A REPORT OF THE

NATIONAL SMALL GRAIN VARIETY REVIEW BOARD

ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

APRIL 2013

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April 2013

The Association of Official Seed Certifying Agencies (AOSCA), National Small Grain Variety Review Board (NSGVRB), reviewed the following varieties on March 14, 2013. The Board recommended the inclusion of these varieties for certification. Seed of these varieties may be certified, providing production meets all standards of the Seed Certifying Agency of the jurisdiction in which the seed is grown.

All variety information, including descriptions, claims, and research data to support any claim, was supplied to the National Small Grain Variety Review Board by the applicants. The National Small Grain Variety Review Board makes judgments regarding recommendation of varieties for inclusion into certification based on the data supplied. Beyond that, the National Small Grain Variety Review Board takes no position on the accuracy or truthfulness of any description or claim made by the applicants.

Further information on current procedures, application forms, and detail regarding the National Small Grain Variety Review Board can be obtained from:

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Respectfully submitted,

Abed Anouti, Chairman
National Small Grains Variety Review Board

2013 AOSCA SMALL GRAIN VARIETY REVIEW BOARD

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

Tiburon (D1-2)

1. "Tiburon" (D1-2) is a spring durum developed by Arizona Plant Breeders (APB).

2. "Tiburon" was selected for high yield, pasta quality and strip rust using a male sterile facilitative recurrent selection method.

3. "Tiburon" is adapted to the irrigated durum producing areas of the Southwest United States.

4 "Tiburon" is resistance to the current races of strip rust in California.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Durum	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Semi –erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Erect and twisted
7. Auricle Color:	White	8. Days to 50% Heading:	83
9. Anther Color:	Yellow	10. Stem Color:	Green
11. Plant Height (cm):	83	12. Internodes:	Hollow
13. Spike Shape:	Oblong	14. Spike Density:	Dense
15. Spike Curvature:	Erect	16. Awn Type:	Awned
17. Awn Color:	White	18. Glume Color:	Tan
19. Glume Length:	Medium	20. Shoulder Shape:	Oblique
21. Shoulder Width:	Medium	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	M	24. Glume Pubescence:	Absent
25. Seed Color	Amber	26. Seed Shape:	Ovate
27. Cheeks:	Angular	28. Brush Size (S,M,L.):	M
29. Avg 1,000 Kernel Wt (g):	51		

Physiological/biochemical Traits: Low Cadmium

Variants and frequency: 1 in 10,000 plants is taller then the rest.

6. Recognized classes of "Tiburon" are breeder, foundation, registered, and certified. APB will maintain the variety by the head-row method to produce breeder seed as needed. "Tiburon" will have a royalty fee and licensing agreement will be required.

7. Certified seed will be offered in the fall of 2013.

8. Application for PVP is anticipated.

9. The certified seed production acreage can be published by AOSCA and certifying agencies.

Helios (D00-627)

1. "Helios" (D00-627) is a spring durum developed by Arizona Plant Breeders (APB)

2. "Helios" was selected for high yield and pasta quality using a male sterile facilitative recurrent selection method.

3. "Helios" is adapted to irrigated durum producing areas of Arizona and Imperial Valley of California.

4. "Helios is slightly susceptible to the current stripe rust races in California and will not be recommended for production in the San Joaquin Valley.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Durum	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Semi –erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Erect and twisted
7. Auricle Color:	White	8. Days to 50% Heading:	100
9. Anther Color:	Yellow	10. Stem Color:	Green
11. Plant Height (cm):	86.8	12. Internodes:	Hollow
13. Spike Shape:	Oblong	14. Spike Density:	Dense
15. Spike Curvature:	Erect	16. Awn Type:	Awned
17. Awn Color:	White	18. Glume Color:	Tan
19. Glume Length:	Medium	20. Shoulder Shape:	Apiculate
21. Shoulder Width:	Medium	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	L	24. Glume Pubescence:	Present
25. Seed Color	Amber	26. Seed Shape:	Elliptical
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	S
29. Avg 1,000 Kernel Wt (g):	51		

Physiological/biochemical Traits: None

Variants and frequency: 1 in 10,000 plants is taller then the rest.

6. Recognized class of "Helios' are breeder, foundation, registered and certified. APB will maintain the variety by the head row method to produce breeder seed as needed. "Helios' will have a royalty fee and licensing agreement will be required.

7. Certified seed will be offered in the fall of 2014.

8. Application for PVP is anticipated with the option that "Helios" can be sold by variety name only as a class of certified seed.

9. The certified seed production acreage can be published by AOSCA and certifying agencies.

LCS Mint (CO 050175-1)

1. LCS Mint (experimental name CO050175-1) is a Hard Red Winter Wheat marketed exclusively by Limagrain Cereal Seeds.

2. LCS Mint was developed using a modified bulk breeding procedure, with selection based on dryland yield, irrigated yield, test weight, reaction to stripe rust and tolerance to acid soils from tests conducted in Colorado, Kansas, Oklahoma, and Nebraska.

3. LCS Mint is adapted to Western Kansas, Central Kansas, Northern Oklahoma, and Eastern Colorado, and will be additionally tested in Texas and Nebraska in 2013. The primary purpose of the variety will be for milling and baking of breads using processed and whole wheat flour. It was evaluated in comprehensive milling and baking quality tests in the CSU Wheat Quality Laboratory since 2008, and was rated "very good" for milling and "very good" for baking.

