mead, NE in 1997 to 1998. In 1999, single F₃-derived F₄ rows were planted for the selection. There was no further selection thereafter.

Camelot is moderately late in maturity (143 days after Jan.1, data from 6 observations in eastern NE). Camelot is a semi-dwarf wheat cultivar with a mature plant height of 87 cm. Camelot has moderate straw strength (14% lodged). The winter hardiness of Camelot is good to very good and no winterkilling has been observed in Nebraska under normal winter conditions. Camelot is moderately resistant to stem rust. It is moderately resistant to leaf rust, stripe rust, and Hessian fly. Camelot also is slightly more tolerant to Fusarium head blight than many widely grown lines. It is moderately susceptible to wheat soilborne mosaic virus, and susceptible to barley yellow dwarf virus, and wheat streak mosaic virus. The overall end-use quality characteristics for Camelot are similar to many commonly grown wheat cultivars and should be acceptable to the milling and baking industries.

Camelot is an awned, ivory-glumed cultivar. Its field appearance is most similar to 2137. After heading, the canopy is moderately closed and nodding. The flag leaf is erect and twisted at the boot stage. The foliage is dark green with a light waxy bloom on the leaf sheath and spike at anthesis, but not on the leaves. The leaves are generally glabrous, but a few leaves have very short hairs parallel to the leaf veins. The spike is tapering to blocky, narrow, mid-long, and middense. The glume is long and narrow, and the glume shoulder is narrow and rounded to square. The beak is moderately long in length with an acuminate tip. The spike is predominantly inclined at maturity with some spikes nodding. Kernels are red colored, hard textured, and mainly ovate in shape. The kernel has no collar, a large brush of medium length, rounded cheeks, large germ, and a narrow and shallow crease.

Camelot has been uniform and stable since 2005. Less than 0.5 % of the plants were rogued from the Breeder's seed increase in 2005. The rogued variant plants were taller in height (5 - 15 cm) or were awnless and/or with red chaff. Up to 1% (10:1000) variant plants may be encountered in subsequent generations. The Nebraska Foundation Seed Division will have foundation seed available to qualified certified seed enterprises in 2008. The seed classes will be Breeder, Foundation, Registered, and Certified. Foundation seed will be maintained by careful roguing of a small block of Foundation Seed. The Registered seed class will be a nonsalable seed class. Camelot will be submitted for plant variety protection under P.L. 10577 with the certification option. The acreage may be published by ASOSCA and certifying agencies. First sale of certified seed is expected to be August, 2009.



NH03614 CL (NH03614) Hard Red Winter Wheat

NH03614 CL is a hard red winter wheat (*Triticum aestivum* L.) cultivar developed cooperatively by the Nebraska Agricultural Experiment Station and the USDA-ARS and released in 2008 by the developing institutions and the South Dakota Agricultural Experiment Station and the Wyoming Agricultural Experiment Station. NH03614 CL contains a patented gene owned by BASF. BASF retains ownership of the gene. NH03614 CL was released primarily for its herbicide resistance and excellent adaptation to rainfed wheat production systems in Nebraska, Wyoming, and South Dakota, and wheat producing counties in adjacent states.

NH03614 CL was selected from the cross Wesley sib//Millennium sib/Above sib made in Fall, 1997. The F₁ generation was grown in the greenhouse in 1998 and the F₂ to F₃ generations were advanced using the bulk breeding method in the field at Mead, NE in 1999 to 2000. In both years, the bulks were sprayed with imidazolinone herbicide to select for the herbicide resistant segregants. In 2000, a single F₃-derived F₄ rows were planted for harvest and selection in 2001. In 2001 to 2002, the line was evaluated as a single plot in an observation nursery. In 2002 to 2003, the line was grown at six locations in Nebraska and given the designation of NH03614 CL where the H acknowledges its herbicide tolerance. There was no further selection thereafter.

NH03614 CL is moderately late in maturity and is a semi-dwarf wheat cultivar. NH03614 CL has moderate straw strength (24% lodged). The winter hardiness of NH03614 CL is comparable to other winter wheat cultivars adapted and commonly grown in Nebraska as no winterkilling was observed during its development. NH03614 CL is moderately resistant to stem rust and to wheat soilborne mosaic virus. NH03614 CL is moderately resistant to moderately susceptible to Hessian fly. It is moderately susceptible to leaf rust and stripe rust. NH03614 CL is slightly less susceptible to *Fusarium* head blight than many widely grown lines. It is susceptible to wheat streak mosaic virus. The overall end-use quality characteristics for NH03614 CL are acceptable and similar to many commonly grown wheat cultivars.

