

A REPORT OF THE
SMALL GRAIN VARIETY REVIEW BOARD



ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

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August 2020

The Association of Official Seed Certifying Agencies (AOSCA), Small Grain Variety Review Board (SGVRB), reviewed the following varieties on August 20, 2020. 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 Small Grain Variety Review Board by the applicants. The Small Grain Variety Review Board makes judgments regarding recommendation of varieties for inclusion into certification based on the data supplied. Beyond that, the 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 Small Grain Variety Review Board can be obtained from:

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Respectfully submitted,

Lauren Port, Chairman
Small Grains Variety Review Board

2020 AOSCA SMALL GRAIN VARIETY REVIEW BOARD

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Wheat

AB32N40RG RG02 (Exp)

1. AB32N40RG (Experimental No. RG02) is a reduced gluten hard red spring common wheat variety developed by Arcadia Biosciences, Inc.
2. AB32N40RG (Experimental No. RG02) was selected for low gluten alleles in each of the Wheat Prolamin Binding Factor (WPBF) A, B and D genomes (Moehs et al. 2019). AB32N40RG is a reduced gluten variety that was derived from the Westbred variety Express (PVPO No. 9000012). AB32N40RG has ~50% less gluten as a percentage of dry weight than its parent Express line. The grain is smaller due to the reduced gluten trait.
3. AB32N40RG (Experimental No. RG02) was tested in Brawley, CA as well as Idaho, Montana, Washington and North Dakota and is well adapted to the Imperial Valley and Inland Pacific Northwest Regions.

4. Identifying characteristics:

1. Kind:	Common, Hard Red Spring Wheat		
2. Seasonal Growth Habit:	<u>Spring</u>	16. Awn Type:	<u>Awed</u>
3. Coleoptile Color:	<u>White</u>	17. Awn Color:	<u>White</u>
4. Juvenile Growth Habit:	<u>Erect</u>	18. Glume Color:	<u>Tan</u>
5. Leaf Color at Boot:	<u>Blue Green</u>	19. Glume Length:	<u>Long</u>
6. Flag Leaf at Boot:	<u>Erect, Twisted, Waxed</u>	20. Shoulder Shape:	<u>Oblique</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Wide</u>
8. Day(s) to 50% Heading:	<u>59</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>L</u>
10. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Present</u>
11. Plant Height (cm):	<u>64.3</u>	25. Seed Color:	<u>Red</u>
12. Internodes:	<u>Hollow</u>	26. Seed Shape:	<u>Elliptical</u>
13. Spike Shape:	<u>Oblong</u>	27. Cheeks:	<u>Rounded</u>
14. Spike Density:	<u>Lax</u>	28. Brush Size (S,M,L.):	<u>M</u>
15. Spike Curvature:	<u>Nodding</u>	29. Avg 1,000 Kernel Wt (grams):	<u>26.9</u>
30. Physiological/biochemical Traits:	AB32J10HF grain contains ~50% less gluten than Express as a percent dry weight.		
Variants and frequency:	Up to 15 seeds per 10,000 (0.15%) White wheat		

6. Recognized classes of AB32N40RG are breeder, foundation, registered, and certified. Arcadia Biosciences, Inc. will maintain the variety and validate the presence of the WBPF alleles using molecular markers to produce breeder seed as needed and all foundation seed. Royalty fees or licensing agreements are anticipated.
7. Certified seed will be available in September of 2020.
8. Application for PVP is not planned. Wheat variety AB32N40RG is protected by US Patent 10,412,909 B2 and other patents pending.
9. Certified seed production acreage is not to be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jun 16, 2020

Date recommended by the VRB: Sep 23, 2020



Wheat

APB026 W65026 (Exp)

1. APB026, experimental line W65026, is a hard red spring wheat developed by Arizona Plant Breeders, Inc.
2. APB026 was selected and developed using the pedigree breeding methodology. It was selected for high grain yield, good milling characteristics, disease and lodging resistance.
3. It was originally selected and tested in eastern Washington state and shown to be well adapted to this area. Further testing in the central valley of California showed excellent adaptation to this area as well. It is anticipated that APB026 will be utilized in these areas as a general all-purpose milling variety.
4. APB026 is moderately resistant (MR) to Stripe Rust (*Puccinia striiformis*) and moderately resistant (MR) to lodging.
5. Identifying characteristics –

1. Kind:	Common, Hard Red Spring Wheat		
2. Seasonal Growth Habit:	Spring	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	Tan
4. Juvenile Growth Habit:	Erect	18. Glume Color:	Tan
5. Leaf Color at Boot:	Green	19. Glume Length:	Medium
6. Flag Leaf at Boot:	Erect, Twisted, Present	20. Shoulder Shape:	Oblique
7. Auricle Color:	White	21. Shoulder Width:	Medium
8. Day(s) to 50% Heading:	92	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Medium
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	106.7	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Elliptical
13. Spike Shape:	Tapering	27. Cheeks:	Rounded
14. Spike Density:	Mid-dense	28. Brush Size (S,M,L.):	Short
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	53.8

Physiological/biochemical Traits: NA

Variants and their frequency: Tall plants of six inches or more occur at a frequency of 1 in every 1,000 plants.

