IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

BAY STATE MILLING COMPANY and ARISTA CEREAL TECHNOLOGIES PTY LIMITED Plaintiffs, v. ARCADIA BIOSCIENCES, INC., Defendant.	CA No. JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiffs Bay State Milling Company ("BSM or "Bay State Milling") and Arista Cereal Technologies Pty Limited ("Arista") (collectively, "Plaintiffs"), by their undersigned counsel, for their Complaint against Defendant Arcadia Biosciences, Inc. ("Arcadia" or "Defendant"), allege as follows:

NATURE OF THE ACTION

1. This is a civil action for patent infringement under the patent laws of the United States, 35 U.S.C. § 271 *et seq*. by Plaintiffs against Defendant for infringement of U.S. Patents Nos. 7,667,114 (the "'114 Patent"), 7,700,139 (the "'139 Patent"), 8,115,087 (the "'087 Patent"), 8,501,262 (the "'262 Patent"), 9,060,533 (the "'533 Patent) and 9,585,413 (the "'413 Patent") (collectively, the "Arista Patents" or "patents-in-suit").

2. Arista is the legal owner of the patents-in-suit, which were duly and legally issued by the United States Patent and Trademark Office ("USPTO"), directed to high amylose wheat, wheat grain and methods of using the same. BSM is the exclusive licensee of the patents-in-suit.

3. Defendant has infringed and will continue to infringe, one or more claims of the patents-in-suit at least by making, using, importing, selling and offering to sell its high amylose "GoodWheat™" product. Plaintiffs seek both injunctive relief and monetary damages.

THE PARTIES

4. BSM is a corporation organized and existing under the laws of the State of Minnesota, with its principal place of business of 100 Congress Street, Quincy, Massachusetts 02619. BSM is a family-owned company that provides high-quality flour and grain products, including high amylose wheat.

5. Arista is an Australian joint-venture company with a principal place of business at 5 Julius Avenue, North Ryde NSW 2113, Australia. Arista is an industry leader in the development and commercialization of high amylose wheat for direct consumer health benefits.

6. Upon information and belief, Arcadia is a corporation organized and existing under the laws of the State of Delaware, with its principal place of business at 202 Cousteau Place, Suite 105, Davis, California 95618.

JURISDICTION AND VENUE

7. This is a civil action for patent infringement arising under the patent laws of the United States, 35 U.S.C. § 271 *et seq.* This Court has subject matter jurisdiction over actions for patent infringement under 28 U.S.C. §§ 1331 and 1332.

8. This Court further has jurisdiction pursuant to diversity of citizenship principles as the parties are from different states and the amount in controversy in this action exceeds $75,000.

9. The Court has personal jurisdiction over Arcadia because Arcadia has purposefully availed itself of the privileges of conducting business in the State of Delaware by seeking the protection and benefits of the laws of the State of Delaware.

10. Venue is proper in this District pursuant to 28 U.S.C. §§1391 and 1400(b).

BACKGROUND FACTS

Arista and Bay State Milling

11. Arista is the owner of numerous U.S. patents drawn to high amylose wheat, wheat grain and methods of using the same.

12. Bay State Milling is a family-owned company with a strategic intent to support the growth of the next generation of grain-based foods in North America by providing the leading array of plant-based ingredients. Since 1899, BSM has provided exceptional quality flour and grain products.

13. In June 2017, Bay State Milling launched HealthSense™ high fiber wheat flour, which meets the US FDA definition of category 1, intrinsic and intact fiber.

Dietary Fiber

14. Dietary fiber is the ingestible portion of dietary carbohydrates and related substances that reach the colon. Dietary fiber is found mainly in fruits, vegetables, whole grains and legumes. Studies show that diets high in fiber bring about several physiological consequences, including: (i) regularity; (ii) improved gastrointestinal health; (iii) reduced risk of developing some cancers, such as colorectal cancer; (iv) improved glucose tolerance and insulin response; (v) reduced hyperlipidaemia, hypertension, and other coronary heart disease risk factors, and; (vi) increased satiety and improved weight management.

15. There are three types of dietary fibers in foodstuffs: (i) insoluble fiber (cellulose, hemicellulose) that is largely inert metabolically, absorbing water throughout the digestive system and easing defecation; (ii) soluble fiber (beta-glucans, pectin, gums, inulin) that can be fermented in the colon into physiologically active byproducts; and (iii) resistant starch.

16. Wheat grain contains three major components – the germ, bran and endosperm. The germ is the smallest of these major components and contains the embryo that ultimately becomes a new plant. The bran is the hard, protective coating of the wheat grain. The endosperm is the largest component of the wheat grain, accounting for approximately 83% of the wheat grain weight. It also contains the vast majority of the wheat grain starch. This starch serves as a source of nutrition for a developing plant embryo and contains two components: amylose and amylopectin. Typically, about 25% of total starch is amylose, while about 75% total starch is amylopectin, on a weight/weight ("w/w") basis.