4. LCS Mint is intermediate to prevalent races of Stripe Rust.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Common	2. Seasonal Growth Habit:	Winter
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Semi-Erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Re-curved, not twisted, wax absent
7. Auricle Color:	White	8. Days to 50% Heading:	146
9. Anther Color:	Yellow	10. Stem Color:	Absent
11. Plant Height (cm):	70	12. Internodes:	Hollow
13. Spike Shape:	Oblong	14. Spike Density:	Mid-dense
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	White	18. Glume Color:	White/Amber
19. Glume Length:	Medium	20. Shoulder Shape:	Square
21. Shoulder Width:	Wide	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	Medium	24. Glume Pubescence:	Absent
25. Seed Color	Red	26. Seed Shape:	Ovate
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	Short
29. Avg 1,000 Kernel Wt (g):	39g		

Physiological/biochemical Traits: None

Variants and frequency: LCS Mint may contain up to 1 per 1000 plants with brown glumes, and up to 1 per 1000 taller plants, 2 spike lengths above canopy height.

6. Recognized seed classes will be Breeder, Foundation, Registered, and Certified. Registered and Certified seed of LCS Mint may be produced and sold only through a license agreement with LCS. Limagrain Cereal Seeds will maintain Breeder and Foundation seed by rouging and removal of off-types in bulk seedings.

7. LCS Mint was approved for inclusion in certification by a member agency in August 2012, and Foundation seed was sold to licensed distributors in Fall 2012. Registered seed will be available for planting in fall of 2013.

8. Plant Variety Protection will be applied for with the Title V option in early 2013.

9. Certified seed production and acreage may be published by AOSCA and official state seed certifying agencies.

SY Steelhead (97S0621-05)

1. SY Steelhead is a hard red spring wheat developed by SyngentaSeeds Inc.

2. SY Steelhead is the result of a cross made in 1997 by Syngenta Seeds, Inc. in Berthoud, CO. SY Steelhead was selected for height, straw strength, maturity.

3. SY Steelhead is best adapted for dryland production in Eastern Washington, West-Central Idaho and Northeastern Oregon.

4. SY Steelhead is moderately resistant to the predominant races of stripe rust experienced in eastern Washington for the years 2010 through 2012.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Hard Red Spring	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Erect
5. Leaf Color at Boot:	Dark Green	6. Flag Leaf at Boot:	Recurved , twisted, waxy
7. Auricle Color:	White	8. Days to 50% Heading:	172
9. Anther Color:	Yellow	10. Stem Color:	white
11. Plant Height (cm):	91	12. Internodes:	Hollow
13. Spike Shape:	Tapering	14. Spike Density:	Middense
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	White	18. Glume Color:	White
19. Glume Length:	Medium	20. Shoulder Shape:	Oblique
21. Shoulder Width:	Midwide	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	M	24. Glume Pubescence:	Glabrous
25. Seed Color	Red	26. Seed Shape:	Ovate
27. Cheeks:	Angular	28. Brush Size (S,M,L.):	M
29. Avg 1,000 Kernel Wt (g):	32		

Physiological/biochemical Traits:

Variants and frequency: Up to 0.1% white seeds may be encountered in subsequent generations.

6. Syngenta Seeds, Inc. maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, Inc. will maintain the variety by the head row method to produce breeder seed if needed.

7. Certified seed will be available in the spring of 2014.

8. Plant Variety Protection is anticipated in 2013 and SY Steelhead may only be sold as a class of certified seed.

9. Certified acreage is not to be published by AOSCA and certifying agencies

SY Rowyn (03S0253-7)

1. SY Rowyn is a hard red spring wheat bred and developed by Syngenta Seeds, Inc.

2. SY Rowyn is the result of a cross made in 2003 by Syngenta Seeds, Inc. in Berthoud, Colorado. SY Rowyn was selected for height, straw strength, bread making quality, and resistance to stem rust.

3. SY Rowyn is best adapted to the spring wheat growing areas of North Dakota and Minnesota.

4 SY Rowyn has moderate resistance to leaf rust. SY Rowyn is moderately resistant to leaf spotting disease.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Hard Red Spring Wheat	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Erect
5. Leaf Color at Boot:	Light Green	6. Flag Leaf at Boot:	Recurved Twisted Waxy
7. Auricle Color:	Purple	8. Days to 50% Heading:	57
9. Anther Color:	Yellow	10. Stem Color:	White
11. Plant Height (cm):	74	12. Internodes:	Hollow
13. Spike Shape:	Tapering	14. Spike Density:	Middense
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	Tan	18. Glume Color:	Tan
19. Glume Length:	Medium	20. Shoulder Shape:	Square
21. Shoulder Width:	Medium	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	M	24. Glume Pubescence:	Glabrous
25. Seed Color	Red	26. Seed Shape:	Ovate
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	L
29. Avg 1,000 Kernel Wt (g):	28.1		

Physiological/biochemical Traits:

Variants and frequency: Up to 1.0% variant plants may be encountered in subsequent generations.

6. Syngenta Seeds, Inc. maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, Inc. will maintain the variety by the head row method to produce breeder seed if needed.