6. Recognized classes of APB026 will be breeder, foundation, registered, and certified seed. Arizona Plant Breeders, Inc. will maintain the variety by the spike to row purification method to produce uniform breeder's seed as needed. APB026 will have a royalty and licensing agreement required.
7. Certified seed of APB026 will likely be available in limited supply in fall of 2023.
8. It is anticipated that an application for PVP protection will be applied for APB026 under the U.S. Plant Variety Protection Act. It is also anticipated that APB026 will be protected under Title V of the PVP Act, and will only be sold as a class of certified seed.
9. Certified seed acreage may be published by AOSCA and individual seed certifying agencies.

Date this application was submitted: Jul 07, 2020

Date recommended by the VRB: Sep 15, 2020



Wheat

APB107 W65107 (Exp)

1. APB107, experimental line W65107, is a hard red spring wheat developed and marketed by Arizona Plant Breeders, Inc.
2. APB107 was selected and developed using the pedigree breeding methodology. It was selected for high grain yield, excellent milling characteristics, and disease resistance.
3. APB107 was originally selected and tested in Eastern Washington state. It was shown to be well adapted to this area. Further testing in the central valley of California has also demonstrated excellent results. It is anticipated that APB107 will be grown in these regions as a general all-purpose milling variety.
4. APB107 has demonstrated resistance to Stripe Rust (*Puccinia striiformis*).
5. Identifying characteristics –

1. Kind:	Common, Hard Red Spring Wheat		
2. Seasonal Growth Habit:	Spring	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	Tan
4. Juvenile Growth Habit:	Erect	18. Glume Color:	Tan
5. Leaf Color at Boot:	Green	19. Glume Length:	Medium
6. Flag Leaf at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Rounded
7. Auricle Color:	White	21. Shoulder Width:	Medium
8. Day(s) to 50% Heading:	94 days	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Medium
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	94.0 cm	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Elliptical
13. Spike Shape:	Tapering	27. Cheeks:	Angular
14. Spike Density:	Lax	28. Brush Size (S,M,L.):	Medium
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	42.2

30. Other Physiological/biochemical Traits: NA

Variants and their frequency: Tall plants of six or more inches occur at a frequency of 1 in every 1,000 plants.

6. Recognized classes of APB107 will be breeder, foundation, registered, and certified seed. Arizona Plant Breeders, Inc. will maintain the variety by the spike to row purification method to produce uniform breeder's seed as needed. APB107 will have a royalty and licensing agreement required.
7. Certified seed of APB107 will likely be available in limited supply in fall of 2023.
8. It is anticipated than an application for PVP protection will be applied for APB107 under the U.S. Plant Variety Protection Act. It is also anticipated that APB107 will be protected under Title V of the PVP Act, and will only be sold as a class of certified seed.
9. Certified seed acreage may be published by AOSCA and individual seed certifying agencies.

Date this application was submitted: Jul 07, 2020

Date recommended by the VRB: Aug 20, 2020



Wheat

APB108 W65108 (Exp)

1. APB108, experimental line W65108, is a hard red spring wheat developed and marketed by Arizona Plant Breeders, Inc.
2. APB108 was selected and developed using the pedigree breeding methodology. It was selected for high grain yield, excellent milling characteristics, and disease resistance.
3. APB108 was originally selected and tested in Eastern Washington state. It was shown to be well adapted to this area. Further testing in the central valley of California has also demonstrated excellent results. It is anticipated that APB108 will be grown in these regions as a general all-purpose milling variety.
4. APB108 has demonstrated resistance to Stripe Rust (*Puccinia striiformis*).
5. Identifying characteristics –

1. Kind:	Common, Hard Red Spring Wheat		
2. Seasonal Growth Habit:	Spring	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	Tan
4. Juvenile Growth Habit:	Erect	18. Glume Color:	Tan
5. Leaf Color at Boot:	Green	19. Glume Length:	Medium
6. Flag Leaf at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Wanting
7. Auricle Color:	White	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	94	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Medium
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	91.4	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Elliptical
13. Spike Shape:	Tapering	27. Cheeks:	Rounded
14. Spike Density:	Lax	28. Brush Size (S,M,L.):	Medium
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	43.3

30. Other Physiological/biochemical Traits: NA

Variants and their frequency: Tall plants of six or more inches occur at a frequency of 1 in every 1,000 plants.

6. Recognized classes of APB108 will be breeder, foundation, registered, and certified seed. Arizona Plant Breeders, Inc. will maintain the variety by the spike to row purification method to produce uniform breeder's seed as needed. APB108 will have a royalty and licensing agreement required.
7. Certified seed of APB108 will likely be available in limited supply in fall of 2023.
8. It is anticipated than an application for PVP protection will be applied for APB108 under the U.S. Plant Variety Protection Act. It is also anticipated that APB108 will be protected under Title V of the PVP Act, and will only be sold as a class of certified seed.
9. Certified seed acreage may be published by AOSCA and individual seed certifying agencies.