17. Amylopectin molecules are large, branched polymers of glucose, which are more easily digested and absorbed than amylose. Eating foods rich in amylopectin can lead to spikes in blood sugar, insulin and cholesterol levels.

18. Amylose is made of long, linear chains of glucose units which resist digestion in the small intestine and are instead digested in the large intestine. There, it is fermented and provides fuel for the resident bacteria and encourages a healthy intestinal microflora. Starch that is high in amylose, therefore, is referred to as a type of resistant starch (RS).

19. Resistant starch-rich foods help control blood sugar levels, avoid sugar highs and help in the longer-term regulation of blood glucose.

The Arista Inventors' Foundational Research

20. Beginning in 2000, inventors of the Arista Patents made foundational discoveries relating to the wheat genome that became the groundwork for the Arista Patents. The inventors of the Arista Patents showed that amylose content in wheat is dependent on starch branching enzyme II ("SBEII"). Wheat has at least two types of SBEII enzymes, starch branching enzyme IIa ("SBEIIa") and starch branching enzyme IIb ("SBEIIb"). Production of high amylose wheat can be accomplished by suppression of the gene encoding SBEIIa either alone or in combination with suppression of the gene encoding SBEIIb. The resulting wheat grain contains higher amounts of amylose than in wild-type wheat grain.

21. Among the commercially important species of wheat plant are common bread wheat (*Triticum aestivum*) and pasta or durum wheat (*Triticum turgidum* L. var. *durum*). Both bread wheat and pasta wheat have polyploid genomes. Polyploid organisms have more than one complete set of chromosomes in their somatic cells (e.g., non-reproductive cells). A complete set of chromosome pairs is known as a genome. Bread wheat is a hexaploid organism, which means it has three complete chromosome sets, *i.e.*, three genomes designated as the A, B, and D genomes. Pasta wheat is a tetraploid organism, which means it has two complete chromosome sets, *i.e.*, two genomes designated as the A and B genomes. In both bread wheat and pasta wheat, each genome contains two of each homologous chromosome.

22. Figure 1 (below) provides a simplified schematic showing the genomic architecture of the seven (7) chromosomes of bread wheat and pasta wheat.

