

**A REPORT OF THE
SMALL GRAIN VARIETY REVIEW BOARD**



ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

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ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

March 2020

The Association of Official Seed Certifying Agencies (AOSCA), Small Grain Variety Review Board (SGVRB), reviewed the following varieties on March 24, 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

TCG-Webster T17C06D (Exp)

1. TCG-Webster is a hard amber durum developed by 21st Century Genetics Corp. (experimental designation T17C06D)
2. TCG-Webster was developed using a pedigree, single seed descent breeding procedure, with selection for standability, yielding potential, protein gluten strength, height, and semolina color. It was also selected for general resistance/tolerance to the major diseases of Western ND.
3. TCG-Webster is adapted to Western ND.
4. No claims are made in this application for disease or insect resistance.
5. Identifying characteristics –

1. Kind:	Wheat, Hard Amber Durum		
2. Seasonal Growth Habit:	<u>Spring</u>	16. Awn Type:	<u>Awne</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>Long</u>
6. Flag Leaf at Boot:	<u>Erect, Twisted, Waxy</u>	20. Shoulder Shape:	<u>Wanting</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Narrow</u>
8. Day(s) to 50% Heading:	<u>45.5</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>M</u>
10. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent</u>
11. Plant Height (cm):	<u>69</u>	25. Seed Color:	<u>Amber</u>
12. Internodes:	<u>Hollow</u>	26. Seed Shape:	<u>Ovate</u>
13. Spike Shape:	<u>Oblong</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>42.5</u>

30. Physiological/Biochemical Traits:

Variants and Frequency: 1/1000 tall.

6. Recognized classes of seed are Breeder, Foundation Registered, and Certified. TCG-Webster will be regenerated by head row purification when needed.
7. Certified Seed may be offered for sale in 2021.
8. Application will be made for PVP (Title V) protection.
9. Seed production acreage of TCG is not to be published by AOSCA or other seed certifying agencies.

Date this application was submitted: Jan 05, 2020

Date recommended by the VRB: Mar 24, 2020



Wheat

AB12A53HF RS222 (Exp)

1. AB12A53HF (Experimental No. RS222) is a high amylose durum wheat variety developed by Arcadia Biosciences, Inc.
2. AB12G33HF (Experimental No. RS222) was selected for high amylose alleles in each of the starch branching enzymes IIa, A and B genomes (Slade et al. 2012). AB12A53HF is a high amylose variety that was derived from Arizona Plant Breeder variety Kronos (PVP No. 00940033). AB12A53HF has ~65% amylose levels (iodometrically) and was backcrossed three times to Kronos. The grain has a slightly chalky appearance due to the high amylose trait.
3. AB12A53HF (Experimental No. RS222) was tested in Yuma, Arizona and is well adapted to the Imperial Valley Regional area. Initial testing has been done in Idaho, Montana, Washington and North Dakota and additional testing is expected to be done in the Inland Pacific Northwest region in 2020.
4. Removed disease and insect comparison claims
5. Identifying characteristics –

1. Kind:	<u>Wheat, Spring Durum</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>Prostate</u>	18. Glume Color:	<u>Tan</u>
5. Leaf Color at Boot:	<u>Green</u>	19. Glume Length:	<u>Long</u>
6. Flag Leaf at Boot:	<u>Erect, Twisted, Waxy</u>	20. Shoulder Shape:	<u>Square</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Wide</u>
8. Day(s) to 50% Heading:	<u>57</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>L</u>
10. Anthocyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Yes</u>
11. Plant Height (cm):	<u>63</u>	25. Seed Color:	<u>Amber Removed Chalky</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>Dense</u>	28. Brush Size (S,M,L.):	<u>S</u>
15. Spike Curvature:	<u>Nodding</u>	29. Avg 1,000 Kernel Wt (grams):	<u>39.37</u>

30. Physiological/
Biochemical Traits: AB12A53HF (Experimental No. RS222) grain contains ~65% amylose as tested with iodometric assay. AB12A53HF (Experimental No. RS222) grain has a chalky appearance and a wrinkled seed coat due to the high amylose trait.

Variants and Frequency: 1% variance noted in the field. Variants include plant height, presence of awns and slight color differences.

6. Recognized classes of AB12A53HF (Experimental No. RS222) are breeder, foundation, registered, and certified. Arcadia Biosciences, Inc. will maintain the variety and validate the presence of the SBEIIa alleles using molecular markers to produce breeder seed as needed and all foundation seed. Royalty fees and licensing agreements are anticipated.
7. Certified seed will be available in April 2020.
8. Application for PVP is not planned. Durum Wheat variety AB12A53HF (Experimental No. RS222) is protected by US Patent 10,246,717 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: Nov 20, 2019

Date recommended by the VRB: May 18, 2020



Wheat

AB12G33HF RS220 (Exp)

1. AB12G33HF (Experimental No. RS220) is a high amylose durum wheat variety developed by Arcadia Biosciences, Inc.
2. AB12G33HF (Experimental No. RS220) was selected for high amylose alleles in each of the starch branching enzymes IIa, A and B genomes (Slade et al. 2012). AB12G33HF is a high amylose variety that was derived from Arizona Plant Breeder variety Kronos (PVP No. 00940033). AB12G33HF has ~65% amylose levels (iodometrically) and was backcrossed three times to Kronos. The grain has a slightly chalky appearance due to the high amylose trait.
3. AB12G33HF (Experimental No. RS220) was tested in Arizona, Idaho, Montana and Washington and is well adapted to the Imperial Valley and the Inland Pacific Northwest regions.
4. Removed disease and insect comparison reference
5. Identifying characteristics –

1. Kind:	Wheat, Spring Durum		
2. Seasonal Growth Habit:	Spring	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	White
4. Juvenile Growth Habit:	Prostate	18. Glume Color:	Tan
5. Leaf Color at Boot:	Green	19. Glume Length:	Long
6. Flag Leaf at Boot:	Erect, Twisted, Waxy	20. Shoulder Shape:	Square
7. Auricle Color:	White	21. Shoulder Width:	Wide
8. Day(s) to 50% Heading:	53	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	L
10. Anthocyanin:	Absent	24. Glume Pubescence:	Yes
11. Plant Height (cm):	65.5	25. Seed Color:	Amber Removed Chalky
12. Internodes:	Hollow	26. Seed Shape:	Elliptical
13. Spike Shape:	Oblong	27. Cheeks:	Rounded
14. Spike Density:	Dense	28. Brush Size (S,M,L.):	S
15. Spike Curvature:	Nodding	29. Avg 1,000 Kernel Wt (grams):	39.1

30. Physiological/
Biochemical Traits: AB12G33HF (Experimental No. RS220) grain contains ~65% amylose as tested with iodometric assay. AB12G33RS (Experimental No. RS220) grain has an amber chalky appearance and a wrinkled seed coat due to the high amylose trait.

Variants and Frequency: 1% variance noted in the field. Variants include plant height, presence of awns and slight color differences.

6. Recognized classes of AB12G33HF (Experimental No. RS220) are breeder, foundation, registered, and certified. Arcadia Biosciences, Inc. will maintain the variety and validate the presence of the SBEIIa alleles using molecular markers to produce breeder seed as needed and all foundation seed. Royalty fees and licensing agreements are anticipated.
7. Certified seed will be available in April 2020.
8. Application for PVP is not planned. Durum Wheat variety AB12G33HF (Experimental No. RS220) is protected by US Patent 10,246,717 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: Nov 20, 2019

Date recommended by the VRB: May 18, 2020



Wheat

AB12W23HF RS74 (Exp)

1. AB12W23HF (Experimental No. RS74) is a high amylose durum wheat variety developed by Arcadia Biosciences, Inc.
2. AB12W23HF (Experimental No. RS74) was selected for high amylose alleles in each of the starch branching enzymes IIa, A and B genomes (Slade et al. 2012). AB12W23HF is a high amylose variety that was derived from Arizona Plant Breeder variety Kronos (PVP No. 00940033). AB12W23HF has ~65% amylose levels (iodometrically) and was backcrossed three times to Kronos. The grain has a slightly chalky appearance due to the high amylose trait.
3. AB12W23HF (Experimental No. RS74) was tested in Yuma, Arizona and in Idaho, Montana, Washington, and North Dakota and is well adapted to the Imperial Valley and Inland Pacific Northwest regions.
4. Removed insect and disease comparison to Kronos reference.
5. Identifying characteristics –

1. Kind:	Wheat, Spring Durum		
2. Seasonal Growth Habit:	Spring	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	White
4. Juvenile Growth Habit:	Prostate	18. Glume Color:	Tan
5. Leaf Color at Boot:	Green	19. Glume Length:	Long
6. Flag Leaf at Boot:	Erect, Twisted, Waxy	20. Shoulder Shape:	Square
7. Auricle Color:	White	21. Shoulder Width:	Wide
8. Day(s) to 50% Heading:	54	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	L
10. Anthocyanin:	Absent	24. Glume Pubescence:	Yes
11. Plant Height (cm):	62.6	25. Seed Color:	Amber Removed Chalky
12. Internodes:	Hollow	26. Seed Shape:	Elliptical
13. Spike Shape:	Oblong	27. Cheeks:	Rounded
14. Spike Density:	Dense	28. Brush Size (S,M,L.):	S
15. Spike Curvature:	Nodding	29. Avg 1,000 Kernel Wt (grams):	39.76

30. Physiological/
Biochemical Traits: AB12W23HF (Experimental No. RS74) grain contains ~65% amylose as tested with iodometric assay. AB12W23HF (Experimental No. RS74) grain has a chalky appearance and a wrinkled seed coat due to the high amylose trait.

Variants and Frequency: 1% variance noted in the field. Variants include plant height, presence of awns and slight color differences.

6. Recognized classes of AB12W23HF (Experimental No. RS74) are breeder, foundation, registered, and certified. Arcadia Biosciences, Inc. will maintain the variety and validate the presence of the SBEIIa alleles using molecular markers to produce breeder seed as needed and all foundation seed. Royalty fees and licensing agreements are anticipated.
7. Certified seed will be available in April 2020.
8. Application for PVP is not planned. Durum Wheat variety AB12W23HF (Experimental No. RS74) is protected by US Patent 10,246,717 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: Nov 20, 2019

Date recommended by the VRB: May 18, 2020



Wheat

AB32D04HF RS103 (Exp)

1. AB32D04HF (Experimental No. RS103) is a high amylose hard red spring common wheat variety developed by Arcadia Biosciences, Inc.
2. AB32D04HF (Experimental No. RS103) was selected for high amylose alleles in each of Starch Branching Enzyme IIa, A, B and D genomes (Slade et al. 2012). AB32D04HF is a high amylose variety that was derived from the Westbred variety Express (PVPO No. 9000012). AB32D04HF has ~72% amylose (iodometrically) and was backcrossed six times to Express. The grain has a white and chalky appearance due to the high amylose trait.
3. AB32D04HF (Experimental No. RS103) was tested in Yuma, Arizona and in Idaho and Montana and is well adapted to the Imperial Valley and Inland Pacific Northwest Regions.
4. Removed disease and insect comparison statement. Different from cv. Express, AB32D04HF is sensitive to freezing temperatures during reproductive stages.
5. Identifying characteristics –

	Common, Hard Red Spring Wheat	
1. Kind:	<u>Spring</u>	16. Awn Type: <u>Awned</u>
2. Seasonal Growth Habit:	<u>White</u>	17. Awn Color: <u>White</u>
3. Coleoptile Color:	<u>Erect</u>	18. Glume Color: <u>Tan</u>
4. Juvenile Growth Habit:	<u>Blue Green</u>	19. Glume Length: <u>Long</u>
5. Leaf Color at Boot:	<u>Erect, Twisted, Waxed</u>	20. Shoulder Shape: <u>Oblique</u>
6. Flag Leaf at Boot:	<u>White</u>	21. Shoulder Width: <u>Wide</u>
7. Auricle Color:	<u>56</u>	22. Beak Shape: <u>Acuminate</u>
8. Day(s) to 50% Heading:	<u>Yellow</u>	23. Beak Length (S,M,L,VL): <u>L</u>
9. Anther Color:	<u>Absent</u>	24. Glume Pubescence: <u>Present</u>
10. Anthocyanin:	<u>62.2</u>	25. Seed Color: <u>Red</u>
11. Plant Height (cm):	<u>Hollow</u>	26. Seed Shape: <u>Elliptical</u>
12. Internodes:	<u>Oblong</u>	27. Cheeks: <u>Rounded</u>
13. Spike Shape:	<u>Lax</u>	28. Brush Size (S,M,L.): <u>M</u>
14. Spike Density:	<u>Nodding</u>	29. Avg 1,000 Kernel Wt (grams): <u>33.4</u>
15. Spike Curvature:		
30. Physiological/ Biochemical Traits:	AB32D04HF grain has a white-chalky color with a wrinkled seed coat due to the high amylose trait. AB32D04HF grain contains ~72% amylose as tested with iodometric assay.	
Variants and Frequency:	1% variance noted in the field. Variants include plant height, presence of awns and slight color differences.	