Date this application was submitted: Jul 07, 2020

Date recommended by the VRB: Sep 15, 2020



Wheat

APB400 D471400 (Exp)

1. APB400, experimental designation D471400, is a durum wheat developed and released by Arizona Plant Breeders, Inc.
2. APB400 was selected from an F2 Male Sterile Facilitated Recurrent Selection population. Selection criteria during early generations included early maturity, straw strength, and disease resistance. Later generation selection criteria included yield and milling quality.
3. APB400 has shown excellent adaptation as a high yield, high quality durum wheat in the durum producing regions of Arizona and California as well as spring durum regions in Colorado.
4. APB400 has demonstrated resistance to the prevalent races of stripe rust in California (*Puccinia striiformis*), Barley Yellow Dwarf Virus, and Leaf Spot and as such can be grown without restriction in these regions. It's milling and end-use characteristics are exceptional.

5. Identifying characteristics –

1. Kind:	Durum Wheat (<i>Triticum turgidum</i> spp. durum)		
2. Seasonal Growth Habit:	Spring	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	Tan
4. Juvenile Growth Habit:	Erect	18. Glume Color:	Tan
5. Leaf Color at Boot:	Green	19. Glume Length:	Medium
6. Flag Leaf at Boot:	Erect, Twisted, Waxed	20. Shoulder Shape:	Oblique
7. Auricle Color:	White	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	94 days	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Long
10. Anthoncyanin:	Absent	24. Glume Pubescence:	Present
11. Plant Height (cm):	80.0 cm	25. Seed Color:	Amber
12. Internodes:	Semi-solid	26. Seed Shape:	Elliptical
13. Spike Shape:	Oblong	27. Cheeks:	Angular
14. Spike Density:	Mid-dense	28. Brush Size (S,M,L.):	Short
15. Spike Curvature:	Erect	29. Avg 1,000 Kernel Wt (grams):	53.76
30. Physiological/biochemical Traits:	N/A		

Variants and frequency: Tall plants of six or more inches occur at a frequency of 1 in every 1,000 plants.

6. Recognized classes of APB400 will be breeder, foundation, registered, and certified seed. Arizona Plant Breeders, Inc. will maintain the variety by the spike to row purification method to produce uniform breeder's seed as needed. APB400 will have a royalty and licensing agreement required.
7. Certified seed of APB400 will likely be available in limited supply in fall of 2023.
8. It is anticipated than an application for PVP protection will be applied for APB400 under the U.S. Plant Variety Protection Act. It is also anticipated that APB400 will be protected under Title V of the PVP Act, and will only be sold as a class of certified seed.
9. Certified seed acreage may be published by AOSCA and individual seed certifying agencies.

Date this application was submitted: Jul 07, 2020

Date recommended by the VRB: Sep 15, 2020



Wheat

APB822 D152822 (Exp)

1. APB822, experimental designation D152822, is a durum wheat developed and released by Arizona Plant Breeders, Inc.
2. APB822 was selected utilizing pedigree breeding methodology for high grain yield, good milling characteristics, lodging resistance, and low-cadmium content.
3. APB822 has demonstrated potential as a high yield, high quality durum wheat in the production regions of Arizona and California.
4. APB822 is moderately resistant to Stripe Rust (*Puccinia striiformis*) and demonstrates low-cadmium content in the grain.
5. Identifying characteristics –

1. Kind:	Durum	16. Awn Type:	Awned
2. Seasonal Growth Habit:	Spring	17. Awn Color:	Tan
3. Coleoptile Color:	Other (anthocyanin)	18. Glume Color:	Tan
4. Juvenile Growth Habit:	Erect	19. Glume Length:	Medium
5. Leaf Color at Boot:	Green	20. Shoulder Shape:	Apiculate
6. Flag Leaf at Boot:	Erect, Twisted, Waxed	21. Shoulder Width:	Narrow
7. Auricle Color:	White	22. Beak Shape:	Acuminate
8. Day(s) to 50% Heading:	86	23. Beak Length (S,M,L,VL):	Medium
9. Anther Color:	Yellow	24. Glume Pubescence:	Absent
10. Anthocyanin:	Absent	25. Seed Color:	Amber
11. Plant Height (cm):	61.0	26. Seed Shape:	Elliptical
12. Internodes:	Hollow	27. Cheeks:	Angular
13. Spike Shape:	Oblong	28. Brush Size (S,M,L.):	Medium
14. Spike Density:	Mid-dense	29. Avg 1,000 Kernel Wt (grams):	50.2
15. Spike Curvature:	Erect		

30. Physiological/biochemical Traits: NA

Variants and their frequency: Tall plants of six or more inches occur at a frequency of 1 in every 1,000 plants.

6. Recognized classes of APB822 will be breeder, foundation, registered, and certified seed. Arizona Plant Breeders, Inc. will maintain the variety by the spike to row purification method to produce uniform breeder's seed as needed. APB822 will have a royalty and licensing agreement required.
7. Certified seed of APB822 will likely be available in limited supply in fall of 2023.
8. It is anticipated that an application for PVP protection will be applied for APB822 under the U.S. Plant Variety Protection Act. It is also anticipated that APB822 will be protected under Title V of the PVP Act, and will only be sold as a class of certified seed.
9. Certified acreage may be published by AOSCA and individual seed certifying agencies.