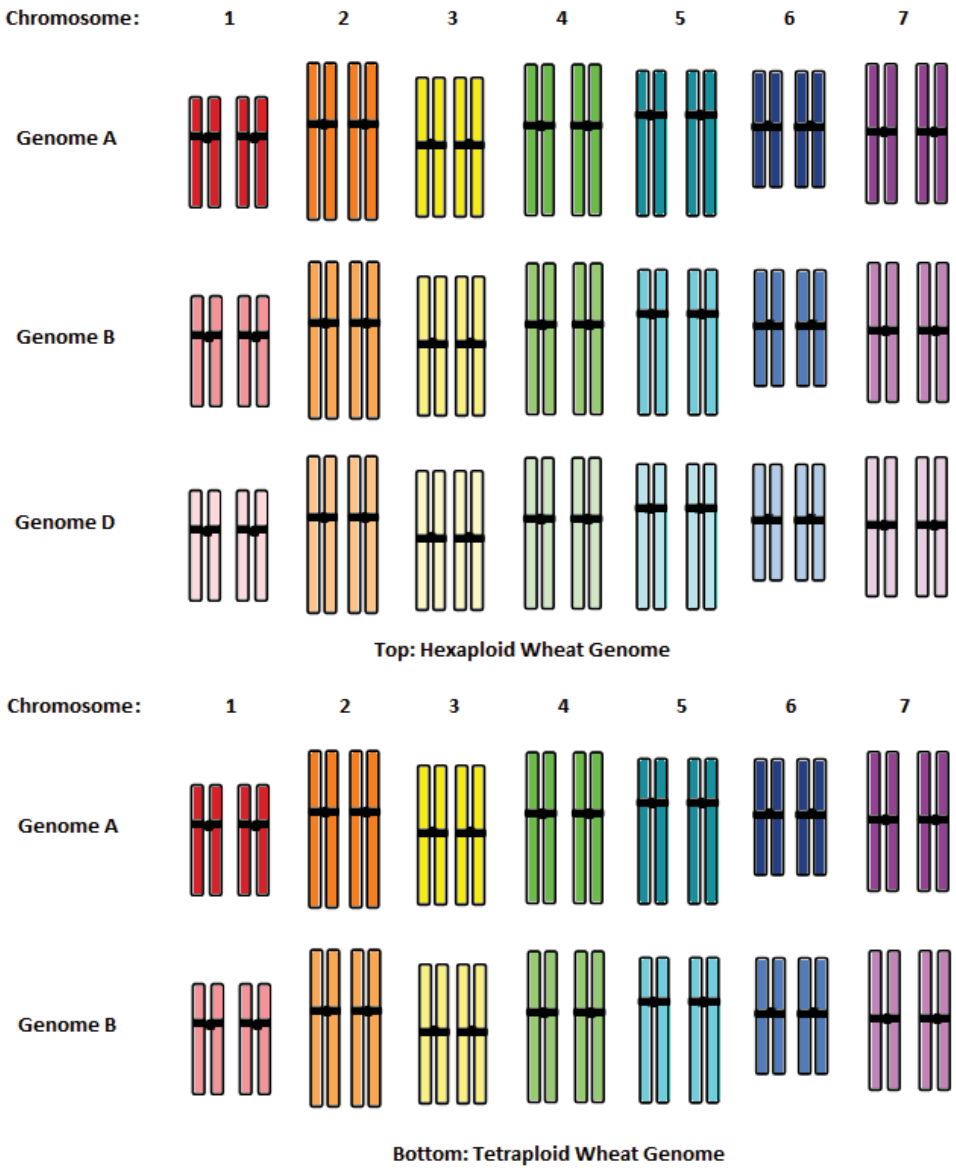

Figure 1

23. In bread wheat, Genomes A, B, and D are similar, and typically a gene found in a chromosome pair of one genome (for example, Genome A) is found in the corresponding chromosome pair of the remaining two genomes. Likewise, in pasta wheat, Genomes A and B are similar, and typically a gene found in a chromosome pair of one genome is found in the corresponding chromosome pair in the remaining genome.

24. As a result of this genome similarity, in bread wheat there are three *SBEIIa* (*SBEIIa-A, SBEIIa-B* and *SBEIIa-D*) genes and three *SBEIIb* (*SBEIIb-A*, *SBEIIb-B* and *SBEIIb-D*) genes, with each homologous chromosome of each chromosome pair encoding a copy of the gene. This results in six total copies of the *SBEIIa* gene and six copies of the *SBEIIb* gene in bread wheat. Similarly, in pasta wheat, there are two *SBEIIa* (*SBEIIa-A* and *SBEIIa-B*) genes and two *SBEIIb* (*SBEIIb-A* and *SBEIIb-B*) genes, with each homologous chromosome of each chromosome pair encoding a copy of the gene. This results in four total copies of both the *SBEIIa* and *SBEIIb* genes in pasta wheat.

25. Arista and its predecessors developed high amylose wheat that is used to produce flour by reducing or eliminating expression of SBEIIa alone or in conjunction with reducing or eliminating expression of SBEIIb. This flour is high in fiber and can be used in everyday consumption.

26. Arista and BSM partnered to develop high amylose wheat varieties for producing flour with significantly more fiber than most flour available today. This flour is marketed as "HealthSense™".

The Arista Patents

27. Arista is the assignee of several patents relating to wheat with high amounts of amylose.

28. United States Patent No. 7,667,114 (the "'114 Patent"), entitled "Starch Branching Enzyme," was duly and legally issued by the USPTO on February 23, 2010, after a full and fair examination of U.S. Patent Application No. 10/204,347, originally filed as International Patent Application No. PCT/AU0l/00175 on February 21, 2001, which was published on August 30, 2001. Arista owns the '114 Patent by assignment. The named

inventors on the ’114 Patent are Matthew Morell, Sadequr Rahman and Ahmed Regina. A true and correct copy of the ’114 Patent is attached as Exhibit 1.

29. BSM is the exclusive licensee of the ’114 Patent.

30. The ’114 Patent is valid and enforceable. Arcadia does not have a license to practice the inventions claimed in the ’114 Patent.

31. The ’114 Patent describes, for the first time, a starch branching enzyme type II (SBEII) from wheat, the nucleic acid encoding the enzyme, and constructs comprising the nucleic acid. The patent also describes a novel method for identification of branching enzyme type II proteins that is useful for screening wheat germplasm for null or altered alleles of wheat branching enzyme IIb. These are useful in the production of plants, including wheat grain, containing high levels of amylose.

32. Accordingly, the ’114 Patent also describes, and claims, wheat plants comprising, *inter alia*, a null allele of a gene encoding SBEIIb in combination with one or more null alleles of genes encoding SBEIIa, and such wheat plants in which the grain has an altered amylose-to-amylopectin ratio.

33. United States Patent No. 7,700,139 (the “’139 Patent”), entitled “Method and Means for Improving Bowel Health,” was duly and legally issued by the USPTO on April 20, 2010, after a full and fair examination of U.S. Patent Application No. 11/324,063, filed on December 30, 2005, and which was published on September 14, 2006. Arista owns the ’139 Patent by assignment. The named inventors on the ’139 Patent are Anthony Richard Bird, Gulay Saygat Mann, Sadequr Rahman, Ahmed Regina, Zhongyi Li, David Lloyd Topping and Matthew Kennedy Morell. A true and correct copy of the ’139 Patent is attached as Exhibit 2.