NH03614 CL is an awned, ivory-glumed cultivar. The flag leaf is erect and twisted at the boot stage. The foliage is gray-green to green with a moderate waxy bloom on the leaves, leaf sheath and spike at anthesis. The leaves are glabrous, though a few plants have very few and very short hairs. The spike is tapering in shape, narrow, mid-long, and middense. The glume is long and narrow to midwide, and the glume shoulder is wide and elevated. The beak is medium in length with an acuminate tip. Kernels are red colored, hard textured, and mainly oval in shape. The kernel has no collar, a large brush of medium length, rounded cheeks, midsized germ, and a narrow and shallow crease.

NH03614 CL has been uniform and stable since 2006. Less than 1 % of the plants were rogued from the Breeder's seed increase in 2004. The rogued variant plants were taller in height (8 - 15 cm) or darker or black chaff which may be due to disease. Up to 2% (20:1000) variant plants may be encountered in subsequent generations. The seed classes will be Breeder, Foundation, Registered, and Certified. Foundation seed will be maintained by careful roguing of a small block of Foundation Seed. The Registered seed class will be a nonsalable seed class. NH03614 CL will be submitted for plant variety protection under P.L. 10577 with the certification option. The acreage may be published by ASOSCA and certifying agencies. First sale of certified seed is expected to be August, 2009.



Anton (NW98S0907) Hard White Winter Wheat

'Anton' (NW98S0907) is a hard white winter wheat (*Triticum aestivum* L.) cultivar cooperatively developed and released in 2007 by the USDA-ARS and Nebraska Agricultural Experiment Station. Anton was released primarily for its low levels of grain and flour polyphenol oxidase (PPO). Anton was tested under the experimental designation NW98S097. Anton was developed using a modified bulk breeding procedure, followed by re-selection for uniformity of seed coat color. Anton was selected from the cross WA691213-27/N86L177//'Platte'.

Anton was evaluated in the USDA-ARS Northern Regional Performance Nursery (NRPN) in 2003 (15 environments) and 2004 (14 environments) and in the University of Nebraska cultivar performance trials from 2005-2007. Grain PPO activity of Anton, evaluated from samples collected from nine locations of the University of Nebraska wheat variety trial in 2005, did not differ significantly from the low PPO cultivar Platte, and was significantly lower than that of all other white wheats in the trial. Anton carries the high-molecular-weight gluten in subunits 2*, 7+8, and 5+10, encoded by the respective alleles Glu-A1b, Glu-B1b and Glu-D1d. Due to its low levels of grain PPO, and its breadmaking quality characteristics, Anton primarily is intended for use in Asian noodles and whole grain bread products.

Anton is moderately resistant to resistant to the following bulk cultures of wheat stem rust: TTTT, TPMK, QTHJ, QFCS, RCRS and RTQQ. Anton also is moderately resistant to resistant to leaf rust bulk cultures CBMT, MCDS, MBDS, MHDS, MCRK, THBJ. Anton is postulated as carrying the stem rust resistance gene Sr24 and the leaf rust resistance gene Lr24, plus at least one additional unidentified leaf rust resistance gene. It is moderately susceptible to Great Plains races of stripe rust, but susceptible to Hessian fly, Russian wheat aphid and greenbug. Anton is susceptible to field and artificial inoculations of wheat streak mosaic virus, but tolerant of natural infestations by wheat soil borne mosaic virus (WSBMV). Documentation of disease responses of Anton is available at the web site of the USDA-ARS-coordinated Hard Winter Wheat Regional Nursery Program (<http://www.ars.usda.gov/Research/docs.htm?docid=11932>) under the 2004 NRPN.

Anton is a semi-dwarf hard white winter wheat. The spike is oblong, erect and awned. The glumes are white, with an acuminate beak and an oblique shoulder. Seed shape is oval, with a mid-sized brush of short to medium hairs. The embryo is midsized, and the seed crease width is narrow and mid-deep. Mature plant height of Anton is 79 cm, 2 cm taller than Wesley, 2 cm shorter than Antelope and 9 cm shorter than Millennium. Average heading date of Anton in Nebraska, over the 2005-2007 crop years was 123 days after January 1st, three days later than Millennium and Wesley, and one day later than Antelope. Field appearance of Anton is most similar to Platte. The juvenile plant growth form is erect, coleoptile and stem anthocyanin is absent, anther color is yellow, foliage is green and the stem is hollow.