Date this application was submitted: Jul 07, 2020

Date recommended by the VRB: Sep 15, 2020



Wheat
WB4401
XC4109 (Exp)
(Amended – Description Change)

Variety Name WB4401
 Experimental Designation(s) XC4109
 Date SGVRB first recommended this variety May 18, 2020
 Date(s) any previous amendments were recommended _____
 Date this amendment was submitted July 1, 2020

1. WB4401 (XC4109) is a hard red winter wheat developed by Bayer Crop Science.
2. In early generations of WB4401, single spikes were selected based on agronomics and disease resistance. Later generations were selected based on yield, quality, and disease resistance.
3. WB4401 is adapted to the hard red winter wheat growing regions of the Central Plains.
4. No claims about disease resistance are made at this time.
5. Identifying characteristics –

1. Kind:	<u>Common, Hard Red Winter Wheat</u>		
2. Seasonal Growth Habit:	<u>Winter</u>	16. Awn Type:	<u>Awned</u>
3. Coleoptile Color:	<u>White</u>	17. Awn Color:	<u>White</u>
4. Juvenile Growth Habit:	<u>Erect</u>	18. Glume Color:	<u>White</u>
5. Leaf Color at Boot:	<u>Green</u>	19. Glume Length:	<u>Medium</u>
6. Flag Leaf at Boot:	<u>Erect, Twisted, Wax Present</u>	20. Shoulder Shape:	<u>Elevated</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Wide</u>
8. Day(s) to 50% Heading:	<u>129</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>Short</u>
10. Anthocyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent (Glabrous)</u>
11. Plant Height (cm):	<u>86</u>	25. Seed Color:	<u>Red</u>
12. Internodes:	<u>Hollow</u>	26. Seed Shape:	<u>Oval</u>
13. Spike Shape:	<u>Tapering</u>	27. Cheeks:	<u>Rounded</u>
14. Spike Density:	<u>Lax</u>	28. Brush Size (S,M,L.):	<u>Short (S)</u>
15. Spike Curvature:	<u>Inclined</u>	29. Avg 1,000 Kernel Wt (grams):	<u>48.5</u>

30. Physiological/biochemical Traits:

Variants and frequency: A variant that is similar to WB4401 but has white seed occurs at a frequency of up to 0.50% (50 out 10,000 seeds). A variant that is similar to WB4401 but is 15cm to 20cm taller occurs at a frequency of up to 0.2% (20/10,000). A bronze head variant may occur at a frequency of 0.1% (10/10,000). An awnless variant may occur at a frequency of 0.1% (10/10,000).

6. Recognized classes of WB4401 are breeder, foundation, registered, and certified. Bayer Crop Science will maintain the variety by the head-row purification method to produce breeder seed as needed and all foundation seed. Royalty fees and/ or licensing agreements are anticipated.
7. Commercial seed will likely be ready for sale by the fall of 2020.
8. Application for PVP is anticipated with the option that WB4401 can be sold by variety name only as a class of certified seed.
9. Certified seed production acreage is not to be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jul 01, 2020

Date recommended by the VRB: Aug 20, 2020



Wheat

AP18 AX CO14A136 (Exp)

1. AP18 AX was tested as experimental number CO14A136. It is a medium-maturity, medium-height semidwarf hard red winter wheat developed by Colorado State University (CSU). Ownership of AP18 AX has been transferred to the Colorado Wheat Research Foundation (CWRF). CWRF has issued exclusive marketing rights for AP18 AX to Syngenta Seeds LLC in the United States and all its territories.
2. AP18 AX is a CoAXium® wheat cultivar that was developed using a modified pedigree breeding method. The pedigree of this cross is AF10/2*Byrd//AF26/Byrd. Selection criteria during development included general agronomic adaptation, grain yield and yield stability, test weight, milling and bread baking quality, and tolerance to Aggressor herbicide.
3. AP18 AX was tested throughout the U.S. hard winter wheat region. It is best adapted for dryland production conditions in Colorado.
4. No pest reaction claims are made.
5. Identifying characteristics –

1. Kind:	Common, Hard Red Winter Wheat		
2. Seasonal Growth Habit:	Winter	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	White
4. Juvenile Growth Habit:	Semi-erect	18. Glume Color:	White/Amber
5. Leaf Color at Boot:	Green	19. Glume Length:	Medium
6. Flag Leaf at Boot:	Erect, Not Twisted, Wax Present	20. Shoulder Shape:	Rounded
7. Auricle Color:	White	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	141 from Jan 1	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Medium
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	84	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Ovate
13. Spike Shape:	Tapering	27. Cheeks:	Rounded
14. Spike Density:	Mid dense	28. Brush Size (S,M,L.):	Medium
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	29

30. Physiological/
Biochemical Traits: The owner of the variety requests an Additional Certification Requirement as a condition of eligibility for final certification. All CoAXium® Wheat Production System seedlots must be submitted to a CoAXium® Wheat Production System certified seed testing lab and pass the AXigen® Seed Assay prior to its sale and distribution as Foundation, Registered, or Certified seed to confirm the acceptable, minimum herbicide tolerance level of 92% to Aggressor herbicide.