34. BSM is the exclusive licensee of the ’139 Patent.

35. The ’139 Patent is valid and enforceable. Arcadia does not have a license to practice the inventions claimed in the ’139 Patent.

36. The ‘139 Patent describes methods for improving indicators of bowel health in mammals, including humans, by the use of diets including modified wheat, and wheat products with increased levels of resistant starch or a high relative amylose content that provide for improved bowel health

37. Accordingly, the ’139 Patent describes and claims, *inter alia*, a method of delivering an amount of an altered wheat starch in the form of grain, or derived from grain, of a wheat plant in which the proportion of amylose in the starch of the grain is at least 40% w/w and the grain comprises a reduced level of SBEIIa enzyme activity and/or protein when compared to wild-type grain.

38. United States Patent No. 8,115,087 (the “’087 Patent”), entitled “Wheat With Altered Branching Enzyme Activity and Starch and Starch Containing Products Derived Therefrom,” was duly and legally issued by the USPTO on February 14, 2012, after a full and fair examination of U.S. Patent Application No. 12/881,040, filed on September 12, 2010, which was published on March 24, 2011. Arista owns the ’087 Patent by assignment. The named inventors on the ’087 Patent are Ahmed Regina, Sadequr Rahman, Matthew Kennedy Morell and Zhongyi Li. A true and correct copy of the ’087 Patent is attached as Exhibit 3.

39. BSM is the exclusive licensee of the ’087 Patent.

40. The ’087 Patent is valid and enforceable. Arcadia does not have a license to practice the inventions claimed in the ’087 Patent.

41. The ‘087 Patent describes wheat having a reduced SBEIIa activity and optionally a reduced SBEIIb activity that can produce increased levels of amylose.

42. Accordingly, the ’087 Patent describes and claims, *inter alia*, wheat grain having null mutations of two or three *SBEIIa* genes that has a reduced level of SBEIIa activity and an amylose content of at least 30%, 40%, or 50%. The wheat grain may also have reduced levels of SBEIIb activity.

43. United States Patent No. 8,501,262 (the “’262 Patent”), entitled “Method and Means for Improving Bowel Health,” was duly and legally issued by the USPTO on August 6, 2013, after a full and fair examination of U.S. Patent Application No. 12/799,013, filed on April 16, 2010 as a divisional application based on the disclosure of U.S. Patent Application No. 11/324,063, which issued as the ‘139 Patent, *supra*. Arista owns the ’262 Patent by assignment. The named inventors on the ’262 Patent are Anthony Richard Bird, Gulay Saygat Mann, Sadequr Rahman, Ahmed Regina, Zhongyi Li, David Lloyd Topping and Matthew Kennedy Morell. A true and correct copy of the ’262 Patent is attached as Exhibit 4.

44. BSM is the exclusive licensee of the ’262 Patent.

45. The ’262 Patent is valid and enforceable. Arcadia does not have a license to practice the inventions claimed in the ’262 Patent.

46. The ’262 Patent describes and claims, *inter alia*, a food or beverage, and a process for making the same, which comprises obtaining wheat grain having a proportion of amylose in the starch of wheat grain of at least 40% w/w and where the wheat grain has a reduced level of SBEIIa enzyme activity and/or protein relative to wild-type grain.

47. United States Patent No. 9,060,533 (the “’533 Patent”), entitled “High Amylose Wheat,” was duly and legally issued by the USPTO on June 23, 2015, after a full and fair examination of U.S. Patent Application No. 13/289,884, filed on November 4, 2011, which was published on May 10, 2012. Arista owns the ’533 Patent by assignment. The named inventors

on the ’533 Patent are Ahmed Regina, Matthew Kennedy Morell, Pierre Georges Louis Berbezy, Elisabeth Marie-Anne Ida Chanliaud and Bernard Duperrier. A true and correct copy of the ’533 Patent is attached as Exhibit 5.

48. BSM is the exclusive licensee of the ’533 Patent.

49. The ’533 Patent is valid and enforceable. Arcadia does not have a license to practice the inventions claimed in the ’533 Patent.

50. The ‘533 Patent describes methods of obtaining wheat plants having high amylose starch content and the use of such plants, and particularly the grain or starch produced by such plants, in a range of food and non-food products. The wheat plants can have loss of function mutations in SBEIIa and/or SBEIIb genes, produce high levels of amylose, and have high of germination rates.

51. Accordingly, the ’533 Patent describes and claims, *inter alia*, *Triticum aestivum* wheat grain having an embryo, starch and a reduced level or activity of total SBEII protein in which 2, 4, or 6 SBEIIb alleles are null alleles, 5 or 6 SBEIIa alleles are null alleles, where the grain germinates at a rate of between about 70% and 100% of wild-type grain, and where the starch of the grain has an amylose content of at least 50% w/w.