7. Certified seed will be available in the spring of 2014.

8. Plant Variety Protection is anticipated in 2013 and SY Rowyn may only be sold as a class of certified seed.

9. Certified acreage is not to be published by AOSCA and certifying agencies

SY 474 (MH07-7474)

1. SY 474 is a soft red winter wheat bred and developed by Syngenta Seeds, Inc.

2. SY 474 was selected for height, maturity, appearance, and kernel soundness using a modified bulk breeding method.

3. SY 474 has been tested throughout the Midwest and and Northeast and is best adapted to the Midwestern soft red wheat growing regions north of I-70 and in the Del-Mar-VA area.

4 SY 474 has shown above average test weight, moderate resistance to fusarium head blight, moderate resistance to powdery mildew, moderate resistance to the races of leaf rust and stripe rust in this area, and susceptibility to soil borne mosaic virus. It has tested resistant to Hessian Fly biotype B. It has above average gluten strength and is an above average broad adaptation end use market variety.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind: soft red winter wheat	2. Seasonal growth habit: winter
3. Coleoptile color: Purple	4. Juvenile growth habit: semi-erect
5. Leaf color at boot: green	6. Flag leaf at boot: erect,twisted,waxy
7. Auricle color: purple	8. Days to 50% heading: 128
9. Anther color: yellow	10. Stem color: white
11. Plant height (cm): 97	12. Internodes: hollow
13. Spike shape: tapering	14. Spike density: middense
15. Spike curvature: inclined	16. Awn type: Awnletted
17. Awn color: white	18. Glume color: white
19. Glume length: long	20. Shoulder shape: oblique
21. Shoulder width: midwide	22. Beak shape: obtuse
23. Beak length (M, L, VL): S	24. Glume pubescence: glabrous
25. Seed color: red	26. Seed shape: ovate
27. Cheeks: rounded	28.Brush size (S,M, L): M
29. Avg 1,000 kernel wt (g): 37	30. Phenol reaction:

Physiological/biochemical traits:

Variants and frequency:
SY 474 has been uniform and stable since 2010. Approximately 0.8% of the plants were rogued from the Breeder's seed increase in 2011. Approximately 95% of the rogued variant plants were taller height wheat plants (8 to 15 cm) and 0.2% were awned. A white seed variant up to 0.02% may be encountered in subsequent generations.

6. Syngenta Seeds, Inc. maintains seed stock and certified classes of Foundation, Registered and Certified. Syngenta Seeds, Inc. will maintain the variety by the head row method to produce breeder seed if needed.

7. Certified seed will be available in the fall of 2014

8. Plant Variety Protection is anticipated in 2013 and SY 474 may only be sold as a class of certified seed.

9. Certified acreage is not to be published by AOSCA and certifying agencies

SY 007 (MA08*8007#)

1. SY 007 is a soft red winter wheat bred and developed by Syngenta Seeds Inc.

2. SY 007 was selected for average height, earlier than average maturity, above average appearance and average kernel soundness using a modified bulk breeding method.

3. SY 007 has shown a medium early maturity, good test weight, and is medium in height. It has shown best adaptation to the primary wheat growing regions of southern IL, IN, KY, MO and Southern OH and the Del-Mar-Va region of the east coast. It is primarily adapted to a double crop rotation. SY 007 however may also perform well in areas north of I-70 where earlier varieties are sought.

4 SY 007 shows above average stripe rust and powdery mildew resistance, moderate resistance to septoria and soil bourne mosaic virus. It shows moderate susceptibility to fusarium head blight and susceptibility to the races of leaf rust present in the primary area of adaptation.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Soft red winter wheat	2. Seasonal Growth Habit:	Winter
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Erect
5. Leaf Color at Boot:	green	6. Flag Leaf at Boot:	Erect, twisted, wax present
7. Auricle Color:	Purple	8. Days to 50% Heading:	125.7
9. Anther Color:	Yellow	10. Stem Color:	White
11. Plant Height (cm):	93.3	12. Internodes:	Hollow
13. Spike Shape:	Strap	14. Spike Density:	Lax
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	White	18. Glume Color:	White
19. Glume Length:	Medium	20. Shoulder Shape:	Oblique
21. Shoulder Width:	Narrow	22. Beak Shape:	Acute
23. Beak Length (S.M.L.VL):	M	24. Glume Pubescence:	Present
25. Seed Color	Amber	26. Seed Shape:	Elliptical
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	M
29. Avg 1,000 Kernel Wt (g):	36.9		

Physiological/biochemical Traits: _____

Variants and frequency:

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 method to produce breeder seed if needed.

7. Certified seed will be available in the fall of 2014

8. Plant Variety Protection is anticipated in 2013 and SY 007 may only be sold as a class of certified seed.

9. Certified acreage is not to be published by AOSCA and certifying agencies

SY 311 (04W40311)

1. SY 311 is a hard red spring wheat bred and developed by Syngenta Seeds, Inc.

2. SY 311 is the result of a cross made in 2001 by Syngenta Seeds, Inc. in Woodland, CA. SY 311 was selected for height, maturity, disease resistance.

3. SY 311 has been tested regionally by Syngenta since 2004. It was tested in several locations in the Sacramento and San Joaquin Valleys in California.