Seed purification began in 2004. Seed harvested from the advanced yield trials at Lincoln, NE in 2004 was planted in an unreplicated strip plot at Yuma, AZ. In the fall of 2005, seed from Yuma, AZ was used to plant a breeder seed increase near Hemingford, NE. In 2006, a Foundation Seed increase was planted by the Nebraska Foundation Seed Division. Anton has been stable and uniform since 2000. The Nebraska Foundation Seed Division University of Nebraska-Lincoln, Lincoln, NE 68583 will have foundation seed available to qualified certified seed enterprises in 2008. The U.S. Department of Agriculture will not have seed for distribution. The seed classes will be Breeder, Foundation, Registered, and Certified. Seed supply and maintenance of the variety will be the responsibility of the University of Nebraska Foundation Seed Division. A seed sample of Anton has been deposited in the USDA-ARS, National Small Grain Collection, Aberdeen, ID, where it is maintained as PI 651044. Anton will be submitted for plant variety protection under P.L. 10577 with the certification option. Acreage may be published by AOSCA and other seed certifying agencies.



Mace (N02Y5117) Hard Red Winter Wheat

'Mace' (N02Y5117) is a hard red winter wheat (*Triticum aestivum* L.) cultivar cooperatively developed and released in 2007 by the USDA-ARS and Nebraska Agricultural Experiment Station. Resistance to WSMV is conditioned by the *Wsm-1* gene. Mace was tested under the experimental designation N02Y5117. Mace was developed using a modified bulk breeding procedure, followed by re-selection for uniformity of resistance to WSMV. Mace was derived from the cross: Yuma//PI 372129/3/CO850034/4/4*Yuma/5/KS91H184/Arlin S/KS91HW29//NE89526).

Mace was released primarily for its resistance to wheat streak mosaic virus (WSMV), and its adaptation to rain fed and irrigated wheat production systems in Nebraska and adjacent areas in the northern Great Plains. Resistance is demonstrated by lack of typical symptoms of spring leaf yellowing following fall infection (Figure 1) and by resistance to plant stunting, the maintenance of green flag leaves, as evidenced by high SPAD (chlorophyll content) readings, and absence of grain yield loss).

Mace is moderately resistant to resistant to the following bulk cultures of wheat stem rust: TTTT, TPMK, QTHJ, QFCS, RCRS, RKQQ, RTQQ, and TTKS. It is postulated to carry an unidentified leaf rust resistance gene, but still is susceptible to most current prevalent races of leaf rust in the Great Plains. It is moderately resistant to Great Plains races of stripe rust, but susceptible to Hessian fly, Russian wheat aphid and greenbug. As noted above, Mace is resistant to field and artificial inoculations of wheat streak mosaic virus, but is moderately susceptible to moderately resistant to wheat soil borne mosaic virus (WSBMV). Documentation of disease responses of Mace (N02Y5117) is available at the web site of the USDA-ARS-coordinated Hard Winter Wheat Regional Nursery Program (<http://www.ars.usda.gov/Research/docs.htm?docid=11932>) under the 2004 and 2005 NRPN.

Mace is a semi-dwarf hard red winter wheat. The spike is oblong, erect and awned. The glumes are white, with an acute beak and an oblique or wanting shoulder. Seed shape is elliptical, with a large brush of long hairs. The embryo is midsized, and the seed crease width is narrow and mid-deep. Based on data from 38 rain fed Nebraska environments mature plant height of Mace is 79 cm, 2 cm taller than Wesley, 2 cm shorter than 'Antelope' and 9 cm shorter than Millennium. Average heading date of Mace in Nebraska, over the 2005-2007 crop years was 121 days after January 1st, one day later than Millennium and Wesley, and one day earlier than Antelope. Field appearance of Mace is most similar to Antelope. The juvenile plant growth form is erect, coleoptile and stem anthocyanin is absent, anther color is yellow, foliage is green and the stem is hollow. Peduncle length of field-grown (2007) samples averaged 15.7 cm.