Variants and Frequency: Variants are limited to: (1) extreme tall plants (head height greater than one head length above the main canopy) that occur at a frequency of fewer than 1 in 1,000 plants; (2) plants with brown glumes that occur at a frequency of fewer than 1 in 1,000 plants; (3) plants that produce heads that lack awns at a frequency of fewer than 1 in 1,000 plants; and (4) Seed may contain up to 0.5% white wheat seeds.

6. Recognized classes of AP18 AX are breeder, foundation, registered, and certified. Syngenta Seeds LLC has been granted rights to maintain purity of the variety and maintain Foundation seedstocks, and may utilize Colorado State University's Foundation seed program for manual removal of off-types in maintenance of breeder or foundation seed. Royalties will be collected through the Colorado Wheat Research Foundation.
7. Certified seed of AP18 AX will likely be available for planting in fall of 2020.
8. PVP application has been submitted with the option that AP18 AX can be sold by variety name only as a class of certified seed.
9. Certified seed production acreage of AP18 AX may not be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jun 22, 2020

Date recommended by the VRB: Sep 22, 2020



Wheat

Lustre MTD16005 (Exp)

1. Lustre is a spring durum variety developed by Montana State University.
2. Lustre was selected for high yield, disease resistance, pasta quality, and resistance to stem and leaf rust.
3. Lustre has been tested in the durum producing regions of Montana and has been proven to be well adapted to this region as an excellent pasta variety.
4. Lustre is very resistant to both stem and leaf rust and is moderately resistant to fungal leaf spot.
5. Identifying characteristics –

1. Kind:	Durum		
2. Seasonal Growth Habit:	Spring	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	White
4. Juvenile Growth Habit:	Semi-erect	18. Glume Color:	White
5. Leaf Color at Boot:	Yellow Green	19. Glume Length:	Medium (9 mm)
6. Flag Leaf at Boot:	Erect, Twisted, Wax Absent	20. Shoulder Shape:	Apiculate
7. Auricle Color:	White	21. Shoulder Width:	Medium
8. Day(s) to 50% Heading:	Julian 179, average 74 days from April 15 th planting to June 28 th heading	22. Beak Shape:	Acute
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	M
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	89.4	25. Seed Color:	Amber
12. Internodes:	Hollow	26. Seed Shape:	Elliptical
13. Spike Shape:	Tapering	27. Cheeks:	Angular
14. Spike Density:	Mid-dense	28. Brush Size (S,M,L.):	Short
15. Spike Curvature:	Erect	29. Avg 1,000 Kernel Wt (grams):	41.0

30. Physiological/biochemical Traits: Contains genes for low cadmium accumulations and increased pasta firmness.

Variants and frequency: 0.2% tails or 20 in 10,000 spikes.

6. Recognized classes of Lustre are breeder, foundation, registered, and certified. Montana State University will maintain the variety by the head-row method to produce breeder seed as needed. MTD16005 will have a royalty fee.
7. Certified seed will be available for planting the spring of 2022.
8. Application for PVP is anticipated with the option that Lustre can be sold by variety name only as a class of certified seed.
9. Certified seed acreage can be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jul 02, 2020

Date recommended by the VRB: Sep 15, 2020



Wheat

Milestone ACS14132-412 (Exp)

1. Milestone (ACS14132-412) is a hard, red winter wheat developed by Pflanzenzucht Oberlimpurg (Dr. Peter Franck) of Germany and licensed to Nutrien Ag Solutions.
2. Milestone was developed using a pedigree, single seed descent breeding procedure, with selection for standability, yielding potential, test weight, protein gluten strength.
3. Milestone has been tested in Nutrien Ag Solution trials in Montana (irrigated and dryland) and in S.E. and S. Central Idaho (irrigated). It is well adapted to those conditions in the PNW and MT.
4. Stripe rust was only observed in one year of testing (see Table 3.) and Milestone was tolerant when the check varieties showed various levels of susceptibility.
5. Identifying characteristics –

1. Kind:	Common, Hard Red Winter Wheat		
2. Seasonal Growth Habit:	Winter	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	White
4. Juvenile Growth Habit:	Prostrate	18. Glume Color:	White
5. Leaf Color at Boot:	Gray-Blue	19. Glume Length:	Medium
6. Flag Leaf at Boot:	Erect, Twisted	20. Shoulder Shape:	Elevated
7. Auricle Color:	White	21. Shoulder Width:	Medium
8. Day(s) to 50% Heading:	159 Julian	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Medium
10. Anthocyanin:	Absent	24. Glume Pubescence:	Present
11. Plant Height (cm):	83	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Ovate
13. Spike Shape:	Oblong	27. Cheeks:	Rounded
14. Spike Density:	Mid dense	28. Brush Size (S,M,L.):	Long
15. Spike Curvature:	Erect	29. Avg 1,000 Kernel Wt (grams):	45

30. Physiological/biochemical Traits:

Variants and frequency: A white seed variant may occur at a frequency of up to 10 white seeds/10,000 seeds. An awnless variant may occur at a frequency of up to 4 plants per 10,000 plants. Taller plants (one to two heads taller) may occur at a frequency of up to 10 plants per 10,000 plants). Otherwise, no other variants are known to occur.