6. Recognized classes of AB32M39HF are breeder, foundation, registered, and certified. Arcadia Biosciences, Inc. will maintain the variety and validate the presence of the SBEIIa 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 April of 2020.
8. Application for PVP is not planned. Wheat variety AB32D04HF is protected by US Patent 9,150,839 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: Nov 20, 2019

Date recommended by the VRB: May 18, 2020



Wheat

AB32J10HF RS128 (Exp)

1. AB32J10HF (Experimental No. RS128) is a high amylose hard red spring common wheat variety developed by Arcadia Biosciences, Inc.
2. AB32J10HF (Experimental No. RS128) was selected for high amylose alleles in each of Starch Branching Enzyme IIa, A, B and D genomes (Slade et al. 2012). AB32J10HF is a high amylose variety that was derived from the Westbred variety Express (PVPO No. 9000012). AB32J10HF has ~84% amylose (iodometrically) and was backcrossed three times to Express. The grain has a white and chalky appearance due to the high amylose trait.
3. AB32J10HF (Experimental No. RS128) was tested in Yuma, Arizona as well as Idaho, Montana, Washington, and North Dakota and is well adapted to the Imperial Valley and Inland Pacific Northwest Regions.
4. Removed disease and insect comparison statement. Different from cv. Express, AB32D04HF (Experimental No. RS128) is sensitive to freezing temperatures during reproductive stages.
5. Identifying characteristics –

Common, Hard Red Spring Wheat			
1. Kind:	Spring	16. Awn Type:	Awned
2. Seasonal Growth Habit:	White	17. Awn Color:	White
3. Coleoptile Color:	Erect	18. Glume Color:	Tan
4. Juvenile Growth Habit:	Blue Green	19. Glume Length:	Long
5. Leaf Color at Boot:	Erect, Twisted, Waxed	20. Shoulder Shape:	Oblique
6. Flag Leaf at Boot:	White	21. Shoulder Width:	Wide
7. Auricle Color:	56	22. Beak Shape:	Acuminate
8. Day(s) to 50% Heading:	Yellow	23. Beak Length (S,M,L,VL):	L
9. Anther Color:	Absent	24. Glume Pubescence:	Present
10. Anthocyanin:	70.9	25. Seed Color:	Red
11. Plant Height (cm):	Hollow	26. Seed Shape:	Elliptical
12. Internodes:	Oblong	27. Cheeks:	Rounded
13. Spike Shape:	Lax	28. Brush Size (S,M,L.):	M
14. Spike Density:	Nodding	29. Avg 1,000 Kernel Wt (grams):	30.9
15. Spike Curvature:	30. Physiological/ Biochemical Traits: AB32J10HF grain contains ~84% amylose as tested iodometric assay. AB32J10HF grain has a white-chalky color with a wrinkled seed coat due to the high amylose trait.		
30. Physiological/ Biochemical Traits:	Variants and Frequency: 1% variance noted in the field. Variants include plant height, presence of awns and slight color differences.		

6. Recognized classes of AB32J10HF are breeder, foundation, registered, and certified. Arcadia Biosciences, Inc. will maintain the variety and validate the presence of the SBEIIa 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 April of 2020.
8. Application for PVP is not planned. Wheat variety AB32J10HF is protected by US Patent 9,150,839 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: Nov 20, 2019

Date recommended by the VRB: May 18, 2020



Wheat

AB32M39HF RS14 (Exp)

1. AB32M39HF (Experimental No. RS14) is a high amylose hard red spring common wheat variety developed by Arcadia Biosciences, Inc.
2. AB32M39HF (Experimental No. RS14) was selected for high amylose alleles in each of Starch Branching Enzyme IIa, A, B and D genomes (Slade et al. 2012). AB32M39HF is a high amylose variety that was derived from the Westbred variety Express (PVPO No. 9000012). AB32M39HF has ~72% amylose (iodometrically) and was backcrossed four times to Express. The grain has a white and chalky appearance due to the high amylose trait.
3. AB32M39HF (Experimental No. RS14) was tested in the Imperial Valley in Brawley, California and Yuma, Arizona as well as in Idaho, Montana, Washington and North Dakota and is well adapted to the Imperial Valley and Inland Pacific Northwest Regions.
4. Removed disease and insect comparison statement. Removed sensitivity to freezing temperatures reference.
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>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>55</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>L</u>
10. Anthocyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Present</u>
11. Plant Height (cm):	<u>65.5</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>34.5</u>

30. Physiological/
Biochemical Traits: AB32M39HF grain has a white-chalky color with a wrinkled seed coat due to the high amylose trait. AB32M39HF grain contains ~72% amylose as tested with iodometric assay.

Variants and Frequency: 1% variance noted in the field. Variants include plant height, presence of awns and slight color differences.

6. Recognized classes of AB32M39HF are breeder, foundation, registered, and certified. Arcadia Biosciences, Inc. will maintain the variety and validate the presence of the SBEIIa 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 April of 2020.
8. Application for PVP is not planned. Wheat variety AB32M39HF is protected by US Patent 9,150,839 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: Nov 20, 2019

Date recommended by the VRB: May 18, 2020



Wheat

AB32T20HF RS227 (Exp)

1. AB32T20HF (Experimental No. RS227) is a high amylose hard red spring common wheat variety developed by Arcadia Biosciences, Inc.
2. AB32T20HF (Experimental No. RS227) was selected for high amylose alleles in each of Starch Branching Enzyme IIa, A, B and D genomes (Slade et al. 2012). AB32T20HF is a high amylose variety that was derived from the Westbred variety Express (PVPO No. 9000012). AB32T20HF has ~84% amylose (iodometrically) and was backcrossed five times to Express. The grain has a white and chalky appearance due to the high amylose trait.
3. AB32T20HF (Experimental No. RS227) was tested in Yuma, Arizona and is well adapted to the Imperial Valley Regional area. Initial testing has been done in Idaho, Montana, Washington and North Dakota and additional testing is expected to be done in the Inland Pacific Northwest region in 2020.
4. Removed disease and insect comparator statement. Different from cv. Express, AB32D04HF (Experimental No. RS227) is sensitive to freezing temperatures during reproductive stages.

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:	White
4. Juvenile Growth Habit:	Erect	18. Glume Color:	Tan
5. Leaf Color at Boot:	Blue Green	19. Glume Length:	Long
6. Flag Leaf at Boot:	Erect, Twisted, Waxed	20. Shoulder Shape:	Oblique
7. Auricle Color:	White	21. Shoulder Width:	Wide
8. Day(s) to 50% Heading:	58	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	L
10. Anthocyanin:	Absent	24. Glume Pubescence:	Present
11. Plant Height (cm):	67.4	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Elliptical
13. Spike Shape:	Oblong	27. Cheeks:	Rounded
14. Spike Density:	Lax	28. Brush Size (S,M,L.):	M
15. Spike Curvature:	Nodding	29. Avg 1,000 Kernel Wt (grams):	27.8

30. Physiological/
Biochemical Traits: AB32T20HF grain contains ~84% amylose as tested with iodometric assay. AB32M39HF grain has a white-chalky appearance with a wrinkled seed coat due to the high amylose trait.

Variants and Frequency: 1% variance noted in the field. Variants include plant height, presence of awns and slight color differences.

6. Recognized classes of AB32T20HF are breeder, foundation, registered, and certified. Arcadia Biosciences, Inc. will maintain the variety and validate the presence of the SBELIIa 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 April of 2020.
8. Application for PVP is not planned. Wheat variety AB32T20HF is protected by US Patent 9,150,839 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: Nov 20, 2019

Date recommended by the VRB: May 18, 2020



Wheat

9269052 XC2509 (Exp)

1. 9269052 (XC2509) is a soft red winter wheat developed by Bayer Crop Science.
2. In early generations of 9269052, single spikes were selected based on agronomics and disease resistance. Later generations were selected based on yield, quality, and disease resistance.
3. 9269052 is adapted to the soft red winter wheat growing regions of IL, IN, OH and MI.
4. No claims about disease resistance are made at this time.
5. Identifying characteristics –

1. Kind:	Common, Soft 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
5. Leaf Color at Boot:	Blue-Green	19. Glume Length:	Short
6. Flag Leaf at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Apiculate
7. Auricle Color:	White	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	146	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Medium (M)
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent (Glabrous)
11. Plant Height (cm):	89	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Ovate
13. Spike Shape:	Tapering	27. Cheeks:	Rounded
14. Spike Density:	Lax	28. Brush Size (S,M,L.):	Medium (M)
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	48.5

30. Physiological/Biochemical Traits:

Variants and Frequency: A variant that is similar to 9269052 but has white seed occurs at a frequency of up to 0.50% (50 out 10,000 seeds). A variant that is similar to 9269052 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 9269052 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 9269052 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: Jan 08, 2020

Date recommended by the VRB: May 18, 2020



Wheat

9447004 XB4712 (Exp)

1. 9447004 (XB4712) is a hard red winter wheat developed by Bayer Crop Science.
2. In early generations of 9447004, single spikes were selected based on agronomics and disease resistance. Later generations were selected based on yield, quality, and disease resistance.
3. 9447004 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:	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:	Erect	18. Glume Color:	White
5. Leaf Color at Boot:	Blue-Green	19. Glume Length:	Short
6. Flag Leaf at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Rounded
7. Auricle Color:	White	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	174	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Medium (M)
10. Anthoncyanin:	Absent	24. Glume Pubescence:	Absent (Glabrous)
11. Plant Height (cm):	76	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Ovate
13. Spike Shape:	Tapering	27. Cheeks:	Rounded
14. Spike Density:	Lax	28. Brush Size (S,M,L.):	Medium (M)
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	48.5

30. Physiological/Biochemical Traits:

Variants and Frequency: A variant that is similar to 9447004 but has white seed occurs at a frequency of up to 0.50% (50 out 10,000 seeds). A variant that is similar to 9447004 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 9447004 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 9447004 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: Jan 08, 2020

Date recommended by the VRB: May 18, 2020



Wheat

WB4309 XC4120 (Exp)

1. WB4309 (XC4120) is a hard red winter wheat developed by Bayer Crop Science.
2. In early generations of WB4309, single spikes were selected based on agronomics and disease resistance. Later generations were selected based on yield, quality, and disease resistance.
3. WB4309 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:	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:	Erect	18. Glume Color:	White/Amber
5. Leaf Color at Boot:	Blue-Green	19. Glume Length:	Short
6. Flag Leaf at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Elevated
7. Auricle Color:	White	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	133	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Short (S)
10. Anthocyanin:	Present	24. Glume Pubescence:	Absent (Glabrous)
11. Plant Height (cm):	87	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Oval
13. Spike Shape:	Tapering	27. Cheeks:	Angular
14. Spike Density:	Lax	28. Brush Size (S,M,L.):	Medium (M)
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	48.5

30. Physiological/Biochemical Traits:

Variants and Frequency: A variant that is similar to WB4309 but has white seed occurs at a frequency of up to 0.50% (50 out 10,000 seeds). A variant that is similar to WB4309 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 WB4309 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 WB4309 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: Jan 08, 2020

Date recommended by the VRB: May 18, 2020



Wheat

WB4401 XC4109 (Exp)

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

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: Jan 08, 2020

Date recommended by the VRB: May 18, 2020



Wheat

WB4505 XC4208 (Exp)

1. WB4505 (XC4208) is a hard red winter wheat developed by Bayer Crop Science.
2. In early generations of WB4505, single spikes were selected based on agronomics and disease resistance. Later generations were selected based on yield, quality, and disease resistance.
3. WB4505 is adapted to the hard red winter wheat growing regions of Montana.
4. No claims about disease resistance are made at this time.
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
5. Leaf Color at Boot:	Blue-Green	19. Glume Length:	Short
6. Flag Leaf at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Sqaure
7. Auricle Color:	White	21. Shoulder Width:	Medium
8. Day(s) to 50% Heading:	179	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Short (S)
10. Anthoncyanin:	Present	24. Glume Pubescence:	Absent (Glabrous)
11. Plant Height (cm):	87	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Ovate
13. Spike Shape:	Tapering	27. Cheeks:	Rounded
14. Spike Density:	Lax	28. Brush Size (S,M,L.):	Short (S)
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	48.5

30. Physiological/Biochemical Traits:

Variants and Frequency: A variant that is similar to WB4505 but has white seed occurs at a frequency of up to 0.50% (50 out 10,000 seeds). A variant that is similar to WB4505 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 WB4505 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 WB4505 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: Jan 08, 2020

Date recommended by the VRB: May 18, 2020



Wheat
WB9490
XB9510 (Exp)
(Amended – Description Change)

Variety Name WB9490
 Experimental Designation(s) XB9510
 Date SGVRB first recommended this variety April 14, 2019
 Date(s) any previous amendments were recommended _____
 Date this amendment was submitted November 13, 2019

1. WB9490 (XB9510) is a hard red spring wheat developed by Bayer Crop Science.
2. In early generations of WB9490, single spikes were selected based on agronomics and disease resistance. Later generations were selected based on yield, quality, and disease resistance.
3. WB9490 is adapted to the hard red spring wheat growing regions of California.
4. No claims about disease resistance are made at this time.
5. Identifying characteristics:

1. Kind:	Common, Hard Red Spring Wheat		
2. Seasonal Growth Habit:	<u>Spring</u>	16. Awn Type:	<u>Awnless</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>Green</u>	19. Glume Length:	<u>Medium</u>
6. Flag Leaf at Boot:	<u>Erect, Twisted, Wax Present</u>	20. Shoulder Shape:	<u>Square</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Wide</u>
8. Day(s) to 50% Heading:	<u>84</u>	22. Beak Shape:	<u>Obtuse</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>88</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>Angular</u>
14. Spike Density:	<u>Lax</u>	28. Brush Size (S,M,L.):	<u>Medium</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 WB9490 but has white seed occurs at a frequency of up to 0.50% (50 out 10,000 seeds).
 A variant that is similar to WB9490 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 awned variant may occur at a frequency of 0.2% (20/10,000).