Seed purification began in 2004. In 2007, a Foundation Seed increase was planted by the Nebraska Foundation Seed Division. Mace has been stable and uniform since 2006. Up to 1% (10:1000) variant plants (10-15 cm taller) may be encountered in subsequent generations. The Nebraska Foundation Seed Division University of Nebraska-Lincoln, Lincoln, NE 68583 will have foundation seed available to qualified certified seed enterprises in 2008. The U.S. Department of Agriculture will not have seed for distribution. The seed classes will be Breeder, Foundation, Registered, and Certified. Seed maintenance will be the responsibility of the University of Nebraska Foundation Seed Division. A sample of Mace has been deposited in the USDA-ARS National Small Grains Collection, Aberdeen, ID, where it is maintained as PI 651043. Mace will be submitted for plant variety protection under P.L. 10577 with the certification option. Acreage may be published by AOSCA and other seed certifying agencies.



HV9W02-942R (experimental designation) Hard Red Winter Wheat

HV9W02-942R is a hard red winter wheat developed and owned by WestBred LLC.

The variety was derived from the cross G53/3/Abilene/G1113//Karl 92/4/Jagger/5/KS89180B made in 1997. The line was advanced through pedigree methods, with the final derivation made from a single F7 head-row in 2004.

HV9W02-942R is adapted to the southern Great Plains, for the purpose of grain production.

HV9W02-942R has a white coleoptile and semi-erect juvenile growth habit. The leaf color at boot stage is green. The flag leaf is recurved, twisted, and has waxy bloom present. The auricle is white. Heading date is medium to medium late, a day later than Jagalene. The stem color at maturity is white. Plant height is medium, about 5 cm shorter than Overlay. The internodes are hollow, and the anthers are yellow. The spike is tapering, mid-dense, and inclined at maturity. HV9W02-942R has awns that are mid-long and white-amber at maturity. The glumes are white-amber, mid-long, with rounded shoulders, and a long, acuminate beak. The glumes are glabrous. The seed is red and ovate with a large brush. The phenol reaction is brown. Variants that may occur are 0.03% awnless plants, 0.5% tall plants (> 10 cm), and 0.01% red chaffed plants.

HV9W02-942R is moderately susceptible to acid soil conditions, resistant to soil borne mosaic virus, and spindle streak mosaic virus, and moderately susceptible to wheat streak mosaic virus. It is susceptible to Hessian fly, green bug, and Russian wheat aphid. HV9W02-942R is moderately resistant to powdery mildew, resistant to leaf rust, and stem rust, and moderately resistant to stripe rust. It has a medium coleoptile length, has good grazing potential, and excellent straw strength. HV9W02-942R has good test weight, average protein, and good to below average baking quality.

Remnant breeder seed will be utilized to reproduce the variety as needed. If necessary, 300 heads will be selected from the breeder seed increase and grown under irrigation in Colorado to renew the breeder seed and maintain purity. Seed classes to be recognized include Foundation, Registered, and Certified. We anticipate certified seed sales in fall 2008. Plant Variety Protection will be applied for. The certification option will not be elected. AOSCA and seed certifying agencies may publish acreages.



Armour (HV9W96-1271R) Hard Red Winter Wheat

Armour (HV9W96-1271R) is a hard red winter wheat developed from the cross B1551W/KS94U326, made by Hybritech. The line was selected, tested, and advanced through pedigree methodology by WestBred LLC, who owns the rights to the variety. The variety was derived from a single F8 head row in 2004.

Armour is adapted to the southern Great Plains, for the purpose of grain production.

Armour has a white coleoptile and semi-erect juvenile growth habit. The leaf color at boot stage is green. The flag leaf at boot stage is erect, twisted, and has waxy bloom present. The auricle color is white. It is early maturing, heading 5 days earlier than Jagalene. The stem color is white. Armour is medium height, 5 cm shorter than Overlay. The internodes of the stem are hollow, and the anthers are yellow. The spike is tapering, mid dense, and erect at maturity. Armour has awns that are mid-long and white-amber at maturity. The glumes are white-amber at maturity, long, with square shoulders, and acuminate beaks that are long. The glumes are glabrous. The seed is red, elliptical, and has a medium brush. The TKW is lighter than Jagalene. The seeds are most similar to those of KS 2137. The phenol reaction is brown. Variants that may occur include awnless plants at a rate of 0.02%, 0.4% talls (> 10 cm), and 0.02% red chaffed.