6. Recognized classes of seed are Breeder, Foundation Registered, and Certified. Milestone will be regenerated by head row purification when needed by Nutrien Ag Solutions (NAS). Royalties will be collected by NAS.
7. Certified Seed will be offered for sale in the fall of 2020.
8. Application will be made for PVP protection and the Title V option will NOT be chosen.
9. Seed production acreage of Milestone is not to be published by AOSCA or other seed certifying agencies.

Date this application was submitted: Jul 07, 2020

Date recommended by the VRB: Sep 15, 2020



Wheat

NP12100559-16 (Exp)

1. NP12100559-16 is a Hard red spring wheat developed by Syngenta Crop Protection, LLC
2. NP12100559-16 was selected for yield, height, lodging resistance, disease resistance and quality
3. NP12100559-16 was tested in and is broadly adapted in the spring wheat production areas of the Northern Plains.
4. NP12100559-16 has intermediate tolerance to FHB and foliar leaf spotting diseases
5. Identifying characteristics –

1. Kind:	<u>Common, Hard Red Spring Wheat</u>		
2. Seasonal Growth Habit:	<u>Spring</u>	16. Awn Type:	<u>Awned</u>
3. Coleoptile Color:	<u>White</u>	17. Awn Color:	<u>White</u>
4. Juvenile Growth Habit:	<u>Semi-Erect</u>	18. Glume Color:	<u>White/Amber</u>
5. Leaf Color at Boot:	<u>Blue-Green</u>	19. Glume Length:	<u>Long</u>
6. Flag Leaf at Boot:	<u>Erect, Twisted, Wax Present</u>	20. Shoulder Shape:	<u>Oblique</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Narrow</u>
8. Day(s) to 50% Heading:	<u>59</u>	22. Beak Shape:	<u>Accuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>Long</u>
10. Anthocyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent</u>
11. Plant Height (cm):	<u>78</u>	25. Seed Color:	<u>Red</u>
12. Internodes:	<u>Hollow</u>	26. Seed Shape:	<u>Ovate</u>
13. Spike Shape:	<u>Tapering</u>	27. Cheeks:	<u>Rounded</u>
14. Spike Density:	<u>Mid-dense</u>	28. Brush Size (S,M,L.):	<u>Long</u>
15. Spike Curvature:	<u>Erect</u>	29. Avg 1,000 Kernel Wt (grams):	<u>30.6</u>

30. Physiological/biochemical Traits:

Variants and frequency: Less than 0.8% of the plants were rogued from the pre breeder seed increase at Eaton, CO. Approximately 95% of the rogued variant plants were taller height wheat plants (8 to 15 cm). Up to 1.0% variant plants may be encountered in subsequent generations.

6. Syngenta Seeds, Inc. maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, Inc. will maintain the variety by the head row/progeny method to produce seed as needed.
7. Certified seed of NP12100559-16 will likely be available for planting in spring of 2022.
8. Application for PVP is anticipated.
9. Certified acreage is not to be published by AOSCA and certifying agencies.

Date this application was submitted: Jul 08, 2020

Date recommended by the VRB: Sep 02, 2020



Wheat

SY Wolverine 08BC379-40-1 (Exp) (Amended – Description Change)

Variety Name SY Wolverine

Experimental Designation(s) 08BC379-40-1

Date SGVRB first recommended this variety April 26, 2019

Date(s) any previous amendments were recommended _____

Date this amendment was submitted July 8, 2020

1. SY Wolverine (08BC379-40-1) is a hard red winter wheat developed by Syngenta Participation AG.
2. SY Wolverine (08BC379-40-1) was selected for height, maturity, green leaf duration, disease reaction, and end use quality.
3. SY Wolverine (08BC379-40-1) is broadly adapted across the Northern, Central, and Western Plains.
4. SY Wolverine (08BC379-40-1) has shown above average leaf rust tolerance.
5. Identifying characteristics –

1. Kind:	<u>Common, Hard Red Winter Wheat</u>		
2. Seasonal Growth Habit:	<u>Winter</u>	16. Awn Type:	<u>Awned</u>
3. Coleoptile Color:	<u>White</u>	17. Awn Color:	<u>White</u>
4. Juvenile Growth Habit:	<u>Erect</u>	18. Glume Color:	<u>White/Amber</u>
5. Leaf Color at Boot:	<u>Green</u>	19. Glume Length:	<u>Long</u>
6. Flag Leaf at Boot:	<u>Erect, Twisted, Wax Absent</u>	20. Shoulder Shape:	<u>Oblique</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Narrow</u>
8. Day(s) to 50% Heading:	<u>131</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>Short</u>
10. Anthocyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent (glabrous)</u>
11. Plant Height (cm):	<u>81 cm</u>	25. Seed Color:	<u>Red</u>
12. Internodes:	<u>Hollow</u>	26. Seed Shape:	<u>Ovate</u>
13. Spike Shape:	<u>Tapering</u>	27. Cheeks:	<u>Rounded</u>
14. Spike Density:	<u>Mid Dense</u>	28. Brush Size (S,M,L.):	<u>Short</u>
15. Spike Curvature:	<u>Inclined</u>	29. Avg 1,000 Kernel Wt (grams):	<u>33 g</u>

30. Physiological/biochemical Traits:

Variants and frequency: We could expect to see up to 1.8% white seed variant.