4 SY 311 is resistant to current races of stripe rust in California.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Hard Red Spring	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Erect, twisted and waxy
7. Auricle Color:	White	8. Days to 50% Heading:	93.2
9. Anther Color:	Yellow	10. Stem Color:	Purple
11. Plant Height (cm):	90.9	12. Internodes:	Hollow
13. Spike Shape:	Oblong	14. Spike Density:	Middense
15. Spike Curvature:	Erect	16. Awn Type:	Awned
17. Awn Color:	White	18. Glume Color:	White
19. Glume Length:	Long	20. Shoulder Shape:	Square
21. Shoulder Width:	Medium	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	M	24. Glume Pubescence:	Glabrous
25. Seed Color	Red	26. Seed Shape:	Ovate
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	M
29. Avg 1,000 Kernel Wt (g):	46.4		

Physiological/biochemical Traits:

Variants and frequency: Less than 1% taller variant was rogued from the progeny plots in 2012 to form breeder seed.

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 method to produce breeder seed if needed.

7. Certified seed will be available in the fall of 2013.

8. Plant Variety Protection is anticipated in 2013 and SY 311 may only be sold as a class of certified seed.

9. Certified acreage is not to be published by AOSCA and certifying agencies

SY Vaca (09W60134)

1. SY Vaca is a soft red spring wheat bred and developed by Syngenta Seeds, Inc.

2. SY Vaca is the result of a cross made in 2006 by Syngenta Seeds, Inc. in Woodland, CA. SY Vaca was selected for height, maturity, disease resistance, and biomass yield potential.

3. SY Vaca has been tested regionally by Syngenta since 2009. It was tested in Woodland, Visalia, and Lemoore locations in California. It is adapted to both Sacramento and San Joaquin valleys of California and this variety is intended for forage production.

4 SY Vaca is resistant to current races of stripe rust in California.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Unclassified (Forage)	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Erect
5. Leaf Color at Boot:	Green to light green	6. Flag Leaf at Boot:	Erect and Twisted
7. Auricle Color:	Purple	8. Days to 50% Heading:	110
9. Anther Color:	Yellow	10. Stem Color:	White
11. Plant Height (cm):	108.8	12. Internodes:	Hollow
13. Spike Shape:	Very Oblong	14. Spike Density:	Middense
15. Spike Curvature:	Erect	16. Awn Type:	Apically Awnletted
17. Awn Color:	White	18. Glume Color:	White
19. Glume Length:	Long	20. Shoulder Shape:	Square
21. Shoulder Width:	Wide	22. Beak Shape:	Obtuse
23. Beak Length (S.M.L.VL):	M	24. Glume Pubescence:	Glaborous
25. Seed Color	Red	26. Seed Shape:	Elliptical
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	M
29. Avg 1,000 Kernel Wt (g):	37.5		

Physiological/biochemical Traits: _____

Variants and frequency:

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 method to produce breeder seed if needed.

7. Certified seed will be available in the fall of 2013

8. Plant Variety Protection is anticipated in 2013 and SY Vaca may only be sold as a class of certified seed.

9. Certified acreage is not to be published by AOSCA and certifying agencies

SY Razor (AP08TA6927)

1. SY Razor is a hard red winter wheat bred and developed by Syngenta Seeds, Inc.

2. SY Razor was selected for resistance to resistance to endemic diseases (leaf rust, stripe rust and powdery mildew), early plant maturity and because it was awnletted.

3. SY Razor has been included in replicated yield tests in Oklahoma and Texas.

4 SY Razor is an excellent production choice as a dual-purpose wheat or as a cultivar for grain or forage-only systems (Table 6). SY Razor has better test weight than popular awned wheats. Milling and baking qualities of SY Razor have been acceptable.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Hard Red Winter	2. Seasonal Growth Habit:	Winter
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Semi-erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Erect, twisted, waxy
7. Auricle Color:	Purple	8. Days to 50% Heading:	96.6
9. Anther Color:	Yellow	10. Stem Color:	Absent
11. Plant Height (cm):	87.1	12. Internodes:	Hollow
13. Spike Shape:	Tapering	14. Spike Density:	Lax
15. Spike Curvature:	Inclined	16. Awn Type:	Awnletted
17. Awn Color:	White	18. Glume Color:	White
19. Glume Length:	Long	20. Shoulder Shape:	Square
21. Shoulder Width:	Wide	22. Beak Shape:	Obtuse
23. Beak Length (S.M.L.VL):	S	24. Glume Pubescence:	Glaborous
25. Seed Color	Red	26. Seed Shape:	Ovate
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	S
29. Avg 1,000 Kernel Wt (g):	34.4		

Physiological/biochemical Traits: _____

Variants and frequency: Up to 1.0% variant plants have been encountered. The variants are taller (8-15cm).

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 method to produce breeder seed if needed.

7. Certified seed will be available in the fall of 2014.

8. Plant Variety Protection is anticipated in 2013 and SY Razor may only be sold as a class of certified seed.

9. Certified acreage is not to be published by AOSCA and certifying agencies

NE06545 (NE06545)

1. NE06545 (EXP NE06545) is a hard red winter wheat that was developed by the University of Nebraska and intended for grain production. The USDA-ARS is a co-developer of this line.

2. NE06545 was selected primarily for its agronomic performance in rainfed environments in Nebraska using a modified bulk breeding method, acceptable end-use quality, and stem rust and wheat soilborne mosaic virus resistance.

3. NE06545 was tested in the Southern Great Plains and Northern Great Plains Regional Performance Nurseries including Nebraska and is adapted to rainfed wheat production systems in Nebraska and neighboring areas in adjacent states.