52. United States Patent No. 9,585,413 (the “’413 Patent”), entitled “Food Ingredients Produced from High Amylose Wheat,” was duly and legally issued by the USPTO on March 7, 2017, after a full and fair examination of U.S. Patent Application No. 13/883,456, which was filed as International Patent Application No. PCT/AU2011/001426 on November 4, 2011, which was published on May 10, 2012. Arista owns the ’413 Patent by assignment. The named inventors on the ’413 Patent are Ahmed Regina, Matthew Kennedy Morell, Pierre Georges Louis

Berbezy, Elisabeth Marie-Anne Ada Chanliaud and Bernard Duperrier. A true and correct copy of the ’413 Patent is attached as Exhibit 6.

53. BSM is the exclusive licensee of the ’413 Patent.

54. The ’413 Patent is valid and enforceable. Arcadia does not have a license to practice the inventions claimed in the ’413 Patent.

55. The ’413 Patent describes and claims, *inter alia*, a process for producing food ingredients, drink ingredients by processing wheat grain having loss of function mutations in its *SBEIIa* genes such that the level or activity of total SBEII protein is 2% to 30% of wild-type wheat grain, and having an amylose content in the starch of at least 60% w/w. It also describes foods produced from the ingredients which may be used to improve metabolic health, bowel health and/or cardiovascular health.

Arcadia’s Infringing Conduct

56. Upon information and belief, Arcadia was aware of all the Arista patents-in-suit on or shortly after their respective dates of issuance.

57. Upon information and belief, Arcadia was aware and believed that it did not have the right to make or use the technology claimed in the Arista Patents and knew that it could not operate in the high amylose wheat field using technology based on the foundational work of Arista’s inventors without infringing the Arista Patents.

58. Upon information and belief, despite Arcadia’s awareness and knowledge of the patents-in-suit, Arcadia has conducted, and is continuing to conduct, research and development of high amylose wheat and flour including by breeding, growing and/or milling grain that infringes the Arista Patents, to make, use, offer to sell, and sell a commercial product.

59. Upon information and belief, at least by 2007, Arcadia scientist Ann Slade was aware that the group headed by Matthew Morell, a named inventor on each patent-in-suit, had developed a high amylose line of wheat by suppressing all three copies of either the *SBEIIa* or *SBEIIb* gene, or both. Slade was aware that Morell's suppression of *SBEIIb* lead to an increase from 25.5% amylose to 32.8% w/w of starch in the wheat endosperm. Slade was also aware that Morell's suppression of *SBEIIa* led to an increased amylose content of 74.4%. A true and correct copy of an excerpt of Slade's witnessed laboratory notebook detailing this knowledge of Morell's work is attached as Exhibit 7. Upon information and belief, Slade and her group began their research into high amylose wheat based on the information and experiments published by Morell.

60. Arcadia's filings in the USPTO demonstrate that at least by December 3, 2013, Arcadia was aware that the Arista inventors had been awarded the '114, '139, and '087 Patents and that additional applications were pending.

61. At least by October 6, 2016, Arista put Arcadia on direct notice of several patents in the area of high amylose wheat, including the '114, '139, '087, '262 and '533 Patents.

62. On June 30, 2018, Arista sent Arcadia a letter stating that Arcadia does not have freedom-to-operate to sell high amylose wheat into the United States market because of the Arista Patents, and explicitly identified the patents-in-suit.

63. On September 4, 2018, Arcadia acknowledged in a letter to Arista that Arista alleged that its patent portfolio could prevent Arcadia from commercializing its wheat lines in the United States.

Arcadia's Patent Filings Describe Infringing Activity

64. On October 4, 2011, Arcadia filed a provisional patent application, U.S. Provisional Application No. 61/542,953 (the "'953 Provisional"), naming Ann Slade, Dayna Loeffler, Aaron Holm and Jessica Mullenberg as inventors.

65. On October 12, 2012, Arcadia filed a utility application, U.S. Patent Application No. 13/633,588 (the "'588 Application"), claiming the benefit of the '953 Provisional, naming Ann Slade, Dayna Loeffler, Aaron Holm and Jessica Mullenberg as inventors. On December 3, 2013, Arcadia filed an Information Disclosure Statement in the '588 Application in the USPTO listing, *inter alia*, the '114 Patent, the '139 Patent, the '087 Patent, and the publication of Arista's 13/289,884 Application, which subsequently issued as the '533 Patent.

66. On August 13, 2015, Arcadia filed U.S. Patent Application No. 14/825,369 (the "'369 Application"), a continuation of the '588 Application, naming Ann Slade, Dayna Loeffler, Aaron Holm and Jessica Mullenberg as inventors.

67. On June 6, 2017, Arcadia filed U.S. Patent Application No. 15/615,555 (the "'555 Application"), a continuation of the '369 Application, naming Ann Slade, Dayna Loeffler, Aaron Holm and Jessica Mullenberg as inventors.