6. Recognized classes of WB9490 are breeder, foundation, registered, and certified. Bayer Crop Science will maintain the variety by the head-row purification or bulk seed 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 winter of 2020.
8. Application for PVP is anticipated with the option that WB9490 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: Nov 15, 2019

Date recommended by the VRB: Mar 24, 2020



Wheat

Fortify SF CO15SFD107 (Exp)

1. Fortify SF was tested as experimental number CO15SFD107. It is a medium-maturity, medium-height semidwarf hard red winter wheat developed by Colorado State University (CSU). Ownership of Fortify SF has been transferred to the Colorado Wheat Research Foundation.
2. Fortify SD is a doubled haploid (DH) line developed using the wheat-maize hybridization method. Selection criteria during development included general agronomic adaptation, grain yield and yield stability, test weight, stem solidness, and milling and bread baking quality.
3. Fortify SF was tested throughout the U.S. hard winter wheat region. It is best adapted for production conditions in Colorado, Kansas, Nebraska, Montana, South Dakota, and North Dakota.
4. Fortify SF is a semi-solid stemmed variety for partial resistance to the wheat stem sawfly.
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:	Blue-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:	148 from Jan 1	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Short
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	83	25. Seed Color:	Red
12. Internodes:	Semi-solid	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):	25.2

30. Physiological/Biochemical Traits: not applicable

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 Fortify SF are breeder, foundation, registered, and certified. Colorado State University will maintain the variety by manual removal of off-types as needed to produce breeder seed and foundation seed. Royalties will be collected through the Colorado Wheat Research Foundation.
7. Certified seed of Fortify SF will likely be available for planting in fall of 2020.
8. Application for PVP is anticipated with the option that Fortify SF can be sold by variety name only as a class of certified seed.
9. Certified seed production acreage of Fortify SF may be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jan 03, 2020

Date recommended by the VRB: Apr 20, 2020



Wheat

Guardian CO13D0787 (Exp)

1. Guardian was tested as experimental number CO13D0787. It is a medium-maturity, medium-height semidwarf hard red winter wheat developed by Colorado State University (CSU). Ownership of Guardian has been transferred to the Colorado Wheat Research Foundation.
2. Guardian is a doubled haploid (DH) line developed using the wheat-maize hybridization method. Selection criteria during development included general agronomic adaptation, grain yield and yield stability, test weight, stripe rust and wheat streak mosaic virus resistance, and milling and bread baking quality.
3. Guardian was tested throughout the U.S. hard winter wheat region. It is best adapted for production conditions in Colorado, Kansas, Nebraska, Oklahoma, and Texas.
4. No pest reaction claims are made.
5. Identifying characteristics –

1. Kind:	<u>Common, Hard Red Winter Wheat</u>	16. Awn Type:	<u>Awned</u>
2. Seasonal Growth Habit:	<u>Winter</u>	17. Awn Color:	<u>White</u>
3. Coleoptile Color:	<u>White</u>	18. Glume Color:	<u>White/Amber</u>
4. Juvenile Growth Habit:	<u>Semi-erect</u>	19. Glume Length:	<u>Medium</u>
5. Leaf Color at Boot:	<u>Blue-Green</u>	20. Shoulder Shape:	<u>Rounded</u>
6. Flag Leaf at Boot:	<u>Erect, Not Twisted, Wax Present</u>	21. Shoulder Width:	<u>Narrow</u>
7. Auricle Color:	<u>White</u>	22. Beak Shape:	<u>Acuminate</u>
8. Day(s) to 50% Heading:	<u>146 from Jan 1</u>	23. Beak Length (S,M,L,VL):	<u>Medium</u>
9. Anther Color:	<u>Yellow</u>	24. Glume Pubescence:	<u>Absent</u>
10. Anthocyanin:	<u>Absent</u>	25. Seed Color:	<u>Red</u>
11. Plant Height (cm):	<u>84</u>	26. Seed Shape:	<u>Ovate</u>
12. Internodes:	<u>Hollow</u>	27. Cheeks:	<u>Rounded</u>
13. Spike Shape:	<u>Tapering</u>	28. Brush Size (S,M,L.):	<u>Medium</u>
14. Spike Density:	<u>Mid dense</u>	29. Avg 1,000 Kernel Wt (grams):	<u>27</u>
15. Spike Curvature:	<u>Inclined</u>		

30. Physiological/Biochemical Traits: not applicable

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 Guardian are breeder, foundation, registered, and certified. Colorado State University will maintain the variety by manual removal of off-types as needed to produce breeder seed and foundation seed. Royalties will be collected through the Colorado Wheat Research Foundation.
7. Certified seed of Guardian will likely be available for planting in fall of 2020.
8. Application for PVP is anticipated with the option that Guardian can be sold by variety name only as a class of certified seed.
9. Certified seed production acreage of Guardian may be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jan 03, 2020

Date recommended by the VRB: Apr 20, 2020



Wheat

XW18Q (Exp)

1. XW18Q is a soft red winter wheat developed by Corteva Agrisciences.
2. The cultivar XW18Q was bred and selected using a modified pedigree selection method for the following characteristics in the field environment: disease resistance, plant type, plant height, head type, straw strength, maturity, grain yield, test weight, and milling and baking characteristics.
3. XW18Q has shown best adaptation to the northern soft wheat growing regions of the U.S.
4. XW18Q is moderately resistant to fusarium head blight based on two years of data and moderately resistant to soilborne mosaic virus and stripe rust based on a single year of field data.

5. Identifying characteristics –

1. Kind:	Common, Soft Red Winter Wheat		
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>Semi-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>Re-curved, Twisted, Wax Present</u>	20. Shoulder Shape:	<u>Oblique</u>
7. Auricle Color:	<u>Purple</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. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent</u>
11. Plant Height (cm):	<u>88</u>	25. Seed Color:	<u>Amber</u>
12. Internodes:	<u>Hallow</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>Medium</u>
15. Spike Curvature:	<u>Inclined</u>	29. Avg 1,000 Kernel Wt (grams):	<u>40</u>

30. Physiological/Biochemical Traits: Phenol color – dark brown

Variants and Frequency: Awnless and/or taller plants may occur at a frequency up to 0.1% (10/10,000).

6. Breeder, foundation, and registered seed classes will be maintained and controlled by the Corteva Agrisciences Integrated Operations department. Foundation seed will initially be 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. Registered seed will be grown from foundation or breeder seed and maintained at a purity level satisfactory to Corteva Agrisciences Integrated Operations or the appropriate certifying agency. No royalty fees or licensing agreements are anticipated.
7. Certified seed of XW18Q will potentially first be offered for sale in the fall of 2021.
8. Plant variety protection application is anticipated in 2020 and the certification option will not be elected.
9. Certified acreage is not to be published by AOSCA and certifying agencies.

Date this application was submitted: Jan 08, 2020

Date recommended by the VRB: Apr 20, 2020



Wheat

XW18R (Exp)

1. XW18R is a soft red winter wheat developed by Corteva Agrisciences.
2. The cultivar XW18R was bred and selected using a modified pedigree selection method for the following characteristics in the field environment: disease resistance, plant type, plant height, head type, straw strength, maturity, grain yield, test weight, and milling and baking characteristics.
3. XW18R has shown best adaptation to the northern soft wheat growing regions of the U.S.
4. XW18R has high level of resistance to soilborne mosaic virus and intermediate resistance to stripe rust and fusarium head blight.
5. Identifying characteristics –

	Common, Soft Red Winter Wheat	
1. Kind:	Winter	16. Awn Type: Awned
2. Seasonal Growth Habit:	Red	17. Awn Color: White
3. Coleoptile Color:	Semi-Erect	18. Glume Color: White/amber
4. Juvenile Growth Habit:	Green	19. Glume Length: Short
5. Leaf Color at Boot:	Erect / Twisted / Wax Present	20. Shoulder Shape: Rounded
6. Flag Leaf at Boot:	Purple	21. Shoulder Width: Medium
7. Auricle Color:	128	22. Beak Shape: Acute
8. Day(s) to 50% Heading:	Purple	23. Beak Length (S,M,L,VL): Medium
9. Anther Color:	Absent	24. Glume Pubescence: Absent
10. Anthocyanin:	89	25. Seed Color: Amber
11. Plant Height (cm):	Hallow	26. Seed Shape: Ovate
12. Internodes:	Tapering	27. Cheeks: Angular
13. Spike Shape:	Mid-dense	28. Brush Size (S,M,L.): Short
14. Spike Density:	Inclined	29. Avg 1,000 Kernel Wt (grams): 37
15. Spike Curvature:		

30. Physiological/Biochemical Traits: Phenol color – dark brown

Variants and Frequency: Awnless and/or taller plants may occur at a frequency up to 0.1% (10/10,000).

6. Breeder, foundation, and registered seed classes will be maintained and controlled by the Corteva Agrisciences Integrated Operations department. Foundation seed will initially be 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. Registered seed will be grown from foundation or breeder seed and maintained at a purity level satisfactory to Corteva Agrisciences Integrated Operations or the appropriate certifying agency. No royalty fees or licensing agreements are anticipated.
7. Certified seed of XW18R will potentially first be offered for sale in the fall of 2021.
8. Plant variety protection application is anticipated in 2020 and the certification option will not be elected.
9. Certified acreage is not to be published by AOSCA and certifying agencies.

Date this application was submitted: Jan 08, 2020 Date recommended by the VRB: Mar 24, 2020



Wheat

XW18U (Exp)

1. XW18U is a soft red winter wheat developed by Corteva Agrisciences.
2. The cultivar XW18U was bred using a doubled haploid method and selected for the following characteristics in the field environment: disease resistance, plant type, plant height, head type, straw strength, maturity, grain yield, test weight, and milling and baking characteristics.
3. XW18U has shown best adaptation to the northern soft wheat growing regions of the U.S.
4. XW18U has a moderate of resistance to fusarium head blight based on two years of field data collected in three locations.

5. Identifying characteristics –

1. Kind:	Common, Soft Red Winter Wheat		
2. Seasonal Growth Habit:	Winter	16. Awn Type:	Awned
3. Coleoptile Color:	Red	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:	Oblique
7. Auricle Color:	Purple	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	130	22. Beak Shape:	Acute
9. Anther Color:	Purple	23. Beak Length (S,M,L,VL):	Medium
10. Anthoncyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	95	25. Seed Color:	Amber
12. Internodes:	Hallow	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):	38

30. Physiological/Biochemical Traits: Phenol color – Fawn

Variants and Frequency: Awnless and/or taller plants may occur at a frequency up to 0.1% (10/10,000).

6. Breeder, foundation, and registered seed classes will be maintained and controlled by the Corteva Agrisciences Integrated Operations department. Foundation seed will initially be 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. Registered seed will be grown from foundation or breeder seed and maintained at a purity level satisfactory to Corteva Agrisciences Integrated Operations or the appropriate certifying agency. No royalty fees or licensing agreements are anticipated.
7. Certified seed of XW18U will potentially first be offered for sale in the fall of 2021.
8. Plant variety protection application is anticipated in 2020 and the certification option will not be elected.
9. Certified acreage is not to be published by AOSCA and certifying agencies.

Date this application was submitted: Jan 08, 2020 Date recommended by the VRB: Apr 20, 2020



Wheat

XW18X (Exp)

1. XW18X is a soft red winter wheat developed by Corteva Agrisciences.
2. The cultivar XW18X was bred and selected using a modified pedigree selection method for the following characteristics in the field environment: disease resistance, plant type, plant height, head type, straw strength, maturity, grain yield, test weight, and milling and baking characteristics.
3. XW18X has shown best adaptation to the southern soft wheat growing regions of the U.S.
4. Identifying characteristics –

1. Kind:	Common, Soft Red Winter Wheat		
2. Seasonal Growth Habit:	Winter	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	Tan
4. Juvenile Growth Habit:	Semi-Erect	18. Glume Color:	Tan
5. Leaf Color at Boot:	Green	19. Glume Length:	Short
6. Flag Leaf at Boot:	Erect, Twisted, Wax Absent	20. Shoulder Shape:	Oblique
7. Auricle Color:	White	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	129	22. Beak Shape:	Acuminate
9. Anther Color:	Purple	23. Beak Length (S,M,L,VL):	Short
10. Anthoncyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	92	25. Seed Color:	Amber
12. Internodes:	Hallow	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):	38

30. Physiological/Biochemical Traits: Phenol color – Dark brown

Variants and Frequency: Awnless and/or taller plants may occur at a frequency up to 0.1% (10/10,000).