4 NE06545 is resistant to *Soilborne wheat mosaic virus.* It is moderately resistant to moderately susceptible to stem rust (caused by *Puccinia graminis Pers.: Pers. f. sp. tritici* Eriks & E. Henn.) in field nursery tests inoculated with a composite of stem rust races (MCCFC, QFCSC, QTHJC, RCRSC, RKQQC, and TPMKC) at St. Paul, MN and using field stem rust races, in Kenya. In greenhouse seedling tests, it is resistant to races QFCSC, QTHJC, MCCFC, SCCSC, QCCSM, heterogeneous to RCRSC and RKQQC, but susceptible to race TMPKC and TTKSK. It is moderately resistant to susceptible to leaf rust (caused by *P. triticina* Eriks) and to stripe rust (caused by *P. striiformis* Westendorp f. sp. t*ritici,*). It is moderately susceptible to Fusarium head blight (caused by *Fusarium graminearum*). NE06545 is moderately susceptible to susceptible to Hessian fly (*Mayetiola destructor* Say). It is susceptible to *Barley yellow dwarf virus* and *Wheat Streak mosaic virus*.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Common	2. Seasonal Growth Habit:	Winter
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Prostrate
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Erect, twisted, wax absent
7. Auricle Color:	White	8. Days to 50% Heading:	147
9. Anther Color:	Yellow	10. Stem Color:	Green
11. Plant Height (cm):	85	12. Internodes:	Hollow
13. Spike Shape:	Tapering	14. Spike Density:	Middesne
15. Spike Curvature:	Erect	16. Awn Type:	Awned
17. Awn Color:	Tan	18. Glume Color:	Tan
19. Glume Length:	Long	20. Shoulder Shape:	Oblique
21. Shoulder Width:	Narrow	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	L	24. Glume Pubescence:	Glaborous
25. Seed Color	Red	26. Seed Shape:	Ovate
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	L
29. Avg 1,000 Kernel Wt (g):	31.9		

Physiological/biochemical Traits:

Variants and frequency: NE06545 has been uniform and stable since 2010. Less than 0.5 % of the plants were rogued from the Breeder's seed increase in 2010-12. The rogued variant plants were taller in height (5 - 15 cm) or were awnless and/or with red chaff. Up to 1% (10:1000) variant plants may be encountered in subsequent generations.

6. The seed classes will be Breeder, Foundation, Registered, and Certified. The Nebraska Foundation Seed Division, Department of Agronomy and Horticulture, University of Nebraska-Lincoln, Lincoln, NE68583 will have foundation seed available to qualified certified seed enterprises in 2013. The U.S. Department of Agriculture will not have seed for commercial distribution. Breeder seed will be maintained by roguing.

7. Certified seed will be available in September, 2013.

8. NE06545 will be submitted for plant variety protection under P.L. 10577 with the certification option.

9. Certified acreage may be published by AOSCA or the certifying agencies.

WB6341 (BZ608-014)

1. WB6341 is a soft white spring wheat developed by Monsanto Technology, LLC.

2. WB6341 was selected for yield, protein content, protein quality, and resistance to stripe rust, using the pedigree method.

3. WB6341 was tested under irrigated and high rainfall conditions in Washington, Idaho, and Montana and will be marketed by the WestBred brand as a grain producing variety in those areas.

4 WB6341 is considered Moderately Resistant (MR) to the current races of stripe rust found in the Pacific Northwest.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Common	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Recurved, twisted, waxy
7. Auricle Color:	White	8. Days to 50% Heading:	190
9. Anther Color:	Yellow	10. Stem Color:	Anthocyanin absent (White)
11. Plant Height (cm):	85	12. Internodes:	Hollow
13. Spike Shape:	Oblong	14. Spike Density:	Mid-dense
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	White	18. Glume Color:	White/Amber
19. Glume Length:	Medium	20. Shoulder Shape:	Square
21. Shoulder Width:	Medium	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	Short	24. Glume Pubescence:	Absent
25. Seed Color	White	26. Seed Shape:	Ovate
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	large
29. Avg 1,000 Kernel Wt (g):	31.5		

Physiological/biochemical Traits: _____

Variants and frequency: A red seed may occur at a frequency up to .18% (18/10,000). Taller plants (1-2 heads) may occur at a frequency of up to .15% (15 plants per 10,000).

6. Recognized classes of this variety will be breeder, foundation, registered, and certified. Monsanto will maintain the variety by the head-row purification method to produce breeder seed as needed and foundation seed will be produced from breeder or foundation class of seed.

7. Certified seed sales are anticipated in the spring of 2014.

8. Application will be made under the Plant Variety Protection Act and certification option will not be selected.

9. AOSCA and seed certifying agencies may not publish seed production acreages.

WB6121 (BZ608-121)

1. WB6121 is a soft white spring wheat developed by Monsanto Technology, LLC

2. WB6121 was selected for yield, protein content, protein quality, and resistance to stripe rust, using the backcross method.

3. WB6121 was tested under irrigated and high rainfall conditions in Washington, Idaho, and Montana and will be marketed by the WestBred brand as a grain producing variety in those areas.