68. On July 13, 2017, Arcadia filed U.S. Patent Application No. 15/649,231 (the "'231 Application"), a continuation of the '369 Application, naming Ann Slade, Dayna Loeffler, Aaron Holm and Jessica Mullenberg as inventors.

69. On May 9, 2018, Arcadia filed U.S. Patent Application No. 15/975,410 (the "'410 Application") (collectively, with the '953 Provisional, '588 Application, '369 Application and '555 Application, the "Arcadia Applications"), a continuation of the '369 Application, and names Ann Slade, Dayna Loeffler, Aaron Holm and Jessica Mullenberg as inventors

70. Upon information and belief, the Arcadia Applications are based upon the research of Morell and his colleagues that was disclosed in Arista's patents.

71. In their applications, Arcadia described obtaining pasta wheat grain from double homozygous wheat plants with (1) a stop mutation in *SBEIIa-A* and a splice junction mutation in *SBEIIa-B* and (2) a stop mutation in *SBEIIa-A* and a missense mutation in *SBEIIa-B* that had an average amylose content of 40-49% w/w.

72. In these applications, Arcadia further reported obtaining bread wheat grain from triple homozygous wheat plants with a stop mutation in *SBEIIa-A*, *SBEIIa-B* and *SBEIIa-D* that had an amylose content of 50-60% w/w.

73. In these applications, Arcadia further reported obtaining bread wheat grain from quadruple homozygous wheat plants with linked mutations in *SBEIIa-A* and *SBEIIb*-A combined with a stop mutation in each of *SBEIIa-B* and *SBEIIa-D* that had an amylose content of 58% w/w.

74. In these applications, Arcadia further reported obtaining bread wheat grain from quadruple homozygous wheat plants with stop mutations in each of *SBEIIa-A* and *SBEIIa-B* combined with linked mutations in *SBEIIa-D* and *SBEIIb-D* that had an amylose content of 38% w/w.

75. In these applications, Arcadia further reported obtaining bread wheat grain from quadruple homozygous wheat plants with a stop mutation in *SBEIIa-A* combined with linked mutations in *SBEIIa-B* and *SBEIIb-B* and a stop mutation in *SBEIIa-D* that had an amylose content of 38% w/w.

76. In these applications, Arcadia further reported obtaining bread wheat grain from a sextuple homozygous wheat plants with linked mutations in *SBEIIa-A* and *SBEIIb-A* combined

with linked mutations in *SBEIIa-B* and *SBEIIb-B* and linked mutations in *SBEIIa-D* and *SBEIIb-D* that had an amylose content of 25-30% w/w.

77. Upon information and belief, Arcadia has continued to prosecute these applications and seek patents broadly claiming foundational inventions disclosed in the Arista Patents despite knowing that such patents could not be validly issued.

78. For example, on September 13, 2017 Arcadia filed claims in its '555 Application that copied the claims of an Arista Patent, thereby provoking an interference in the USPTO. On August 14, 2018, the Patent Trial and Appeal Board ("PTAB") of the USPTO issued a Decision finding that Arcadia was not entitled to claim the invention that Arcadia claimed in its '555 Application. As a consequence, the PTAB issued judgement on priority of invention against Arcadia.

Arcadia's Publications Describe Continuing Infringement Despite Arista's Patents

79. Upon information and belief, Arcadia has continued to breed, grow, use and research the lines of high amylose wheat that were described in the Arcadia Applications with the intent to develop a commercial product, ignoring Arista's rights.

80. Upon information and belief, at least as early as 2010, Arcadia was growing, and continues to grow, high amylose wheat in at least California.

81. In a paper published on May 14, 2012 in *BMC Plant Biology* (the "2012 Paper"), Arcadia employees, including Ann Slade, reported that they had grown and developed wheat plants having grain with over 30% w/w amylose. Slade *et al.*: Development of high amylose wheat through TILLING. *BMC Plant Biology* 2012 12:69.

82. Specifically, the Arcadia scientists reported that they obtained pasta wheat grain from a double homozygous wheat plant with a stop mutation in *SBEIIa-A* and a splice junction mutation in *SBEIIa-B* that had an amylose content of 47% w/w.

83. The Arcadia scientists also reported obtaining pasta wheat grain from a double homozygous wheat plant with a stop mutation in *SBEIIa-A* and a missense mutation in *SBEIIa-B* that had an amylose content of 45.2% w/w.

84. The Arcadia scientists further reported obtaining bread wheat grain from a triple homozygous wheat plant with stop mutations in *SBEIIa-A*, *SBEIIa-B* and *SBEIIa-D* that had an average amylose content of 55.7% w/w.

85. The Arcadia scientists further reported obtaining wheat grain from a triple homozygous wheat plant with stop mutations in *SBEIIa-A*, *SBEIIa-B* and *SBEIIa-D* that had an average amylose content of 53.4% w/w.