6. Breeder, foundation, and registered seed classes will be maintained and controlled by the Corteva Agrisciences Integrated Operations department. Foundation seed will initially be 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. Registered seed will be grown from foundation or breeder seed and maintained at a purity level satisfactory to Corteva Agrisciences Integrated Operations or the appropriate certifying agency. No royalty fees or licensing agreements are anticipated.
7. Certified seed of XW18X will potentially first be offered for sale in the fall of 2021.
8. Plant variety protection application is anticipated in 2020 and the certification option will not be elected.
9. Certified acreage is not to be published by AOSCA and certifying agencies.

Date this application was submitted: Jan 08, 2020 Date recommended by the VRB: Apr 20, 2020



Wheat

XW18Y (Exp)

1. XW18Y is a soft white winter wheat developed by Corteva Agrisciences.
2. The cultivar XW18Y was bred and selected using a modified pedigree selection method for the following characteristics in the field environment: disease resistance, plant type, plant height, head type, straw strength, maturity, grain yield, test weight, and milling and baking characteristics.
3. XW18Y has shown best adaptation to the northern soft wheat growing regions of the U.S.
4. XW18Y has an intermediate level of resistance to fusarium head blight based on two year of field evaluations.
5. Identifying characteristics –

Common, Soft White Winter Wheat			
1. Kind:	<u>Common, Soft White 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>Semi-Erect</u>	18. Glume Color:	<u>Tan</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>130</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>Short</u>
10. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent</u>
11. Plant Height (cm):	<u>91</u>	25. Seed Color:	<u>White</u>
12. Internodes:	<u>Hallow</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>Medium</u>
15. Spike Curvature:	<u>Inclined</u>	29. Avg 1,000 Kernel Wt (grams):	<u>35</u>

30. Physiological/Biochemical Traits: Phenol color – dark brown

Variants and Frequency: Awnless and/or taller plants may occur at a frequency up to 0.1% (10/10,000).

6. Breeder, foundation, and registered seed classes will be maintained and controlled by the Corteva Agrisciences Integrated Operations department. Foundation seed will initially be 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. Registered seed will be grown from foundation or breeder seed and maintained at a purity level satisfactory to Corteva Agrisciences Integrated Operations or the appropriate certifying agency. No royalty fees or licensing agreements are anticipated.
7. Certified seed of XW18Y will potentially first be offered for sale in the fall of 2021.
8. Plant variety protection application is anticipated in 2020 and the certification option will not be elected.
9. Certified acreage is not to be published by AOSCA and certifying agencies.

Date this application was submitted: Jan 08, 2020

Date recommended by the VRB: Apr 20, 2020



Wheat

TCG-Wildcat G16Y2020 (Exp)

1. TCG-Wildcat is a hard red spring wheat variety developed and owned by Global Soy Genetics, LLP.
2. TCG-Wildcat was selected for yield, quality, disease tolerance and agronomic characteristics in growth chambers and in the field using modified single seed descent.
3. TCG-Wildcat was tested in the Red River Valley of North Dakota/Minnesota and is well-adapted to be a quality hard red spring bread wheat in the wheat production areas of North Dakota and Minnesota.
4. No claims are being made as to the disease and insect resistance of TCG-Wildcat.
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>Erect</u>	18. Glume Color: <u>White</u>
5. Leaf Color at Boot:	<u>Green</u>	19. Glume Length: <u>Long</u>
6. Flag Leaf at Boot:	<u>Erect, Twisted, Wax Present</u>	20. Shoulder Shape: <u>Square</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width: <u>Narrow</u>
8. Day(s) to 50% Heading:	<u>65.3 days after planting</u>	22. Beak Shape: <u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL): <u>Long</u>
10. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence: <u>Absent</u>
11. Plant Height (cm):	<u>75.7</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>36</u>

30. Physiological/Biochemical Traits: None

Variants and Frequency: A tall variant may be seen at a frequency of up to 50/10,000 or 0.5%.
An awnless or awnletted variant may be seen at a frequency of up to 1/10,000 or 0.01%.

6. Recognized classes of TCG-Wildcat are breeder, foundation, registered and certified. Global Soy Genetics will maintain the variety by headrow purification method to produce breeder seed as needed.
7. Certified seed will be offered for sale in 2020.
8. Application for PVP is anticipated with the option that TCG-Wildcat can be sold by variety name only as a class of certified seed.
9. Seed production acreage of TCG-Wildcat is not to be published by AOSCA or other seed certifying agencies.

Date this application was submitted: Jan 03, 2020 Date recommended by the VRB: Mar 24, 2020



Wheat

Velocity HRSX1877 (Exp)

1. Velocity is a hard red spring wheat variety developed and owned by Global Soy Genetics, LLP.
2. Velocity was selected for yield, quality, disease tolerance and agronomic characteristics in growth chambers and in the field using modified single seed descent.
3. Velocity was tested in the Red River Valley of North Dakota/Minnesota and is well-adapted to be a quality hard red spring bread wheat in the wheat production areas of North Dakota and Minnesota.
4. No claims are being made as to the disease and insect resistance of Velocity.

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>Erect</u>	18. Glume Color:	<u>White</u>
5. Leaf Color at Boot:	<u>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>61.6 days after planting</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>Very Long</u>
10. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent</u>
11. Plant Height (cm):	<u>79.5</u>	25. Seed Color:	<u>Red</u>
12. Internodes:	<u>Hollow</u>	26. Seed Shape:	<u>Ovate</u>
13. Spike Shape:	<u>Oblong</u>	27. Cheeks:	<u>Rounded</u>
14. Spike Density:	<u>Middense</u>	28. Brush Size (S,M,L.):	<u>Medium</u>
15. Spike Curvature:	<u>Inclined</u>	29. Avg 1,000 Kernel Wt (grams):	<u>30</u>

30. Physiological/Biochemical Traits: None

Variants and Frequency: A tall variant can be seen in this variety at a frequency of up to 1/1,000.

6. Recognized classes of Velocity are breeder, foundation, registered and certified. Global Soy Genetics will maintain the variety by headrow purification method to produce breeder seed as needed.
7. Certified seed will be offered for sale in 2020.
8. Application for PVP is anticipated with the option that Velocity can be sold by variety name only as a class of certified seed.
9. Seed production acreage of Velocity is not to be published by AOSCA or other seed certifying agencies.

Date this application was submitted: Jan 03, 2020 Date recommended by the VRB: Mar 24, 2020



Wheat
Ag Icon
KS080448C*-102 (Exp)
(Amended - Name Change)

Variety Name Ag Icon
 Experimental Designation(s) KS080448C*-102
 Date SGVRB first recommended this variety Apr 26, 2017
 Date(s) any previous amendments were recommended _____
 Date this amendment was submitted Aug 20, 2019

1. Ag Icon is a medium statured semi-dwarf. hard red winter wheat developed by the Kansas Agricultural Experiment Station.
2. Ag Icon was developed using doubled haploid technology. DH progeny were selected based on maturity (using early and late checks to identify plants within the acceptable window), height (semi-dwarf), straw strength, resistance to prevalent diseases (leaf rust, stripe rust, stem rust, soil borne mosaic, tan spot, septoria leaf blotch and powdery mildew) and other plant characteristics such as spike size and density, tillering capacity, yield and quality.
3. Ag Icon was extensively tested in central and western Kansas. Ag Icon has performed best in central Kansas and, based on SRPN data, is expected to do well in central Oklahoma and the Rolling Plains of Texas.
4. Ag Icon is moderately resistant to the prevalent races of stripe rust and leaf rust in the Great Plains and is also resistant to soil-borne mosaic virus.

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>Semi-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</u>	20. Shoulder Shape:	<u>Square</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Medium</u>
8. Day(s) to 50% Heading:	<u>127</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S.M.L.VL):	<u>M</u>
10. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent</u>
11. Plant Height (cm):	<u>89</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>S</u>
15. Spike Curvature:	<u>Nodding</u>	29. Avg 1,000 Kernel Wt (g):	<u>27</u>

30. Physiological/Biochemical Traits:

Variants and Frequency: Falls at a frequency of 1 in 1,000; dark chaff at a frequency of 1 in 1,000; white seed at a frequency up to 0.8%.

6. Recognized classes of Ag Icon are breeder, foundation, registered, and certified. Kansas State University will maintain the variety by the head-row purification method to produce breeder seed as needed and all foundation seed. Royalties or licensing agreements are anticipated to be collected through the Kansas Wheat Alliance.
7. Certified seed of Ag Icon will likely be available for planting in Fall of 2018.
8. Application for PVP is anticipated with the option that Ag Icon can be sold by variety name only 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: Aug 20, 2019 Date recommended by the VRB: Mar 24, 2020



Wheat

AM Cartwright KS080093K-18 (Exp)

1. AM Cartwright is a medium statured semi-dwarf, hard red winter wheat developed by the Kansas Agricultural Experiment Station and owned by the Kansas State University Research Foundation.
2. AM Cartwright was developed through a selected bulk procedure with selection based on maturity (using early and late checks to identify plants within the acceptable window), height (semi-dwarf), straw strength, resistance to prevalent diseases (leaf rust, stripe rust, stem rust, soil borne mosaic, tan spot, septoria leaf blotch and powdery mildew) and other plant characteristics such as spike size and density, tillering capacity, yield and quality.
3. AM Cartwright has been tested across Kansas and is expected to perform best in the central region of the state. SRPN data suggests it is like to do well in adjacent areas of Oklahoma and Nebraska.
4. AM Cartwright is resistant to current field races of leaf and stripe rust in Kansas. It is also resistant to Hessian fly and soil-borne mosaic virus and tolerant to acid soils.
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
5. Leaf Color at Boot:	Green	19. Glume Length:	Medium
6. Flag Leaf at Boot:	Erect, Twisted, Wax Absent	20. Shoulder Shape:	Oblique
7. Auricle Color:	white	21. Shoulder Width:	Medium
8. Day(s) to 50% Heading:	131.5	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	S
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	80	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.):	M
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	34.5
30. Physiological/Biochemical Traits:	Low polyphenol oxidase (PPO) content of the flour (0.18 compared to 0.56 for Jagalene).		

Variants and Frequency: Talls at a frequency of 1 in 1,000; dark chaff at a frequency of 1 in 1,000; white seed at a frequency up to 0.8%

6. Recognized classes of AM Cartwright are breeder, foundation, registered, and certified. Kansas State University will maintain the variety by the head-row purification method to produce breeder seed as needed and all foundation seed. Royalties or licensing agreements are anticipated to be collected through the Kansas Wheat Alliance.
7. Certified seed of AM Cartwright will likely be available for planting in Fall of 2020.
8. Application for PVP is anticipated with the option that AM Cartwright can be sold by variety name only as a class of certified seed.
9. Certified seed production acreage may to be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jan 08, 2020

Date recommended by the VRB: Mar 24, 2020



Wheat

Bob Dole KS061193K-2 (Exp) (Amended – Name Change)

Variety Name Bob Dole

Experimental Designation(s) KS061193K-2

Date SGVRB first recommended this variety Apr 26, 2017

Date(s) any previous amendments were recommended _____

Date this amendment was submitted Aug 20, 2019

1. Bob Dole is a tall statured, strong strawed hard red winter wheat developed by the Kansas Agricultural Experiment Station.
2. Bob Dole was developed through conventional breeding using a selected bulk approach. Individuals within populations were selected based on maturity (using early and late checks to identify plants within the acceptable window), height (semi-dwarf), straw strength, resistance to prevalent diseases (leaf rust, stripe rust, stem rust, soil borne mosaic, tan spot, septoria leaf blotch and powdery mildew) and other plant characteristics such as spike size and density, tillering capacity, yield and quality
3. Bob Dole was tested extensively in central and western Kansas. Bob Dole has performed best in south central Kansas but has also performed well in western parts of the state.
4. Bob Dole is resistant to the prevalent races of stripe rust and leaf rust in the Great Plains and is also moderately resistant to soil-borne mosaic virus but susceptible to Hessian fly. It is intermediate in its response to Fusarium head blight.
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
5. Leaf Color at Boot:	Green	19. Glume Length:	Medium
6. Flag Leaf at Boot:	Erect, Twisted	20. Shoulder Shape:	Wanting
7. Auricle Color:	White	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	127	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S.M.L.VL):	L
10. Anthoncyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	100	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.):	M
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (g):	31

30. Physiological/Biochemical Traits:

Variants and Frequency: Talls at a frequency of 1 in 1,000; dark chaff at a frequency of 1 in 1,000; white seed at a frequency up to 0.8%

6. Recognized classes of Bob Dole are breeder, foundation, registered, and certified. Kansas State University will maintain the variety by the head-row purification method to produce breeder seed as needed and all foundation seed. Royalties or licensing agreements are anticipated to be collected through the Kansas Wheat Alliance.
7. Certified seed of Bob Dole will likely be available for planting in Fall of 2018.
8. Application for PVP is anticipated with the option that Bob Dole can be sold by variety name only 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: Aug 20, 2019

Date recommended by the VRB: Mar 24, 2020



Wheat
Fuller
KS00F5-14-7
(Amended – Name Change)

Variety Name Fuller
Experimental Designation(s) KS00F5-14-7
Date SGVRB first recommended this variety February 21, 2006
Date(s) any previous amendments were recommended _____
Date this amendment was submitted Aug 20, 2019

Fuller (KS00F5-14-7-experimental designation) is a hard red winter wheat developed by the Kansas Agricultural Experiment Station. The name ‘Fuller’ has been selected and is pending approval from USDA. Fuller (KS00F5-14-7-experimental designation) was selected from a population with an unknown pedigree. F2 seed was planted in the field for the 1997 crop year at Manhattan, KS. The population was advanced as a bulk to the F4 generation, which was grown at Manhattan, KS in 1999. Individual spikes were pulled from the F4 population and grown as head rows during the 2000 crop year. Fuller (KS00F5-14-7-experimental designation) was selected as a head row in 2000. In 2001, Fuller (KS00F5-14-7-experimental designation) was entered in the “short-row” yield trial, a non-replicated test grown at Manhattan and Hutchinson, KS. Based on performance, it was advanced to the “Preliminary yield trials” at Hutchinson and Manhattan in 2002. In 2003, KS00F5-14-7 was tested in the Advanced Yield Trials at six sites across Kansas and was advanced to the Kansas Intrastate Nursery, an elite test grown at 17 locations in Kansas in 2004 and 2005. Fuller (KS00F5-14-7-experimental designation) has had a significant yield advantage over Jagger (58.6 bu/ac to 52.5 bu/ac) in central Kansas throughout its testing. Fuller (KS00F5-14-7-experimental designation) also has superior test weight and thousand kernel weight compared to Jagger (see Appendix). Fuller (KS00F5-14-7-experimental designation) has had longer mixing times and somewhat lower loaf volumes that Jagger in bake tests. Overall, Fuller (KS00F5-14-7-experimental designation) has acceptable baking quality.