Armour is resistant to acid soil conditions, soil borne mosaic virus, and spindle streak mosaic virus. It is moderately susceptible to wheat streak mosaic virus. It is susceptible to Hessian fly, greenbug, and Russian aphid. Armour is resistant to powdery mildew, leaf rust, and stem rust. It is moderately susceptible to stripe rust. It has a medium length coleoptile, and has good grazing potential. Straw strength is very good. Armour has good test weight, average protein content, and acceptable milling and baking quality.

Remnant breeder seed will be utilized to reproduce the variety as needed. If necessary, 300 heads will be selected from the breeder seed increase and grown under irrigation in Colorado to renew the breeder seed and maintain purity. Seed classes to be recognized include Foundation, Registered, and Certified. We anticipate certified seed sales in fall 2008. Plant Variety Protection will be applied for. The certification option will not be elected. AOSCA and seed certifying agencies may publish acreages.



Pacheco (ACS 55304) Spring Triticale

Pacheco (ACS 55304) is a hexaploid triticale that is adapted to the San Joaquin Valley of California. Pacheco has been tested in Kings, Tulare, Kern, Fresno, Madera and Stanislaus counties. The primary intended use for Pacheco is whole plant forage for the dairy industry. Pacheco is owned by PZO Pflanzenzucht Oberlimpurg located in Germany. Pacheco will be marketed in the United States by WestBred, LLC.

Pacheco is a day length insensitive spring habit triticale. It has a short plant height relative to most triticale varieties and has very good straw strength. The leaves are blue green with upright leaf carriage. The flag leaf is twisted and has white auricles. Pubescence is present on the neck of the stem and on the glumes. The spikes are awned, fusiform, mid-wide, and mid-long with waxy bloom. The glumes are white, mid-wide and long with wanting shoulders. The seeds are light red, large with smooth texture. The brush area is mid-size and the length is mid-long. A tall variant that is 12-30 cms taller occurs at a frequency of up to .5%. The tall variant is identical to Pacheco in all other phenotype characters.

Pacheco has a resistant reaction to the current stripe rust races in California. Pacheco has not been tested for insect resistance.

PZO Pflanzenzucht Oberlimpurg will maintain breeder seed by growing 500 single spike progenies annually as "ear to row". Negative selection will be used based on obvious criteria in all stages from 4-leaf-stage to harvest

WestBred, LLC will produce Foundation seed from breeder seed. The certified classes of seed will be Foundation, Registered and Certified. Foundation seed will be first be offered for sale in the Fall of 2008. Certified acreage is not to be published by AOSCA and certifying agencies. Application for Plant Variety Protection will be made in 2008 and the "Certification Option" will not be selected.



Pivot (CA904-741) Hard Red Spring Wheat

Pivot (CA904-741) is hard red spring wheat, bred and developed by WestBred LLC that is derived from a single F₅ plant selection from the cross of Express x Knudson. It was advanced and evaluated as a bulk through the F₆ to F₇ generations with an initial F₈ Breeder Seed increase in 2005.

Pivot is a lodging resistant, medium maturity, hard red spring wheat that can achieve high yield of medium to low test weight and medium high protein grain under intensive management in the northern half of the Red River Valley and northwestern Minnesota. It is moderately susceptible to stem rust, and moderately resistant to leaf rust and foliar diseases. Pivot has a moderately susceptible to susceptible reaction to Fusarium head blight and is susceptible to stripe rust. Quality of Pivot is good based on very high SDS sedimentation values. Pivot was developed for the wheat bread flour market.

Pivot is an awned, semi-dwarf variety with mid-dense, inclined, tapering shaped spikes. Awns are long and light tan in color. The flowering glumes are light tan in color, mid-long with oblique shoulders, and medium length, acuminate beaks. The seeds are red and ovate in shape with a large brush. Pivot may contain a tall variant that is 10-20 cm taller than the general population at a frequency of 1 in 1000.

WestBred LLC will maintain breeder and Foundation seed as needed by growing head row purification increases. The certified classes of seed shall be Foundation, Registered and Certified. Foundation seed will be produced in 2008 and registered seed may be offered for sale in the spring of 2009. Application will be made for protection under the Plant Variety Protection Act and the certification option will not be selected. Acreage of Pivot is not to be published by AOSCA and certifying agencies.