6. Syngenta seeds, LLC. maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, LLC. will maintain the variety by the head row/progeny method to produce breeder seed as needed. Royalty fees are anticipated.
7. Certified seed will likely be available Fall of 2020.
8. Plant Variety Protection is anticipated in 2018 and SY Wolverine may only be sold as a class of certified seed.
9. Certified acreage is not to be published by AOSCA and certifying agencies.

Date this application was submitted: July 8, 2020

Date recommended by the VRB: Aug 20, 2020



Barley

APB217 B217 (Exp)

1. APB217 (B217) is a six-row spring feed barley developed and marketed by Arizona Plant Breeder's Inc.
2. APB217 was developed utilizing the Male Sterile Facilitated Recurrent Selection breeding methodology. It was selected for high grain yield, straw strength, and disease resistance.
3. APB217 was developed, selected, and tested in the low desert barley production regions of Arizona. It was found to be well adapted to these areas, and will be utilized as a feed barley in these principal production regions.
4. APB217 has excellent lodging resistance as well as being resistant to *Puccinia Striformis*, the prevalent form of stripe rust in these production regions.
5. Identifying characteristics –

1. Growth Habit:	<u>Spring</u>	16. Plant Height (see below):	<u>67.3 cm</u>
2. Spike:	<u>6-row</u>	17. Spike Shape:	<u>Oblong</u>
3. Coleoptile Color:	<u>Other (White)</u>	18. Spike Density:	<u>Lax</u>
4. Juvenile Growth Habit:	<u>Semi-erect or Semi-prostrate</u>	19. Spike Position at Maturity:	<u>Nodding</u>
5. Plant Tillering:	<u>Intermediate</u>	20. Hairiness of Rachis Edge:	<u>Lacking</u>
6. Leaf Color at Boot:	<u>Green</u>	21. Rachilla Hair Length:	<u>Short</u>
7. Flag Leaf at Boot:	<u>Erect, Twisted, No Waxy Bloom</u>	22. Lemma Awns:	<u>Straight</u>
8. Pubescence on Leaf Blade:	<u>No</u>	23. Length of Lemma Awns:	<u>Long</u>
9. Pubescence on Leaf Sheath:	<u>No</u>	24. Lemma Awn Surface:	<u>Semi-smooth</u>
10.:Auricle Color:	<u>White</u>	25. Glume Hairiness:	<u>None</u>
11.Heading Date (see below):	<u>97 days</u>	26. Glume Awn Surface:	<u>Semi-smooth</u>
12. Stem Color:	<u>Green</u>	27. Glume/Lemma Adherence:	<u>Covered</u>
13. Neck Shape:	<u>Snaky</u>	28. Texture (if covered):	<u>Slightly-Wrinkled</u>
14. Collar Shape:	<u>V-Shaped</u>	29. Aleurone Color:	<u>Colorless</u>
15. Spike Exsertion:	<u>Slight</u>	30. Avg 1,000 Kernel Wt (grams):	<u>41.2</u>

Heading date: 97 which is: 0 Day(s) (EARLIER) (LATER) than: Baretta

Plant height: 67.3 cm, which is 0.6 cm SHORTER Baretta

Physiological or biochemical traits: NA

Variants and their frequency: Tall plants of six inches or more occur at a frequency of 1 in every 1,000 plants.

6. Recognized classes of APB217 will be breeder, foundation, registered, and certified seed. Arizona Plant Breeders, Inc. will maintain the variety by the spike to row purification method to produce uniform breeder's seed for a foundation seed program. Some form of royalty fees and licensing agreements are anticipated.
7. Certified seed of APB217 likely will be available in limited supply in the fall of 2023.
8. It is anticipated than an application for PVP protection will be applied for APB217 under the U.S. Plant Variety Protection Act. It is also anticipated that APB217 will be protected under Title V of the PVP Act, and will only be sold as a class of certified seed.
9. Certified seed production acreage may be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jul 07, 2020

Date recommended by the VRB: Sep 15, 2020



Barley

APB708 B153708 (Exp)

1. APB708 (B173708) is a two-row spring malting barley developed and marketed by Arizona Plant Breeder's, Inc.
2. APB708 was developed utilizing the Male Sterile Facilitated Recurrent Selection breeding methodology. It was selected for high grain yield, resistance to lodging, and for its excellent malting quality characteristics.
3. It was developed, selected, and tested in the low deserts of Arizona and shown to be adapted well to this area. It is anticipated that the primary use for APB708 will be for malting barley in this region.
4. APB708 is moderately resistant to Stripe Rust (*Puccinia striiformis*).
5. Identifying characteristics –