The variety is intended for traditional hard red winter wheat uses. It has performed particularly well in central Kansas, with reasonable, but not exceptional, performance in western Kansas. It is most likely to be grown in central Kansas and adjacent areas of Oklahoma.

Fuller (KS00F5-14-7-experimental designation) is an early maturing, awned, bronze chaffed hard red winter wheat that is one-half to one day later than Jagger. It is dark green from vegetative through boot stage and is about 2.5 cm taller than Jagger. Variants are limited to taller plants that occur at a frequency of less than 1 in 10,000. White chaffed plants are also present at a frequency of less than 1 in 1,000. It is also differentiated from Jagger based on reaction to leaf rust. Fuller (KS00F5-14-7-experimental designation) is highly resistant, while Jagger is fully susceptible to the prevalent races in the Great Plains.

Fuller (KS00F5-14-7-experimental designation) is resistant to soil-borne mosaic virus, spindle streak mosaic virus, leaf rust, and stripe rust. It is moderately resistant to stem rust and intermediate for tan spot. It is susceptible to Hessian fly.

Seed stock will be maintained via the seed block method by the Kansas Foundation Seed Program, Agronomy Department, Kansas State University, Manhattan, KS. Breeders, foundation, registered and certified seed classes will be used. Foundation seed is planned to be offered for sale in August, 2006. Application for PVP, Title V option is anticipated. Acreage will be published by AOSCA and certifying agencies.

Date this application was submitted: Aug 20, 2019

Date recommended by the VRB: Mar 24, 2020



Wheat

Joe KS11HW39-5-4 (Exp) (Amended – Name Change)

Variety Name Joe

Experimental Designation(s) KS11HW39-5-4

Date SGVRB first recommended this variety Mar 19, 2015

Date(s) any previous amendments were recommended _____

Date this amendment was submitted Aug 20, 2019

1. Joe is a hard white winter wheat breeding line. It was developed by Dr. Guorong Zhang at the Agricultural Research Center-Hays, Kansas State University.
2. Joe was selected for yield, baking quality, disease resistance (WSMV, stripe rust, leaf rust, SBMV, Hessian fly), and other agronomic traits (pre-harvest sprouting, grain shattering, lodging, maturity) using the modified bulk method.
3. Joe was extensively tested in Kansas and is well adapted to the dryland production areas in western Kansas.
4. Joe is resistant to wheat streak mosaic virus, stripe rust, and leaf rust.
5. Identifying characteristics –

1. Kind:	<u>Common, Hard White Winter Wheat</u>		
2. Seasonal Growth Habit:	<u>Winter</u>	16. Awn Type:	<u>Awne</u>
3. Coleoptile Color:	<u>White</u>	17. Awn Color:	<u>White</u>
4. Juvenile Growth Habit:	<u>Prostrate</u>	18. Glume Color:	<u>Tan</u>
5. Leaf Color at Boot:	<u>Green</u>	19. Glume Length:	<u>Medium</u>
6. Flag Leaf at Boot:	<u>Erect, Twisted, Not Waxy</u>	20. Shoulder Shape:	<u>Oblique</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Medium</u>
8. Days to 50% Heading:	<u>139.5 (from Jan 1)</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S.M.L.VL):	<u>M</u>
10. Anthocyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent</u>
11. Plant Height (cm):	<u>66</u>	25. Seed Color:	<u>White</u>
12. Internodes:	<u>Five</u>	26. Seed Shape:	<u>Ovate</u>
13. Spike Shape:	<u>Tapering</u>	27. Cheeks:	<u>Rounded</u>
14. Spike Density:	<u>Middense</u>	28. Brush Size (S,M,L.):	<u>Medium</u>
15. Spike Curvature:	<u>Inclined</u>	29. Avg 1,000 Kernel Wt (g):	<u>29</u>

30. Physiological/Biochemical Traits: NA

Variants and Frequency: Variants are limited to: slightly taller plants that occur at a frequency of less than 1 in 1,000 plants; white chaffed plants that occur at a frequency of less than 5 in 1,000 plants under normal growing condition; dark chaffed plants that occur at a frequency of less than 5 in 1,000 plants, which might be due to the Barley Yellow Dwarf Virus.

6. Recognized classes are breeder, foundation, registered, and certified seed. Kansas State University will maintain its purity by the head-row method to produce breeder seed as needed.
7. Certified seed will likely be available for planting in fall of 2016.
8. If this breeding line gets approved for release by the KSU Plant and Genetic Material Release Committee, an application will be submitted for protection under the U.S. Plant Variety Protection Act and the "Certification Option" will be elected (to be sold by variety name only as a class of certified seed).
9. Certified seed production acreage may be published by AOSCA and certifying agencies.

Date this application was submitted: Aug 29, 2019

Date recommended by the VRB: Mar 24, 2020



Wheat

KS Dallas KS15H116-6-1 (Exp) (Name Change)

Variety Name KS Dallas

Experimental Designation(s) KS15H116-6-1

Date SGVRB first recommended this variety Apr 14, 2019

Date(s) any previous amendments were recommended _____

Date this amendment was submitted Aug 20, 2019

1. KS Dallas is a hard red winter wheat breeding line. It is developed by Dr. Guorong Zhang at the Agricultural Research Center-Hays, Kansas State University.
2. KS Dallas was selected for test weight, yield, baking quality, disease resistance (WSMV, stripe rust, leaf rust, stem rust, SBMV, Hessian fly), and other agronomic traits (PPO, coleoptile length, grain shattering, lodging, winter hardiness, maturity) using the modified bulk method.
3. KS Dallas was extensively tested in Kansas and is adapted to the dryland production system in western Kansas.
4. KS Dallas is resistant to wheat streak mosaic virus, stripe rust, and stem rust, and moderately resistant to leaf rust.
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:	Long
6. Flag Leaf at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Oblique
7. Auricle Color:	White	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	130	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	M
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	93	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Ovate
13. Spike Shape:	Tapering	27. Cheeks:	Rounded
14. Spike Density:	Middense	28. Brush Size (S,M,L.):	M
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	32
30. Physiological/Biochemical Traits:	NA		

Variants and Frequency: Slightly taller plants that occur at a frequency of less than 1 in 100 plants; white seeded plants that occur at a frequency of less than 1 in 1000 plants.

6. Recognized classes are breeder, foundation, registered, and certified seed. Kansas State University will maintain its purity by the head-row method to produce breeder seed as needed.
7. Certified seed will likely be available for planting in the fall of 2019.
8. If this breeding line gets approved for release by the KSU Plant and Genetic Material Release Committee, an application will be submitted for protection under the U.S. Plant Variety Protection Act and the "Certification Option" will be elected (to be sold by variety name only as a class of certified seed).
9. Certified seed production acreage may be published by AOSCA and certifying agencies.

Date this application was submitted: Aug 29, 2019

Date recommended by the VRB: Mar 24, 2020



Wheat

KS Silverado KS14HW106-6-6 (Exp) (Amended – Name Change)

Variety Name KS Silverado

Experimental Designation(s) KS14HW106-6-6

Date SGVRB first recommended this variety Apr 14, 2019

Date(s) any previous amendments were recommended _____

Date this amendment was submitted Aug 29, 2019

1. KS Silverado is a hard white winter wheat breeding line. It is developed by Dr. Guorong Zhang at the Agricultural Research Center-Hays, Kansas State University.
2. KS Silverado was selected for test weight, yield, baking quality, disease resistance (WSMV, stripe rust, leaf rust, stem rust, SBMV, Hessian fly), and other agronomic traits (PPO, coleoptile length, pre-harvest sprouting, grain shattering, lodging, winter hardiness, maturity) using the modified bulk method.
3. KS Silverado was extensively tested in Kansas and is adapted to both central and western Kansas.
4. KS Silverado is resistant to leaf rust, wheat soilborne mosaic virus, and Hessian fly, and moderately resistant to stripe rust, stem rust, and wheat streak mosaic virus.
5. Identifying characteristics:

1. Kind:	Common, Hard White 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, Twisted, Wax Present	20. Shoulder Shape:	Square
7. Auricle Color:	White	21. Shoulder Width:	Medium
8. Day(s) to 50% Heading:	121	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	M
10. Anthoncyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	87.5	25. Seed Color	White
12. Internodes:	Hollow	26. Seed Shape:	Ovate
13. Spike Shape:	Tapering	27. Cheeks:	Rounded
14. Spike Density:	Middense	28. Brush Size (S,M,L.):	S
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	33

30. Physiological/Biochemical Traits: NA

Variants and Frequency: Slightly taller plants that occur at a frequency of less than 1 in 100 plants; red seeded plants that occur at a frequency of less than 2 in 100 plants.

6. Recognized classes are breeder, foundation, registered, and certified seed. Kansas State University will maintain its purity by the head-row method to produce breeder seed as needed.
7. Certified seed will likely be available for planting in the fall of 2019.
8. If this breeding line gets approved for release by the KSU Plant and Genetic Material Release Committee, an application will be submitted for protection under the U.S. Plant Variety Protection Act and the “Certification Option” will be elected (to be sold by variety name only as a class of certified seed).
9. Certified seed production acreage may be published by AOSCA and certifying agencies.

Date this application was submitted: Aug 29, 2019

Date recommended by the VRB: Mar 24, 2020



Wheat

KS Venada KS13HW92-3 (Exp) (Amended – Name Change)

Variety Name KS Venada

Experimental Designation(s) KS13HW92-3

Date SGVRB first recommended this variety Apr 10, 2018

Date(s) any previous amendments were recommended _____

Date this amendment was submitted Aug 29, 2019

1. KS Venada is a hard white winter wheat breeding line. It was developed by Dr. Guorong Zhang at the Agricultural Research Center-Hays, Kansas State University
2. KS Venada was selected for yield, baking quality, disease resistance (WSMV, stripe rust, leaf rust, SBMV, Hessian fly), and other agronomic traits (PPO, pre-harvest sprouting, grain shattering, lodging, winter hardiness, maturity) using the modified bulk method.
3. KS Venada was extensively tested in Kansas and is adapted to the dryland production areas in central and western Kansas.
4. KS Venada is resistant to stripe rust, leaf rust, and wheat soilborne mosaic virus.
5. Identifying characteristics –

Common, Hard White Winter Wheat			
1. Kind:	<u>Common, Hard White 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>Semi-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>Medium</u>
8. Day(s) to 50% Heading:	<u>126.5 (from Jan. 1)</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>L</u>
10. Anthocyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent</u>
11. Plant Height (cm):	<u>83</u>	25. Seed Color:	<u>White</u>
12. Internodes:	<u>Five, Hollow</u>	26. Seed Shape:	<u>Elliptical</u>
13. Spike Shape:	<u>Tapering</u>	27. Cheeks:	<u>Round</u>
14. Spike Density:	<u>Middense</u>	28. Brush Size (S,M,L.):	<u>S</u>
15. Spike Curvature:	<u>Inclined</u>	29. Avg 1,000 Kernel Wt (grams):	<u>34</u>

30. Physiological/Biochemical Traits: NA

Variants and Frequency: Variants are limited to slightly taller plants that occur at a frequency of less than 1 in 100 plants; red seeded plants that occur at a frequency of less than 2 in 100 plants.