4 WB6121 is considered Resistant (R) to the current races of stripe rust found in the Pacific Northwest.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Common	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Recurved, twisted, waxy
7. Auricle Color:	White	8. Days to 50% Heading:	190
9. Anther Color:	Yellow	10. Stem Color:	Anthocyanin Absent (White)
11. Plant Height (cm):	84	12. Internodes:	Hollow
13. Spike Shape:	Oblong	14. Spike Density:	Mid-dense
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	White	18. Glume Color:	White/Amber
19. Glume Length:	Medium	20. Shoulder Shape:	Square
21. Shoulder Width:	Medium	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	Short	24. Glume Pubescence:	Absent
25. Seed Color	White	26. Seed Shape:	Ovate
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	large
29. Avg 1,000 Kernel Wt (g):	35		

Physiological/biochemical Traits: _____

Variants and frequency: A red seed may occur at a frequency up to .18% (18/10,000). Taller plants (1-2 heads) may occur at a frequency of up to .15% (15 plants per 10,000).

6. Recognized classes of this variety will be breeder, foundation, registered, and certified. Monsanto will maintain the variety by the head-row purification method to produce breeder seed as needed and foundation seed will be produced from breeder or foundation class seed.

7. Certified seed sales are anticipated in the spring of 2014

8. Application will be made under the Plant Variety Protection Act and certification option will not be selected.

9. AOSCA and seed certifying agencies may not publish seed production acreages.

WB9518 (BZ908-485)

1. WB9518 is a hard red spring wheat developed by Monsanto Technology, LLC.

2. WB9518 was selected for yield, protein content, protein quality, and resistance to stripe rust, using the pedigree method.

3. WB9518 was tested under irrigated and high rainfall conditions in Washington, Idaho, and Montana and will be marketed by the WestBred brand as a grain producing variety in those areas.

4 WB9518 is considered Resistant "R" to the current races of stripe rust found in the Pacific Northwest.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Common	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Erect
5. Leaf Color at Boot:	Blue green	6. Flag Leaf at Boot:	Recurved, twisted, waxy
7. Auricle Color:	White	8. Days to 50% Heading:	190
9. Anther Color:	Yellow	10. Stem Color:	Anthocyanin Absent (White)
11. Plant Height (cm):	81.0	12. Internodes:	Hollow
13. Spike Shape:	Oblong	14. Spike Density:	Mid-dense
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	White	18. Glume Color:	White/Amber
19. Glume Length:	Medium	20. Shoulder Shape:	Oblique
21. Shoulder Width:	Medium	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	Medium	24. Glume Pubescence:	Absent (glabrous)
25. Seed Color	Red	26. Seed Shape:	Elliptical
27. Cheeks:	Angular	28. Brush Size (S,M,L.):	Medium
29. Avg 1,000 Kernel Wt (g):	31.5		

Physiological/biochemical Traits: _____

Variants and frequency: A white seed may occur at a frequency up to .18% (18/10,000). Taller plants (1-2 heads) may occur at a frequency of up to .15% (15 plants per 10,000).

6. Recognized classes of this variety will be breeder, foundation, registered, and certified. Monsanto will maintain the variety by the head-row purification method to produce breeder seed as needed and foundation seed will be produced from breeder or foundation class of seed.

7. Certified seed sales are anticipated in the spring of 2014

8. Application will be made under the Plant Variety Protection Act and certification option will not be selected.

9. AOSCA and seed certifying agencies may not publish seed production acreages.

WB9507 (CA909-936)

1. WB9507 is a hard red spring wheat developed by Monsanto Technology, LLC

2. WB9507 was selected on the basis of good yield potential and agronomics.

3. WB9507 was tested and is intended to be marketed in the Northern Plains region of the US as a WestBred branded variety.

4 No other claims regarding agronomics, disease or insect resistance or quality characteristics are being made at this time for this variety.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Common	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Erect, twisted, waxy
7. Auricle Color:	White	8. Days to 50% Heading:	173 (Julian days)
9. Anther Color:	Yellow	10. Stem Color:	Anthocyanin absent (white)
11. Plant Height (cm):	85	12. Internodes:	Hollow
13. Spike Shape:	Tapering	14. Spike Density:	Middense
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	Tan	18. Glume Color:	Light tan
19. Glume Length:	Long	20. Shoulder Shape:	Elevated
21. Shoulder Width:	Narrow	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	VL	24. Glume Pubescence:	Absent (glabrous)
25. Seed Color	Red	26. Seed Shape:	Ovate
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	Long
29. Avg 1,000 Kernel Wt (g):	35		

Physiological/biochemical Traits: _____

Variants and frequency: Talls >10cm, 1 in 500

6. Remnant breeder seed will be utilized to reproduce the variety as needed. If necessary, 300 heads will be selected from the breeder seed increase and grown under irrigation by Monsanto to renew the breeder seed and maintain purity. Seed classes to be recognized include Foundation, Registered, and Certified.

7. Certified seed sales are anticipated in the spring of 2014

8. Application will be made under the Plant Variety Protection Act and certification option will not be selected. Patent protection will be applied for with the US Patent and Trade mark Office

9. AOSCA and seed certifying agencies may not publish seed production acreages.

WB9112 (SJ909-368)

1. WB9112 is a hard red spring wheat developed by Monsanto Technology, LLC.

2. WB9112 was selected based on it's morphological, agronomic and quality traits that are similar to variety "Joaquin".

3. Monsanto tested and intends to market this variety in the wheat growing areas of the San Joaquin Valley in California as a WestBred branded variety. The primary use will be for flour to make raised loaf bread.