86. According to the 2012 Paper, the wheat plants tested in the 2012 Paper were grown in Imperial Valley, California.

87. According to the 2012 Paper, amylose levels in the durum wheat high amylose lines in the 2012 Paper were measured in Lincoln, Nebraska.

88. Upon information and belief, Arcadia has continued to grow, use and research the lines of high amylose wheat that were described in the 2012 Paper to develop a commercial product, ignoring Arista's rights.

89. Upon information and belief, at least as early as 2013 and 2014, Arcadia was cultivating and growing high amylose wheat in the United States in California and/or Idaho. For example, Arcadia's Form 10-K Annual Report for the year ending December 31, 2015 identifies lines RS14, RS18, RS83, and RS100 providing high levels of resistant starch. Arcadia claimed

that "[r]esistant starch wheat flour has been tested in applications in bread . . . and pasta." A figure shows bread made with 50% RS bread wheat identified as RS14 CA 2013, RS14, ID 2014, and RS18 CA 2013. The report indicates that Arcadia's trait evaluation and development group is based Davis, California, and manages remote field operations in American Falls, Idaho, and Brawley California, corresponding to the designations CA and ID.

90. Upon information and belief, in 2015, Arcadia baked bread products with high amylose wheat flour derived from its high amylose wheat. Upon further information and belief, Arcadia had human subjects conduct taste tests on these products baked with high amylose wheat flour.

91. Upon information and belief, Arcadia continued cultivating and growing high amylose wheat in the United States in 2016. For example, Arcadia's Form 10-K Annual Report for the year ending December 31, 2016 continues to describe Arcadia's bread and past wheat lines with high levels of amylose, a type of resistant starch. Arcadia stated that "RS wheat flour is currently being tested in a range of additional bakery, ready-to-eat cereals and pasta products with industrial partners." Arcadia continued to state that its controlled growth operations in Davis, California manages crop pre-breeding programs to develop plant varieties for the production of commercial products in the Resistant Starch wheat project, and that its trait evaluation and development group is based in Davis, California and manages remote field operations in American Falls, Idaho and Brawley, California.

92. Arcadia provided its high amylose wheat varieties to either the sponsor and/or collaborators of a clinical study entitled, "Resistant Starch Wheat for Improved Metabolic Health: A Proof of Concept Study in Human Subjects." The protocol of the clinical study was first submitted on March 10, 2017 to the U.S. National Library of Medicine. The protocol

described tests on human subjects ingesting high amylose wheat varieties developed by Arcadia, with an actual study start date of May 22, 2017 and an estimated primary completion date of March 2019. Upon information and belief, Arcadia has conducted, or induced the conduct of, clinical studies using high amylose wheat products. Arcadia was aware of each of the patents-in-suit prior to providing its high amylose wheat varieties for use in the clinical study.

93. Upon information and belief, Arcadia's cultivation and growth of high-amylose wheat continued through 2017. For example, Arcadia's Form 10-Q filing for the quarterly period ending September 30, 2018, disclosed that the proceeds of a stock offering in June 2018 would be used for purposed including "scale-up of its GoodWheat™ Resistant Starch wheat production, early commercialization activities, continued research and development activities." Arcadia's Form 10-K Annual Report for the year ending December 31, 2017 continued to state that Arcadia is "developing a suite of branded, high value, healthy ingredients in wheat. First to market will be our high fiber Resistant Starch (RS) wheat." Arcadia claimed that High Fiber Wheat was at the breeding and introgression stage, one step from product launch on their timeline. Referring to this product as resistant starch (RS) wheat flour, Arcadia continued to state that "RS wheat flour has been tested in applications in bread, where loaf quality was comparable to bread made with conventional wheat flour, and pasta, where it had the highest consumer preference rankings in tests carried out by a major consumer products company. RS wheat flour is currently being tested in a range of additional bakery, ready-to-eat cereals and pasta products with industrial partners. We have many RS wheat lines that are being evaluated for optimal quality and agronomic characteristics."

94. On March 14, 2018, Arcadia announced that it developed high amylose wheat that contains up to 94% amylose and announced that it delivers several significant health benefits. It

also announced that it was working with a select number of consumer packaged goods companies on formulations using high amylose wheat flour.

95. On November 7, 2018, Arcadia announced that it completed harvesting and began test marketing for its high amylose "GoodWheat™" product.

96. In a paper published on January 21, 2019 in *Food Hydrocolloids* (the "2019 Paper"), Arcadia employee Ann Slade reported on several high amylose wheat lines. Li *et al.*: Altering starch branching enzymes in wheat generates high-amylose starch with novel molecular structure and functional properties. *Food Hydrocolloids* 2019 92:51-59.

97. The 2019 Paper states that there is a positive correlation between high amylose content in starch and lower glycaemic response and the reduction of insulin resistance.