6. Recognized classes are breeder, foundation, registered, and certified seed. Kansas State University will maintain its purity by the head-row method to produce breeder seed as needed.
7. Certified seed will likely be available for planting in the fall of 2019.
8. If this breeding line gets approved for release by the KSU Plant and Genetic Material Release Committee, an application will be submitted for protection under the U.S. Plant Variety Protection Act and the "Certification Option" will be elected (to be sold by variety name only as a class of certified seed).
9. Certified seed production acreage may be published by AOSCA and certifying agencies.

Date this application was submitted: Aug 29, 2019

Date recommended by the VRB: Mar 24, 2020



Wheat

KS Western Star KS15H161-1-4 (Exp) (Amended – Name Change)

Variety Name KS Western Star

Experimental Designation(s) KS15H161-1-4

Date SGVRB first recommended this variety Apr 14, 2019

Date(s) any previous amendments were recommended _____

Date this amendment was submitted Aug 29, 2019

1. KS Western Star is a hard red winter wheat breeding line. It is developed by Dr. Guorong Zhang at the Agricultural Research Center-Hays, Kansas State University.
2. KS Western Star was selected for test weight, yield, baking quality, disease resistance (WSMV, stripe rust, leaf rust, SBMV, Hessian fly), and other agronomic traits (PPO, coleoptile length, grain shattering, lodging, winter hardiness, maturity) using the modified bulk method.
3. KS Western Star was extensively tested in Kansas and is adapted to the dryland production system in western Kansas.
4. KS Western Star is resistant to leaf rust and soilborne mosaic virus, and moderately resistant to stripe rust.
5. Identifying characteristics:

1. Kind: Common, Hard Red Winter Wheat

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>Semi-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 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>128</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>M</u>
10. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Absent</u>
11. Plant Height (cm):	<u>97</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>Middense</u>	28. Brush Size (S,M,L.):	<u>M</u>
15. Spike Curvature:	<u>Inclined</u>	29. Avg 1,000 Kernel Wt (grams):	<u>30</u>

30. Physiological/Biochemical Traits: NA

Variants and Frequency: Slightly taller plants that occur at a frequency of less than 1 in 100 plants; white seeded plants that occur at a frequency of less than 1 in 1000 plants.

6. Recognized classes are breeder, foundation, registered, and certified seed. Kansas State University will maintain its purity by the head-row method to produce breeder seed as needed.
7. Certified seed will likely be available for planting in the fall of 2019.
8. If this breeding line gets approved for release by the KSU Plant and Genetic Material Release Committee, an application will be submitted for protection under the U.S. Plant Variety Protection Act and the "Certification Option" will be elected (to be sold by variety name only as a class of certified seed).
9. Certified seed production acreage may be published by AOSCA and certifying agencies.

Date this application was submitted: Aug 29, 2019 Date recommended by the VRB: Mar 24, 2020



Wheat

KS090049K-8 (Exp)

1. KS090049K-8 is a medium early maturing hard red winter wheat developed by the Kansas Agricultural Experiment Station and owned by Kansas State University Research Foundation
2. KS090049K-8 was developed through a selected bulk procedure with selection based on maturity (using checks to identify plants within the acceptable window), height (semi-dwarf), straw strength, resistance to prevalent diseases (leaf rust, stripe rust, stem rust, soil borne mosaic, tan spot, septoria leaf blotch and powdery mildew) and other plant characteristics such as spike size and density, tillering capacity, yield and quality.
3. KS090049K-8 has been tested across Kansas and is expected to perform best in the central region of the state. SRPN data suggests it is like to do well from central Texas through central Nebraska.
4. KS090049K-8 is resistant to current field races of leaf rust. It is resistant to historical races of stripe rust in Kansas but moderately susceptible to races virulent on Yr17. It is resistant to Hessian fly and soil-borne mosaic virus and moderately tolerant to acid soils.

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
5. Leaf Color at Boot:	Green	19. Glume Length:	Medium
6. Flag Leaf at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Elevated
7. Auricle Color:	White	21. Shoulder Width:	Medium
8. Day(s) to 50% Heading:	128.5	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Short
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	80	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.):	S
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	28.5

30. Physiological/Biochemical Traits: Prominent leaf tip necrosis due to Lr34 is obvious in during late grain fill in most environments.

Variants and Frequency: Talls at a frequency of 1 in 1,000; dark chaff at a frequency of 1 in 1,000; white seed at a frequency up to 0.8%

6. Recognized classes of KS090049K-8 are breeder, foundation, registered, and certified. Kansas State University will maintain the variety by the head-row purification method to produce breeder seed as needed and all foundation seed. Royalties or licensing agreements are anticipated to be collected through the Kansas Wheat Alliance.
7. Certified seed of KS090049K-8 will likely be available for planting in Fall of 2021.
8. Application for PVP is anticipated with the option that KS090049K-8 can be sold by variety name only as a class of certified seed.
9. Certified seed production acreage may to be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jan 08, 2020 Date recommended by the VRB: Apr 16, 2020



Wheat

KS12DH0156-88 (Exp)

1. KS12DH0156-88 is a medium late maturing hard red winter wheat developed by the Kansas Agricultural Experiment Station and owned by Kansas State University Research Foundation.
2. KS12DH0156-88 was developed by doubled haploid technology followed by selection based on maturity (using early and late checks to identify plants within the acceptable window), height (semi-dwarf), straw strength, resistance to prevalent diseases (leaf rust, stripe rust, stem rust, soil borne mosaic, tan spot, septoria leaf blotch and powdery mildew) and other plant characteristics such as spike size and density, tillering capacity, yield and quality.
3. KS12DH0156-88 has been tested across Kansas and is expected to perform best in the central region of the state. Its later maturity may make it more suitable for regions north of US highway 54.
4. KS12DH0156-88 is moderately resistant to resistant to current field races of leaf rust and moderately resistant to stripe rust in Kansas. It is susceptible to Hessian fly, resistant to soil-borne mosaic virus and intermediate to moderately tolerant on acid soils.

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
5. Leaf Color at Boot:	Green	19. Glume Length:	Long
6. Flag Leaf at Boot:	Recurved, Twisted, Wax Absent	20. Shoulder Shape:	Square
7. Auricle Color:	White	21. Shoulder Width:	Wide
8. Day(s) to 50% Heading:	133	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	S
10. Anthocyanin:	Absent	24. Glume Pubescence:	Absent
11. Plant Height (cm):	82	25. Seed Color:	Red
12. Internodes:	Hollow	26. Seed Shape:	Elliptical
13. Spike Shape:	Oblong	27. Cheeks:	Rounded
14. Spike Density:	Dense	28. Brush Size (S,M,L.):	Short
15. Spike Curvature:	Erect	29. Avg 1,000 Kernel Wt (grams):	31.5

30. Physiological/Biochemical Traits:

Variants and Frequency: Talls at a frequency of 1 in 1,000; dark chaff at a frequency of 1 in 1,000; white seed at a frequency up to 0.8%

6. Recognized classes of KS12DH0156-88 are breeder, foundation, registered, and certified. Kansas State University will maintain the variety by the head-row purification method to produce breeder seed as needed and all foundation seed. Royalties or licensing agreements are anticipated to be collected through the Kansas Wheat Alliance.
7. Certified seed of KS12DH0156-88 will likely be available for planting in Fall of 2021.
8. Application for PVP is anticipated with the option that KS12DH0156-88 can be sold by variety name only as a class of certified seed.
9. Certified seed production acreage may to be published by AOSCA and individual certifying agencies.

Date this application was submitted: Jan 08, 2020

Date recommended by the VRB: Mar 24, 2020



Wheat

122015W M15-6747# (Exp)

1. 122015W is a soft red winter wheat developed by Syngenta Crop Protection AG.
2. 122015W was selected for high yield, lodging and height. A doubled haploid breeding system was used to create 122015W.
3. 122015W is a medium, awned variety adapted to Missouri, Illinois, Indiana, Kentucky, Ohio, and southern Michigan in the Midwest. It is also adapted to Pennsylvania, and the tidewater area of Virginia in the Mid-Atlantic.
4. 122015W exhibits above average resistance to powdery mildew, soilborne mosaic virus, and bacterial streak. It is moderately susceptible to fusarium head blight and leaf rust.
5. Identifying characteristics –

1. Kind:	Common, Soft Red Winter Wheat		
2. Seasonal Growth Habit:	Winter	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	White
4. Juvenile Growth Habit:	Erect	18. Glume Color:	White/Amber
5. Leaf Color at Boot:	Green	19. Glume Length:	Long
6. Flag Leaf at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Oblique
7. Auricle Color:	White	21. Shoulder Width:	Medium
8. Day(s) to 50% Heading:	135	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Medium
10. Anthoncyanin:	Absent	24. Glume Pubescence:	Absent (glabrous)
11. Plant Height (cm):	87.6	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:	Erect	29. Avg 1,000 Kernel Wt (grams):	35

30. Physiological/Biochemical Traits:

Variants and Frequency: Up to 1% variant plants may be encountered in subsequent generations. These may include tall (>3 inches) and awnless plants.

6. Syngenta Seeds, LLC maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, LLC will maintain the variety at the breeder seed level 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 2021. 122015W may only be sold as a class of certified seed.
9. Certified acreage is not published by AOSCA or by individual certifying agencies.

Date this application was submitted: Jan 08, 2020

Date recommended by the VRB: Apr 14, 2020



Wheat

122016W 10BC107#115 (Exp)

1. 122016W is a hard red winter wheat developed by Syngenta Crop Protection AG.
2. 122016W was selected for height, maturity, green leaf duration, disease reaction, and end use quality in yield and disease test plots following doubled haploid method.
3. 122016W was tested in Kansas, Oklahoma, Texas, Colorado, Nebraska, South Dakota and is well-adapted as a bread wheat in the Central Plains under dryland production and in South Dakota.
4. 122016W is moderately resistant to common races in the Central Plains of leaf rust and moderately susceptible to common races in the Central Plains of stripe rust.
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:	Erect	18. Glume Color:	White/Amber
5. Leaf Color at Boot:	Green	19. Glume Length:	Long
6. Flag Leaf at Boot:	Erect, Twisted, Wax Absent	20. Shoulder Shape:	Oblique
7. Auricle Color:	White	21. Shoulder Width:	Narrow
8. Day(s) to 50% Heading:	129.3	22. Beak Shape:	Acuminate
9. Anther Color:	Yellow	23. Beak Length (S,M,L,VL):	Long
10. Anthocyanin:	Absent	24. Glume Pubescence:	Present
11. Plant Height (cm):	82.6	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.):	Short
15. Spike Curvature:	Erect	29. Avg 1,000 Kernel Wt (grams):	29.77

30. Physiological/Biochemical Traits:

Variants and Frequency: We also would expect to see up to 1.8% white seed variant. Up to 1% taller variants (8 to 15cm) may be encountered in subsequent generations.

6. Syngenta Seeds, LLC maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, LLC will maintain the variety at the breeder seed level to produce breeder seed as needed. Royalty fees are anticipated.
7. Certified seed will likely be available Fall of 2021.
8. Plant Variety Protection is anticipated in 2020 and 122016W may only be sold as a class of certified seed.
9. Certified acreage is not published by AOSCA or by individual certifying agencies.

Date this application was submitted: Jan 08, 2020

Date recommended by the VRB: Mar 24, 2020



Wheat

AP Dynamic 08PN030-3 (Exp)

1. AP Dynamic is a soft white winter wheat developed by Syngenta Crop Protection AG.
2. AP Dynamic was selected for height, maturity, appearance, kernel color, kernel soundness, disease reaction and end use quality that originated with a single cross made in December of 2008.
3. AP Dynamic is broadly adapted to low to intermediate rainfall zones in Eastern Washington and Oregon.
4. AP Dynamic is medium maturity, medium height variety with average test weight. It has shown above average resistance to dryland footrot.

5. Identifying characteristics –

1. Kind:	<u>Common, Soft White 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>Re-curved, Twisted, Wax Present</u>	20. Shoulder Shape: <u>Wanting</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width: <u>Narrow</u>
8. Day(s) to 50% Heading:	<u>156.7</u>	22. Beak Shape: <u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL): <u>Long</u>
10. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence: <u>Present</u>
11. Plant Height (cm):	<u>78.3</u>	25. Seed Color: <u>White</u>
12. Internodes:	<u>Semi-Solid</u>	26. Seed Shape: <u>Ovate</u>
13. Spike Shape:	<u>Oblong</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>Inclined</u>	29. Avg 1,000 Kernel Wt (grams): <u>51.0</u>

30. Physiological/Biochemical Traits:

Variants and Frequency: Less than 0.5% of plants were rogued from the Breeders Seed Increase. Ninety percent of the variant plants were taller (3-10cm). Less than ten percent of the variants were awnless or awnletted as opposed to the predominant awned type. Up to 0.8% variant plants may be encountered in subsequent generations. One red seed per pound was found in sample of breeders seed increase. It can be expected to encounter up to 0.5% red seed in all classes of certified production.