4 WB9112 is resistant to the current field races of stripe rust in California. It is susceptible to Septoria tritici.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Common	2. Seasonal Growth Habit:	Spring
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Erect, twisted, waxy
7. Auricle Color:	Purple	8. Days to 50% Heading:	83
9. Anther Color:	Yellow	10. Stem Color:	White
11. Plant Height (cm):	93	12. Internodes:	Hollow
13. Spike Shape:	Oblong	14. Spike Density:	Lax
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	White	18. Glume Color:	White
19. Glume Length:	Long	20. Shoulder Shape:	Elevated
21. Shoulder Width:	Narrow	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	M	24. Glume Pubescence:	Absent
25. Seed Color	Red	26. Seed Shape:	Elliptical
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	M
29. Avg 1,000 Kernel Wt (g):	40		

Physiological/biochemical Traits: _____

Variants and frequency:
WB9112 has been observed for four generations of reproduction and increase and is stable and uniform. WB9112 has a taller variant that is 12 to 30 cm taller that occurs at a frequency of up to .2%. A white seed variant occurs at a frequency of up to .2%. The variants are otherwise identical in all other characteristics as described in the Objective descriptions.

6. Remnant breeder seed or planting spike rows of breeder seed will be utilized to reproduce the variety as needed. If necessary, 300 heads will be selected from the breeder seed increase and grown under irrigation by Monsanto to renew the breeder seed and maintain purity. Seed classes to be recognized include Foundation, Registered, and Certified.

7. Certified seed sales are anticipated in the fall of 2013.

8. Application will be made under the Plant Variety Protection Act and certification option will not be selected. Patent protection will be applied for with the US Patent and Trade mark Office

9. AOSCA and seed certifying agencies may not publish seed production acreages.

WB4458 (HV9W07-1454)

1. WB4458 is a hard red winter wheat developed by Monsanto Technology, LLC

2. WB4458 was selected based on yield potential, height and maturity.

3. Monsanto tested and intends to market WB4458 in the Central Plains region of the US as a WestBred branded variety.

4 No other claims regarding agronomics, disease, insect resistance, or quality characteristics are being made at this time for this variety.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Common	2. Seasonal Growth Habit:	Winter
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Semi-Erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Recurved, twisted, non-waxy
7. Auricle Color:	White	8. Days to 50% Heading:	113
9. Anther Color:	Yellow	10. Stem Color:	Anthocyanin absent (white)
11. Plant Height (cm):	88	12. Internodes:	Hollow
13. Spike Shape:	Oblong	14. Spike Density:	Mid-dense
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	Tan	18. Glume Color:	Tan
19. Glume Length:	Medium	20. Shoulder Shape:	Square
21. Shoulder Width:	Narrow	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	Medium	24. Glume Pubescence:	Absent (glabrous)
25. Seed Color	Red	26. Seed Shape:	Oval
27. Cheeks:	Rounded	28. Brush Size (S,M,L.):	Medium
29. Avg 1,000 Kernel Wt (g):	26		

Physiological/biochemical Traits: Phenol reaction is dark brown.

Variants and frequency: Variants that may occur include .25% white chaff, and 0.01% talls (>10cm).

6. Remnant breeder seed will be utilized to reproduce the variety as needed. If necessary, 300 heads will be selected from the breeder seed increase and grown under irrigation by Monsanto to renew the breeder seed and maintain purity. Seed classes to be recognized include Foundation, Registered, and Certified. .

7. Certified seed sales are anticipated in the fall of 2014

8. Application will be made under the Plant Variety Protection Act and certification option will not be selected.

9. AOSCA and seed certifying agencies may not publish seed production acreages.

WB-Redhawk (HV9W06-727)

1. WB-Redhawk is a hard red winter wheat developed by Monsanto Technology, LLC.

2. WB-Redhawk was selected based on yield potential, height and maturity.

3. Monsanto tested and intends to market WB-Redhawk in the Central Plains region of the US as a WestBred branded variety.

4 No other claims regarding agronomics, disease, insect resistance, or quality characteristics are being made at this time for this variety.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Kind:	Common	2. Seasonal Growth Habit:	Winter
3. Coleoptile Color:	White	4. Juvenile Growth Habit:	Semi-erect
5. Leaf Color at Boot:	Green	6. Flag Leaf at Boot:	Recurved, non-twisted, waxy
7. Auricle Color:	White	8. Days to 50% Heading:	113
9. Anther Color:	Yellow	10. Stem Color:	Anthocyanin absent (white)
11. Plant Height (cm):	79	12. Internodes:	Hollow
13. Spike Shape:	Tapering	14. Spike Density:	Mid-dense
15. Spike Curvature:	Inclined	16. Awn Type:	Awned
17. Awn Color:	Tan	18. Glume Color:	Brown
19. Glume Length:	Medium	20. Shoulder Shape:	Square
21. Shoulder Width:	Narrow	22. Beak Shape:	Acuminate
23. Beak Length (S.M.L.VL):	Long	24. Glume Pubescence:	Absent (glabrous)
25. Seed Color	Red	26. Seed Shape:	Ovate
27. Cheeks:	Angular	28. Brush Size (S,M,L.):	Medium
29. Avg 1,000 Kernel Wt (g):	28		

Physiological/biochemical Traits: _____

Variants and frequency: Variants that may occur include .01% awnless, 0.5% talls (>10cm), 7% darker chaff, and 1.5% white chaffed types.