CA905-776 (experimental designation)
Hard Red Spring Wheat

CA905-776 is hard red spring bread wheat, bred and developed by WestBred LLC that is derived from a single F₅ plant selection from the cross of Express x Knudson. It was advanced and evaluated as a bulk through the F₆ to F₇ generations with an initial F₈ Breeder Seed increase in the winter of 2006-2007 (Yuma, AZ).

CA905-776 is a late heading, medium height, semi-dwarf, hard red spring wheat that can achieve high yield of medium test weight and medium protein grain in the northern third of ND and MN. CA905-776 is resistant to stem rust, and moderately resistant to leaf rust and foliar diseases (tan spot and Septoria tritici). CA905-776 has a moderately susceptible to susceptible reaction to Fusarium head blight and is moderately susceptible to stripe rust. Quality of CA905-776 is good based on high SDS sedimentation values.

CA905-776 has oblong shaped spikes that are mid-dense, awned and inclined to nodding at maturity. Awns are long and white/amber in color. The flowering glumes are white/amber in color, mid-long with elevated shoulders, and medium length, acuminate beaks. The seeds are red and ovate in shape with a large brush. CA905-776 may contain a tall variant that is 10-20 cm taller than the general population at a frequency of 1 in 10,000.

WestBred LLC will maintain breeder and Foundation seed as needed by growing head row purification increases. The certified classes of seed shall be Foundation, Registered and Certified. Foundation seed will be produced in 2008 and Registered seed may be offered for sale in the spring of 2009. Application will be made for protection under the Plant Variety Protection Act and the certification option will not be selected. Acreage of CA905-776 is not to be published by AOSCA and certifying agencies.



Hat Trick (05M SP5) Hard Red Spring Wheat

Amendment – Description (Amendment in Bold and Italics)

'Hat Trick', experimental designation 05M SP5, is a hard red spring wheat developed and owned by Trigen Seed LLC.

'Hat Trick' is derived from a cross we made at Northfield, Minnesota in the summer of 2000 between the Brazilian variety Rubi and the Argentine variety PROINTA Real. We grew the F₁ population from this cross near Christchurch, New Zealand in the season of 2000-01.

We subsequently used a modified bulk breeding method from the F₂ to F₆ generations, which we alternated between Minnesota and Arizona. In 2003, we made head selections in the F₆ bulk population at Foxhome, Minnesota. We then grew F₇ head-rows near Christchurch, New Zealand. We harvested the uniform appearing rows individually and planted the resulting F₈ seed in a performance trial at Foxhome, Minnesota in 2004. We selected the best entry from the cross for promotion to advanced trial status and to an initial increase, which we designated 05M SP5.

We then grew about a ½ hectare increase of 05M SP5 in southern Buenos Aires Province, Argentina in the fall of 2005. We rogued and harvested this plot in February, 2006. This seed we designated as pre-breeder seed, from which we produced Breeder seed of 'Hat Trick' in the spring of 2006 at Foxhome, Minnesota.

The probable area of adaptation will be the Northern Plains of the U.S. The primary purpose will be grain for use in bread and breadstuffs.

'Hat Trick' is a semi-dwarf hard red spring wheat with hollow stems and white/amber, mid length awns at maturity. It has an erect juvenile growth habit and green leaf color (RHS 136B), an erect flag leaf that is not twisted with no waxy bloom. The stem color is white and the anther color is yellow. The mid-dense spike is tapering and erect at maturity. ***Hat Trick has taller variants in the order of 6 plants per 10,000 plants.***

'Hat Trick' is susceptible to stripe rust (*Puccinia striiformis*); susceptible to race TNJR but resistant to races MCDS, MHDS, TGBG, SBDG THBJ, TCTD, and MBBJ of leaf rust (*P. recondita*); resistant to moderately resistant to stem rust (*P. graminis* f.sp. *tritici*); and moderately resistant to Fusarium head blight.

Classes to be recognized are Breeder's, Foundation, Registered, and Certified. Breeder's class will be developed by a head-row purification method and by removing off-types. Foundation seed will be derived from Breeder's, Registered from Foundation, and Certified from Registered. Maintenance of Breeder seed stocks will be done by a head-row purification method. Maintenance of Foundation seed will be done either from Breeder seed or from Foundation seed.

We anticipate the production of Foundation class seed of 'Hat Trick' in Minnesota and North Dakota in 2007. The variety will first be offered for sale in 2008.

Application will be made for protection under the Plant Variety Protection Act with the "Certification Option" selected.

The acreage is to be published by AOSCA and the certifying agencies.