6. Syngenta Seeds, LLC maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, LLC will maintain the variety at the breeder seed level to produce breeder seed as needed. Royalty fees are anticipated.
7. Certified seed stocks of AP Dynamic will be available in the fall of 2020.
8. Plant Variety Protection is anticipated in 2020 and AP Dynamic 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: Jan 08, 2020 Date recommended by the VRB: Apr 14, 2020



Wheat

AP EverRock 09BC308-14-16 (Exp)

1. AP_EverRock_is a hard red winter wheat developed by Syngenta Crop Protection AG.
2. AP EverRock was selected for height, maturity, green leaf duration, disease reaction, and end use quality using the modified bulk method.
3. AP EverRock was tested in Kansas, Oklahoma, Texas, Colorado and Nebraska and is a well-adapted bread wheat to the irrigated and dryland production areas of the Central and Western Irrigated High Plains
4. AP EverRock is moderately resistant to common races in the Central Plains of leaf and stripe rust.
5. Identifying characteristics –

Common, Hard Red Winter Wheat			
1. Kind:	Winter	16. Awn Type:	Awned
2. Seasonal Growth Habit:	White	17. Awn Color:	White
3. Coleoptile Color:	Erect	18. Glume Color:	White/Amber
4. Juvenile Growth Habit:	Blue-Green	19. Glume Length:	Long
5. Leaf Color at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Oblique
6. Flag Leaf at Boot:	White	21. Shoulder Width:	Medium
7. Auricle Color:	124	22. Beak Shape:	Acuminate
8. Day(s) to 50% Heading:	Yellow	23. Beak Length (S,M,L,VL):	Long
9. Anther Color:	Absent	24. Glume Pubescence:	Present
10. Anthoncyanin:	79.5	25. Seed Color:	Red
11. Plant Height (cm):	Hollow	26. Seed Shape:	Ovate
12. Internodes:	Oblong	27. Cheeks:	Rounded
13. Spike Shape:	Mid Dense	28. Brush Size (S,M,L.):	Medium
14. Spike Density:	Erect	29. Avg 1,000 Kernel Wt (grams):	30.02
15. Spike Curvature:			

30. Physiological/Biochemical Traits:

Variants and Frequency: We also would expect to see up to 1.8% white seed variant. Up to 1% taller variants (8 to 15cm) may be encountered in subsequent generations.

6. Syngenta Seeds, LLC maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, LLC will maintain the variety at the breeder seed level to produce breeder seed as needed. Royalty fees are anticipated.
7. Certified seed will likely be available Fall of 2021.
8. Plant Variety Protection is anticipated in 2020 and AP EverRock may only be sold as a class of certified seed.
9. Certified acreage is not published by AOSCA or by individual certifying agencies.

Date this application was submitted: Jan 08, 2020 Date recommended by the VRB: Mar 24, 2020



Wheat

AP ILIAD 11PN044#84 (Exp)

1. AP ILIAD is a soft white winter wheat developed by Syngenta Crop Protection AG.
2. AP ILIAD was selected for height, maturity, appearance, kernel color, kernel soundness, disease reaction and end use quality that originated with a single cross made in December of 2011.
3. AP ILIAD is primarily adapted to intermediate to high rainfall and irrigated production in Eastern Washington. It also has tested well in irrigated production in southern Idaho.
4. AP ILIAD has shown above average resistance to stripe rust, soilborne mosaic virus and physiological leaf spotting.

5. Identifying characteristics –

1. Kind:	Common, Soft White Winter Wheat		
2. Seasonal Growth Habit:	Winter	16. Awn Type:	Awned
3. Coleoptile Color:	White	17. Awn Color:	White
4. Juvenile Growth Habit:	Erect	18. Glume Color:	White/Amber
5. Leaf Color at Boot:	Blue-Green	19. Glume Length:	Long
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:	150	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):	89.8	25. Seed Color:	White
12. Internodes:	Semi-Solid	26. Seed Shape:	Ovate
13. Spike Shape:	Oblong	27. Cheeks:	Angular
14. Spike Density:	Mid Dense	28. Brush Size (S,M,L.):	Long
15. Spike Curvature:	Inclined	29. Avg 1,000 Kernel Wt (grams):	49.5

30. Physiological/Biochemical Traits:

Variants and Frequency: Less than 0.5% of plants were rogued from the Breeders Seed Increase. Ninety percent of the variant plants were taller (3-10cm). Less than ten percent of the variants were awnless or awnletted as opposed to the predominant awned type. Up to 0.8% variant plants may be encountered in subsequent generations. Although none was found in sample of breeders seed increase, it can be expected to encounter up to 0.5% red seed in all classes of certified production.

6. Syngenta Seeds, LLC maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, LLC will maintain the variety at the breeder seed level to produce breeder seed as needed. Royalty fees are anticipated.
7. Certified seed stocks of AP ILIAD will be available in the fall of 2020.
8. Plant Variety Protection is anticipated in 2020 and AP ILIAD 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: Jan 08, 2020 Date recommended by the VRB: Apr 14, 2020



Wheat

M-IDAS 11PN050#03 (Exp)

1. M-IDAS is a soft white winter wheat developed by Syngenta Crop Protection AG.
2. M-IDAS was selected for height, maturity, appearance, kernel color, kernel soundness, disease reaction and end use quality that originated with a single cross made in December of 2011.
3. M-IDAS is primarily adapted to intermediate to high rainfall and irrigated production in Eastern Washington. It also has tested well in irrigated production in southern Idaho.
4. M-IDAS has shown above average resistance to stripe rust and tolerance to physiological leaf spotting. It has tested susceptible to soilborne mosaic virus and shows some winter tenderness.

5. Identifying characteristics –

1. Kind:	<u>Common, Soft White Winter Wheat</u>		
2. Seasonal Growth Habit:	<u>Winter</u>	16. Awn Type:	<u>Awnless</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>Re-curved, Twisted, Wax Present</u>	20. Shoulder Shape:	<u>Square</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Wide</u>
8. Day(s) to 50% Heading:	<u>147</u>	22. Beak Shape:	<u>Acute</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>Short</u>
10. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Present</u>
11. Plant Height (cm):	<u>85.2</u>	25. Seed Color:	<u>White</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>Medium</u>
15. Spike Curvature:	<u>Inclined</u>	29. Avg 1,000 Kernel Wt (grams):	<u>49.0</u>

30. Physiological/Biochemical Traits:

Variants and Frequency: Less than 0.5% of plants were rogued from the Breeders Seed Increase. Ninety percent of the variant plants were taller (3-10cm). Less than ten percent of the variants were awned or awnletted as opposed to the predominant awnless type. Up to 0.8% variant plants may be encountered in subsequent generations. Although none was found in sample of breeders seed increase, it can be expected to encounter up to 0.5% red seed in all classes of certified production.

6. The McGregor Company maintains seed stock and certified classes of Foundation, Registered and Certified. The McGregor Company will maintain the variety at the breeder seed level to produce breeder seed as needed. Royalty fees are anticipated.
7. Certified seed stocks of M-IDAS will be available in the fall of 2020.
8. Plant Variety Protection is anticipated in 2020 and M-IDAS 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: Jan 08, 2020 Date recommended by the VRB: Apr 14, 2020



Wheat

SY Gunsight 06PN3015-08 (Exp) (Amended – Description Change)

Variety Name SY Gunsight
Experimental Designation(s) 06PN3015-08
Date SGVRB first recommended this variety Jun 23, 2017
Date(s) any previous amendments were recommended _____
Date this amendment was submitted Feb 19, 2020

1. SY Gunsight is a hard red spring common wheat bred and developed by Syngenta Participation AG.
2. SY Gunsight was selected for height, uniformity, agronomics and disease resistance.
3. SY Gunsight was tested in the spring wheat growing areas (12 to 20 inch moisture zones and irrigated) of the Pacific Northwest (PNW) and was determined to be adapted to this area.
4. SY Gunsight has shown a low level reaction (Moderate Resistance) to the current strains of stripe rust in the PNW. In Davis, California with heavy infection and favorable environmental condition for stripe rust, SY Gunsight can show a moderately susceptible reaction.
5. Identifying characteristics –

1. Kind:	<u>Common, Hard Red Spring Wheat</u>	16. Awn Type:	<u>Awned</u>
2. Seasonal Growth Habit:	<u>Spring</u>	17. Awn Color:	<u>White</u>
3. Coleoptile Color:	<u>White</u>	18. Glume Color:	<u>White</u>
4. Juvenile Growth Habit:	<u>Erect</u>	19. Glume Length:	<u>Medium</u>
5. Leaf Color at Boot:	<u>Green</u>	20. Shoulder Shape:	<u>Elevated</u>
6. Flag Leaf at Boot:	<u>Recurved, Twisted, Wax Present</u>	21. Shoulder Width:	<u>Narrow</u>
7. Auricle Color:	<u>White</u>	22. Beak Shape:	<u>Acuminate</u>
8. Day(s) to 50% Heading:	<u>161</u>	23. Beak Length (S,M,L,VL):	<u>Long</u>
9. Anther Color:	<u>Yellow</u>	24. Glume Pubescence:	<u>Absent</u>
10. Anthocyanin:	<u>Absent</u>	25. Seed Color:	<u>Red</u>
11. Plant Height (cm):	<u>78 cm</u>	26. Seed Shape:	<u>Ovate</u>
12. Internodes:	<u>Hollow</u>	27. Cheeks:	<u>Rounded</u>
13. Spike Shape:	<u>Strap</u>	28. Brush Size (S,M,L.):	<u>Medium</u>
14. Spike Density:	<u>Lax</u>	29. Avg 1,000 Kernel Wt (grams):	<u>37.0g</u>
15. Spike Curvature:	<u>Inclined</u>		

30. Physiological/Biochemical Traits:

Variants and Frequency: Less than 0.04% of the plants were rogued from the Breeder seed increases. The majority of the variant plants were taller height wheat plants (3 to 6cm). The white seeded variant of approximately 0.3% has also been identified in the Progeny Seed production. Up to 1.0% variant plants may be encountered in subsequent generations, white seed variant being up to 1% white seeds per pound.

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 breeder seed as needed. Royalty fees are anticipated.
7. Certified seed will likely be available for planting in the spring of 2018.
8. Plant Variety Protection is anticipated in 2017 and SY Gunsight 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: Feb 19, 2020

Date recommended by the VRB: Mar 24, 2020



Wheat

AP14T21619 (Exp)

1. AP14T21619 is a hard red winter wheat developed by Syngenta Crop Protection AG.
2. AP14T21619 was selected for height, maturity, green leaf duration, disease reaction, and end use quality using the modified bulk method.
3. AP14T21619 was tested in Kansas, Oklahoma, Texas, Colorado and Nebraska and is a well-adapted bread wheat to the irrigated and dryland production areas of the Central Dryland and Western Dry and Irrigated High Plains.
4. AP14T21619 is moderately resistant to common races in the Central Plains of leaf rust and moderately susceptible to common races of stripe rust in the Central Plains.

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:	Erect	18. Glume Color:	White/Amber
5. Leaf Color at Boot:	Blue-Green	19. Glume Length:	Medium
6. Flag Leaf at Boot:	Erect, Twisted, Wax Present	20. Shoulder Shape:	Oblique
7. Auricle Color:	White	21. Shoulder Width:	Medium
8. Day(s) to 50% Heading:	128.8	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):	86.1	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.):	Long
15. Spike Curvature:	Erect	29. Avg 1,000 Kernel Wt (grams):	29.76

30. Physiological/Biochemical Traits:

Variants and Frequency: We also would expect to see up to 1.8% white seed variant.
Up to 1% taller variants (8 to 15cm) may be encountered in subsequent generations.

6. Syngenta Seeds, LLC maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, LLC will maintain the variety at the breeder seed level to produce breeder seed as needed. Royalty fees are anticipated.
7. Certified seed will likely be available Fall of 2021.
8. Plant Variety Protection is anticipated in 2020. AP14T21619 may only be sold as a class of certified seed.
9. Certified acreage is not published by AOSCA or by individual certifying agencies.