1. Growth Habit:	<u>Spring</u>	16. Plant Height (see below):	<u>78.7 cm</u>
2. Spike:	<u>2-row</u>	17. Spike Shape:	<u>Fusiform</u>
3. Coleoptile Color:	<u>Purple</u>	18. Spike Density:	<u>Lax</u>
4. Juvenile Growth Habit:	<u>Semi-erect or Semi-prostrate</u>	19. Spike Position at Maturity:	<u>Nodding</u>
5. Plant Tillering:	<u>Intermediate</u>	20. Hairiness of Rachis Edge:	<u>Few</u>
6. Leaf Color at Boot:	<u>Yellow-green</u>	21. Rachilla Hair Length:	<u>Short</u>
7. Flag Leaf at Boot:	<u>Recurved, Twisted, Waxy Bloom</u>	22. Lemma Awns:	<u>Straight</u>
8. Pubescence on Leaf Blade:	<u>No</u>	23. Length of Lemma Awns:	<u>Long</u>
9. Pubescence on Leaf Sheath:	<u>No</u>	24. Lemma Awn Surface:	<u>Rough</u>
10.:Auricle Color:	<u>White</u>	25. Glume Hairiness:	<u>None</u>
11.Heading Date (see below):	<u>100 days</u>	26. Glume Awn Surface:	<u>Rough</u>
12. Stem Color:	<u>Green</u>	27. Glume/Lemma Adherence:	<u>Covered</u>
13. Neck Shape:	<u>Straight</u>	28. Texture (if covered):	<u>Semi-wrinkled</u>
14. Collar Shape:	<u>Closed</u>	29. Aleurone Color:	<u>Colorless</u>
15. Spike Exsertion:	<u>Slight</u>	30. Avg 1,000 Kernel Wt (grams):	<u>46.4</u>

Heading date: 100 which is: 0 Day(s) (EARLIER) (LATER) than: Genie

Plant height: 78.7 cm, which is 5.1 cm TALLER than Genie

Physiological or biochemical traits: NA

Variants and their frequency: Tall plants of six or more inches occur at a frequency of 1 in every 1,000 plants.

6. Recognized classes of APB708 will be breeder, foundation, registered, and certified seed. Arizona Plant Breeders, Inc. will maintain the variety by the spike to row purification method to produce uniform breeder's seed as needed. APB708 will have a royalty and licensing agreement required.
7. Certified seed of APB708 will likely be available in limited supply in fall of 2023.
8. It is anticipated than an application for PVP protection will be applied for APB708 under the U.S. Plant Variety Protection Act. It is also anticipated that APB708 will be protected under Title V of the PVP Act, and will only be sold as a class of certified seed.
9. Certified seed acreage may be published by AOSCA and individual seed certifying agencies.

Date this application was submitted: Jul 07, 2020

Date recommended by the VRB: Sep 15, 2020



Triticale

APB226 T470226 (Exp)

1. APB226, experimental designation T470226, is a Triticale variety developed by Arizona Plant Breeders, Inc.
2. APB226 was selected for high forage yield and resistance to lodging using the pedigree breeding methodology.
3. APB226 was developed and tested in the forage triticale production regions of the San Joaquin Valley of California. It was found to be well adapted to this area, and this will be the primary purpose as a livestock forage feed.
4. APB226 has excellent lodging resistance.

5 Identifying characteristics –

1. Ploidy:	<u>Hexaploid</u>	15. Awn Color:	<u>Tan</u>
2. Growth Habit:	<u>Spring</u>	16. Glume Pubescence:	<u>Pubescent</u>
3. Photoperiod Reaction:	<u>Insensitive</u>	17. Glume Color:	<u>Tan</u>
4. Winterhardiness:	<u>Low</u>	18. Glume Length:	<u>Mid-long</u>
5. Maturity:	<u>Mid-Season</u>	19. Glume Width:	<u>Narrow</u>
6. Height:	<u>Mid-Tall</u>	20. Glume Shoulder Shape:	<u>Apiculate</u>
7. Plant Color at Boot Stage:	<u>Blue-Green</u>	21. Glume Beak Shape:	<u>Acuminate</u>
8. Stem Anthocyanin:	<u>Absent</u>	22. Coleoptile Color:	<u>White</u>
9. Neck Hairiness:	<u>Moderate</u>	23. Seed Shape:	<u>Elliptical</u>
10. Neck Shape:	<u>Wavy</u>	24. Seed Smoothness:	<u>Slightly wrinkled</u>
11. Flag Leaf at Boot:	<u>Twisted, Erect, Present</u>	25. Seed Brush Area:	<u>Small</u>
12. Spike Density:	<u>Mid-Dense</u>	26. Seed Brush Length:	<u>Long</u>
13. Spike Shape:	<u>Fusiform</u>	27. Seed Color:	<u>Red</u>
14. Spike Awedness:	<u>Awnletted</u>	28. Seed Relative Size:	<u>Medium</u>

Unique physiological/biochemical traits: N/A

Variants and Frequency: Plants six inches and taller occur at a rate of one in every 1,000 plants.

6. Recognized classes of APB226 are breeder, foundation, registered, and certified seed. Arizona Plant Breeders, Inc. will maintain the variety by the spike to row purification method to produce breeder's seed for a foundation seed program. Some form of royalty fees and licensing agreements are anticipated.
7. Certified seed of APB226 may be available on a limited basis for commercial sale for planting in the fall of 2023.
8. It is anticipated that an application for PVP protection will be applied for APB226 under the U.S. Plant Variety Protection Act. It is also anticipated that APB226 will be protected under Title V of the PVP Act, and will only be sold as a class of certified seed.
9. Certified seed production acreage may be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jul 07, 2020

Date recommended by the VRB: Sep 15, 2020