6. Remnant breeder seed will be utilized to reproduce the variety as needed. If necessary, 300 heads will be selected from the breeder seed increase and grown under irrigation by Monsanto to renew the breeder seed and maintain purity. Seed classes to be recognized include Foundation, Registered, and Certified.

7. Certified seed sales are anticipated in the fall of 2013

8. Application will be made under the Plant Variety Protection Act and certification option will not be selected.

9. AOSCA and seed certifying agencies may not publish seed production acreages.

Shooter (07-LFWH) (Amended)

1. Shooter is a spring forage oat developed, produced, and marketed by Oregro Seeds, Inc. of Albany, OR

2. Shooter oat is a single plant outcross of Intimidator oats, characterized by tall plant height, increased leaf width and length, equilateral panicles, and very high indeterminate tillering.

3. Shooter oat was tested in Georgia and Florida by the University of Georgia and is adapted to forage production in areas with similar environments.

4. Shooter oats not tested for reaction to specific pests or diseases.

5. Objective descriptors:

Seasonal plant growth habit: facultative
Tillering capacity: high
Flag leaf attitude at booting: drooping
Leaf margin texture: glabrous
Ligules: present
Stem (culm) color at maturity: yellow
Pubescence at stem nodes: few
Panicle shape: equilateral
Relative Panicle width: broad
Rachis flexousness: erect
Branch position: spreading
Floret separation mechanism: heterofracture
Number of florets per spikelet: 2-4
Relative length of glumes: long
Mature glume color: white
Mature lemma color: white
Awn frequency on 1st floret: infrequent
Seed,fluorescence: 78.3%
Seed basal hairs: few
Juvenile growth habit: erect
Leaf color at booting: dark green
Relative time of heading: mid-season
Relative width first leaf below flag: wide
Leaf sheath texture: glabrous
Relative stem (culm) diameter: coarse
Relative total plant height: tall
Relative panicle size: large
Relative panicle length: mid-long
Average number of branch whorls: 4-7
Spikelet separation mechanism: fracture
2nd floret rachilla segment pubescence: no
Average number of veins on glumes: 9
Relative lemma length: long
Pubescence on lemma dorsal surface: yes
Awn type, if present: twisted/geniculate
Seed shape: slender

Seeds are most similar to (known variety): Intimidator
Average weight/1,000 seeds: 28.7gm

Variants (Describe, including frequency of occurrence; not to include off-types: none

6 Shooter classes include breeder, foundation, registered, and certified. Oregro Seeds, Inc. is responsible for maintaining adequate breeder seed stocks in long term storage, and will also produce all classes of seed. No royalties or licenses are anticipated.

7. If accepted, certified seed will be available in 2012.

8. PVP protection has not been decided upon. AOSCA can share information from this application with PVP.

9. Certified seed acreage is not to be released by AOSCA except by owner's permission.

Chowford (BZ504-141)

1. Chowford (Experimental # BZ504-141) is a 2-rowed, hooded spring forage barley developed by WestBred, a Unit of Monsanto.

2. Chowford was selected for, lodging resistance, forage yield and Relative Forage Value using the pedigree method.

3. Chowford was tested in the Central Valley of California and is well-adapted as a forage barley in the irrigated production areas of the Central Valley and similar areas of the southwestern states.

4. Chowford is moderately resistant to Scald compared to Stockford.

5. Identifying characteristics – insert the descriptive term from the Objective Description except where indicated:

1. Spike:	Two-Row	2. Growth Habit:	Spring
3. Coleoptile Color:	Green	4. Juvenile Growth Habit:	Erect
5. Plant Tillering:	High	6. Leaf Color at Boot:	Green
7. Flag Leaf at Boot:	Erect	8. Pubescence on Leaf Blade:	No
9. Pubescence on Leaf Sheath:	No	10.:Auricle Color:	White
11.Heading Date (see below):	99 days	12. Stem Color:	White
13. Neck Shape:	Straight	14. Collar Shape:	V-Shaped
15. Spike Exsertion:	Intermediate	16. Plant Height (see below):	127cm
17. Spike Shape:	Oblong	18. Spike Density:	Lax
19. Spike Position at Maturity:	Inclined	20. Hairiness of Rachis Edge:	Lacking
21. Rachilla Hair Length:	Short	22. Lemma Awns:	Elevated Hoods
23. Length of Lemma Awns:	Hooded	24. Lemma Awn Surface:	Rough
25. Glume Hairiness:	None	26. Glume Awn Surface:	Semi smooth
27. Glume/Lemma Adherence:	Covered	28. Texture (if covered):	Semi-wrinkled
29.Aleurone Color:	Colorless	30. Avg 1,000 Kernel Wt (g):46	

Heading date: 99 which is: 1 days (EARLIER) than: Stockford

Plant height: 127 cm, which is 5 cm (TALLER) than: Stockford

Physiological or biochemical traits:	none

Variants and their frequency:	An awned variant may occur at a frequency of up to .06% (6/10,000 plants)

6. Recognized classes of Chowford are breeder, foundation, registered, and certified. WestBred, a Unit of Monsanto will maintain the variety by the head-row method to produce breeder seed as needed and will produce all foundation seed. Royalty fees or licensing agreements are anticipated.

7. Certified seed of Chowford will likely be available for sale in the fall of 2013, if as eligible.

8. Application for PVP is anticipated and the Title V option will not be chosen for Chowford.

9. Certified seed production acreage is not to be published by AOSCA and certifying agencies.