Date this application was submitted: Jan 08, 2020 Date recommended by the VRB: Mar 24, 2020



Wheat

NP11100135-1 (Exp)

1. NP11100135-1 is a hard red spring wheat bred and developed by Syngenta Crop Protection AG
2. NP11100135-1 was selected for height, maturity, and herbicide tolerance.
3. NP11100135-1 is primarily adapted to the wheat growing areas of North Dakota and Montana.
4. No additional claims.
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>Green</u>	19. Glume Length:	<u>Medium</u>
6. Flag Leaf at Boot:	<u>Re-curved, Twisted, Wax Absent</u>	20. Shoulder Shape:	<u>Elevated</u>
7. Auricle Color:	<u>White</u>	21. Shoulder Width:	<u>Narrow</u>
8. Day(s) to 50% Heading:	<u>58</u>	22. Beak Shape:	<u>Acuminate</u>
9. Anther Color:	<u>Yellow</u>	23. Beak Length (S,M,L,VL):	<u>Long</u>
10. Anthoncyanin:	<u>Absent</u>	24. Glume Pubescence:	<u>Present</u>
11. Plant Height (cm):	<u>74</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>31</u>

30. Physiological/Biochemical Traits:

Variants and Frequency: Variants are taller in height by 8 to 15cm.
Up to 1% taller variants may be encountered in subsequent generations

6. Syngenta Seeds, LLC maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, LLC will maintain the variety at the breeder seed level to produce breeder seed as needed. Royalty fees are anticipated.
7. Certified seed will likely be available in the Spring of 2022.
8. Plant Variety Protection is anticipated in 2020 and NP11100135-1 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: Jan 08, 2020 Date recommended by the VRB: Mar 24, 2020



Barley

Y007-3 (Exp)

1. Y007-3 is a spring, waxy starch (5-10% amylose), naked caryopsis, six row barley by 21st Century Genetics Corp. for the food barley market.
2. Y007-3 was developed using the pedigree method of breeding with selection for phenotypic similarity to Tamalpais and waxy starch.
3. Y007-3 has been tested under irrigation in central California and dryland North Dakota with primary adaptation for growing conditions and disease tolerances of central California and similar environments.
4. Y007-3 has not been tested for any disease reactions. However, barley yellow dwarf and powdery mildew presence in California in 2017-18 and stripe rust in 2018-19 has allowed selection against diseased plants.
5. Identifying characteristics –

1. Growth Habit:	<u>Spring</u>	16. Plant Height (see below):	<u>56.5 cm</u>
2. Spike:	<u>Six row</u>	17. Spike Shape:	<u>Oblong</u>
3. Coleoptile Color:	<u>Green</u>	18. Spike Density:	<u>Mid-dense</u>
4. Juvenile Growth Habit:	<u>Semi-erect</u>	19. Spike Position at Maturity:	<u>Erect</u>
5. Plant Tillering:	<u>Intermediate</u>	20. Hairiness of Rachis Edge:	<u>Covered</u>
6. Leaf Color at Boot:	<u>Green</u>	21. Rachilla Hair Length:	<u>Short</u>
7. Flag Leaf at Boot:	<u>Erect, Not 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>50 Days After Planting</u>	26. Glume Awn Surface:	<u>Rough</u>
12. Stem Color:	<u>White</u>	27. Glume/Lemma Adherence:	<u>Naked</u>
13. Neck Shape:	<u>Straight</u>	28. Texture (if covered):	<u></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>35</u>

Heading date: 50 days after planting which is: 1 Day(s) (EARLIER) (LATER) than: Tamalpais

Plant height: 56.5 cm, which is 3.2 cm (SHORTER) (TALLER) (SAME AS) Tamalpais

Physiological or Biochemical Traits: Y007-3 has waxy starch as determined by red staining of endosperm at the hard dough stage of seed development

Variants and Frequency: No variants have been observed, but up to 1% tall plants or covered seed or non-waxy seed may be observed in future generations.

6. Recognized classes of Y007-3 are breeder, foundation, registered, and certified. 21st Century Genetics Corp. will maintain the variety by the head-row method to produce breeder seed as needed. Royalty fees or licensing agreements are anticipated.
7. Certified class seed will likely be available for the 2021 growing season, if accepted as eligible.
8. Application for PVP is anticipated with the option that Y007-3 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 certifying agencies.

Date this application was submitted: Jan 05, 2020 Date recommended by the VRB: Apr 06, 2020



Barley

Y039-1 (Exp)

1. Y039-1 is a spring, waxy starch (5-10% amylose), naked caryopsis, six row barley by 21st Century Genetics Corp. for the food barley market.
2. Y039-1 was developed using the pedigree method of breeding with selection for phenotypic similarity to Tamalpais and waxy starch.
3. Y039-1 has been tested under irrigation in central California and dryland North Dakota with primary adaptation for growing conditions and disease tolerances of central California and similar environments.
4. Y039-1 has not been tested for any disease reactions. However, barley yellow dwarf and powdery mildew presence in California in 2017-18 and stripe rust in 2018-19 has allowed selection against diseased plants.
5. Identifying characteristics –

1. Growth Habit:	<u>Spring</u>	16. Plant Height (see below):	<u>59 cm</u>
2. Spike:	<u>Six row</u>	17. Spike Shape:	<u>Oblong</u>
3. Coleoptile Color:	<u>Green</u>	18. Spike Density:	<u>Mid-dense</u>
4. Juvenile Growth Habit:	<u>Semi-erect</u>	19. Spike Position at Maturity:	<u>Erect</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, Not 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>Semi-smooth</u>
10. Auricle Color:	<u>White</u>	25. Glume Hairiness:	<u>None</u>
11. Heading Date (see below):	<u>49 Days After Planting</u>	26. Glume Awn Surface:	<u>Smooth</u>
12. Stem Color:	<u>White</u>	27. Glume/Lemma Adherence:	<u>Naked</u>
13. Neck Shape:	<u>Straight</u>	28. Texture (if covered):	<u></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>36</u>

Heading date: 49 days after planting which is: 49 Day(s) (EARLIER) (LATER) (SAME AS): Tamalpais

Plant height: 59 cm, which is 0.7 cm (SHORTER) (TALLER) (SAME AS) Tamalpais

Physiological or Biochemical Traits: Y039-1 has waxy starch as determined by red staining of endosperm at the hard dough stage of seed development

Variants and Frequency: No variants have been observed, but up to 1% tall plants or covered seed or non-waxy seed may be observed in future generations.

6. Recognized classes of Y039-1 are breeder, foundation, registered, and certified. 21st Century Genetics Corp. will maintain the variety by the head-row method to produce breeder seed as needed. Royalty fees or licensing agreements are anticipated.
7. Certified class seed will likely be available for the 2021 growing season, if accepted as eligible.
8. Application for PVP is anticipated with the option that Y039-1 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 certifying agencies.

Date this application was submitted: Jan 05, 2020 Date recommended by the VRB: Apr 06, 2020



Barley

Y070-1 (Exp)

1. Y070-1 is a spring, waxy starch (5-10% amylose), naked caryopsis, six row barley by 21st Century Genetics Corp. for the food barley market.
2. Y070-1 was developed using the pedigree method of breeding with selection for phenotypic similarity to Tamalpais and waxy starch.
3. Y070-1 has been tested under irrigation in central California and dryland North Dakota with primary adaptation for growing conditions and disease tolerances of central California and similar environments.
4. Y070-1 has not been tested for any disease reactions. However, barley yellow dwarf and powdery mildew presence in California in 2017-18 and stripe rust in 2018-19 has allowed selection against diseased plants.
5. Identifying characteristics –

1. Growth Habit:	<u>Spring</u>	16. Plant Height (see below):	<u>54.7 cm</u>
2. Spike:	<u>Six row</u>	17. Spike Shape:	<u>Oblong</u>
3. Coleoptile Color:	<u>Green</u>	18. Spike Density:	<u>Mid-dense</u>
4. Juvenile Growth Habit:	<u>Semi-erect</u>	19. Spike Position at Maturity:	<u>Erect</u>
5. Plant Tillering:	<u>Intermediate</u>	20. Hairiness of Rachis Edge:	<u>Covered</u>
6. Leaf Color at Boot:	<u>Green</u>	21. Rachilla Hair Length:	<u>Long</u>
7. Flag Leaf at Boot:	<u>Erect, Not 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>Covered</u>
11. Heading Date (see below):	<u>50.8 Days After Planting</u>	26. Glume Awn Surface:	<u>Rough</u>
12. Stem Color:	<u>White</u>	27. Glume/Lemma Adherence:	<u>Naked</u>
13. Neck Shape:	<u>Straight</u>	28. Texture (if covered):	<u></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>34</u>

Heading date: 50.8 days after planting which is: 2 Day(s) (EARLIER) (LATER) than: Tamalpais

Plant height: 54.7 cm, which is 5 cm (SHORTER) (TALLER) (SAME AS) Tamalpais

Physiological or Biochemical Traits: Y070-1 has waxy starch as determined by red staining of endosperm at the hard dough stage of seed development

Variants and Frequency: No variants have been observed, but up to 1% tall plants or covered seed or non-waxy seed may be observed in future generations.

6. Recognized classes of Y070-1 are breeder, foundation, registered, and certified. 21st Century Genetics Corp. will maintain the variety by the head-row method to produce breeder seed as needed. Royalty fees or licensing agreements are anticipated.
7. Certified class seed will likely be available for the 2021 growing season, if accepted as eligible.
8. Application for PVP is anticipated with the option that Y070-1 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 certifying agencies.

Date this application was submitted: Jan 05, 2020 Date recommended by the VRB: Apr 06, 2020



Triticale

934271498

APT1426023 (Exp)

1. 934271498 (APT1426023) is a winter triticale developed by Northern Agri-Brands LLC.
2. 934271498 was selected for silage yield production, improved grain yield, winter hardiness and awnlessness.
3. 934271498 has been tested and found to be adaptive to Northwestern region of the US including Montana, Washington, and Idaho.

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5. Identifying characteristics –

1. Ploidy:	<u>42</u>	15. Awn Color:	<u>NA</u>
2. Growth Habit:	<u>Winter</u>	16. Glume Pubescence:	<u>Slight</u>
3. Photoperiod Reaction:	<u>Insensitive</u>	17. Glume Color:	<u>Yellow</u>
4. Winterhardiness:	<u>Med High</u>	18. Glume Length:	<u>Mid-Long</u>
5. Maturity:	<u>Mid-Season</u>	19. Glume Width:	<u>Mid-Wide</u>
6. Height:	<u>Mid-Tall</u>	20. Glume Shoulder Shape:	<u>Wanting</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>Heavy</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</u>	25. Seed Brush Area:	<u>Large</u>
12. Spike Density:	<u>Dense</u>	26. Seed Brush Length:	<u>Mid-Long</u>
13. Spike Shape:	<u>Clavate</u>	27. Seed Color:	<u>Amber</u>
14. Spike Awnedness:	<u>Awnless</u>	28. Seed Relative Size:	<u>Med-Large</u>

Unique Physiological/Biochemical Traits: _____

Variants and Frequency: Less than 1% awned plants have been observed in subsequent generations.

6. Recognized classes of 934271498 are breeder, foundation, registered, and certified. Northern Agri Brands LLC will maintain the variety by the head-row system to produce breeder seed if needed.
7. Certified seed of 934271498 will be available 2021.
8. Application for Plant Variety Protection was submitted in 2020.
9. Certified seed production acreage may not be published by AOSCA or other Certification agencies.

Date this application was submitted: Mar 17, 2020 Date recommended by the VRB: May 18, 2020



Triticale
Tricanto
SZD F0664 (Exp)

1. Tricanto Experimental Designation: SZD F0664 is a winter Triticale developed by Saatzucht Donau Ges.m.b.H & Co KG, Saatzuchtstrasse 11, 2301 Probstdorf, Austria
2. Tricanto was developed from the cross Triamant/Polego, following an accelerated pedigree system with greenhouse winter generations. It was selected for high spike fertility, sound grains, high specific weight and high biomass yield. Early generation progenies were in the nurseries carefully chosen to retain the moderate level of powdery mildew resistance of both parents and to obtain an improved moderate field resistance against yellow rust. Progenies with ergot kernels, being infested with fusarium head blight or showing pre-harvest sprouting were consistently discarded in all generations.
3. Tricanto is well-adapted as a Silage and Grain production variety in the irrigated and dryland production areas of the western USA. Tricanto has been tested and found to be well adapted to the winter triticale producing regions of California, Arizona, Nevada.
4. Tricanto has demonstrated excellent forage and grain yield.
5. Identifying characteristics

1. Ploidy:	Hexaploid	15. Awn Color:	Yellow
2. Growth Habit:	Winter	16. Glume Pubescence:	Pubescent
3. Photoperiod Reaction:	Sensitive	17. Glume Color:	Yellow
4. Winterhardiness:	Medium high	18. Glume Length:	Short
5. Maturity:	Late	19. Glume Width:	Narrow
6. Height:	Tall	20. Glume Shoulder Shape:	Oblique
7. Plant Color at Boot Stage:	Blue-green	21. Glume Beak Shape:	Acute
8. Stem Anthocyanin:	Absent	22. Coleoptile Color:	Purple
9. Neck Hairiness:	Heavy	23. Seed Shape:	Elliptical
10. Neck Shape:	Straight	24. Seed Smoothness:	Slightly Wrinkled
11. Flag Leaf at Boot:	Not Twisted, Erect, Waxy	25. Seed Brush Area:	Mid-size
12. Spike Density:	Dense	26. Seed Brush Length:	Mid-long
13. Spike Shape:	Elliptical	27. Seed Color:	Amber
14. Spike Awedness:	Awned	28. Seed Relative Size:	Medium

Unique Physiological/Biochemical Traits: N/A

Variants and Frequency: Plants six inches and taller are observed occurring at the rate of 1 per 1,000 plants

6. Recognized classes of Tricanto Winter Triticale are breeder, foundation, registered, and certified. Saatzucht Donau Ges.m.b.H & Co KG, Saatzuchtstrasse 11, 2301 Probstdorf, Austria will maintain the variety by the head-row purification method to produce breeder seed as needed. Tricanto will have a royalty fee and licensing agreement anticipated.
7. Certified seed of Tricanto Winter Triticale will likely be available for planting in fall of 2020.
8. Application for PVP is not planned and descriptive data may be supplied to the PVP database.
9. Certified acreage is not to be published by AOSCA or individual certifying agencies.

Date this application was submitted: Dec 19, 2019 Date recommended by the VRB: Mar 24, 2020