98. The 2019 Paper refers to Arcadia's RS100, RS101, RS134, RS135, RS136, RS137 and RS140 lines of high amylose wheat. The 2019 Paper disclosed that the wheat tested had 37%-93% amylose content.

99. According to the 2019 Paper, all wheat lines tested were developed by Arcadia and planted in Idaho and harvested in late 2016. Mature grains were milled into flours at the California Wheat Commission in Woodland, California.

Arcadia's On-Going Marketing of Infringing Products

100. On January 20, 2019, Arcadia presented at the Noble Capital Markets 15th Annual Investor Conference, where it stated that its "GoodWheat™" Portfolio included "Resistant Starch Wheat Products" and presented "multiple opportunities for revenue capture," including selling "GoodWheat™" strains to seed companies, for which Arcadia would collect royalties, partnering with seed companies to manufacture seed, for which Arcadia would sell to growers, partnering with farmers to produce specialty grain, for which Arcadia would sell to millers and

food companies, selling "GoodWheat™" ingredients to food companies, for which Arcadia would collect royalties, and selling foods including "GoodWheat™" to consumers, for which the Arcadia brand would reach consumers. In the same presentation, Arcadia stated that its "GoodWheat™" had 94% amylose and that it was focused on scaling production of and testing the market in bread, pasta and/or food for "GoodWheat™" in 2019.

101. On February 7, 2019, Arcadia announced that its "GoodWheat™" platform encompasses high fiber resistant starch products and that the first sales of "GoodWheat™" are expected within 12 months of the announcement.

102. As of March 21, 2019, Arcadia marketed its "GoodWheat™" product to food formulators and brand managers as a resistant starch product "which can deliver 3 times the resistant starch as traditional wheat" and contains "up to 94 percent amylose." Arcadia announced that its "GoodWheat™" portfolio provides "the same baking quality, taste, and texture as traditional wheat." Arcadia also stated that a benefit of a diet high in resistant starch "promotes good health, particularly in the management of gastrointestinal health and obesity-related health conditions." A true and correct copy of Arcadia's advertising is attached as Exhibit 8.

103. On March 27, 2019, Arcadia announced that it launched its "GoodWheat™" brand of wheat ingredients in the first quarter of 2018, including resistant starch wheat varieties. Arcadia also reported that its resistant starch wheat lines contain 94% amylose. Arcadia purported that higher amylose levels correspond to higher levels of resistant starch, which has been proven to deliver significant health benefits. Arcadia further stated that it anticipates its resistant starch wheat to be commercially available in 2019.

104. Upon information and belief, Arcadia's "GoodWheat™" is derived from one or more of, but not limited to, Arcadia's RS100, RS101 and/or RS140 lines of high amylose wheat, or a combination thereof.

105. Upon information and belief, Arcadia has developed and is continuing to develop other lines of high amylose wheat that may also be used in its "GoodWheat™" product.

106. Upon information and belief, Arcadia's "GoodWheat™" is its commercial product designation for wheat having high amylose content.

107. Upon information and belief, Arcadia has made including by breeding, growing and/or milling, used, offered to sell and/or sold, and will continue to make including by breeding, growing and/or milling, use, offer to sell and/or sell lines including but not limited to its RS100, RS101 and RS140 lines of high amylose wheat and flour therefrom.

108. Upon information and belief, Arcadia has made including by breeding, growing and/or milling, used, offered to sell and/or sold, and will continue to make including by breeding, growing and/or milling, use, offer to sell and/or sell other lines of high amylose wheat and flour therefrom.

109. Upon information and belief, Arcadia's making including by breeding, growing and/or milling, using, offering to sell and/or selling high amylose wheat and flour, including but not limited to its RS100, RS101 and RS140 lines, infringe one or more claims of the patents-in-suit.

110. Upon information and belief, Arcadia's making including by breeding, growing and/or milling, using, offering to sell and/or selling other lines of high amylose wheat and flour infringe one or more claims of the patents-in-suit.

111. Upon information and belief, Arcadia's infringing research allowed Arcadia to develop a commercial product and enter the market for high amylose wheat products years sooner than had it not infringed the Arista Patents.

112. Plaintiffs have been financially harmed by Arcadia's infringing research and market preparation at least because, upon information and belief, Arcadia has substantially reduced the lead time to bring its high amylose wheat products to the market. Had it not been conducting its infringing research and development, Arcadia would not have been able to develop, market and advertise its product.

113. Despite its knowledge of the patents-in-suit, Arcadia has continued to develop, make including by breeding, growing and/or milling, use, advertise, offer to sell and/or sell high amylose wheat and/or products derived therefrom.

Arcadia's Infringement of the '114 Patent

114. Representative Claim 1 of the '114 Patent recites:

> A wheat plant comprising a null allele of a gene on a long arm of chromosome 2 encoding wheat starch branching enzyme IIb (BEIIb), in combination with one or more null alleles of genes which encode starch branching enzyme IIa (BEIIa), granule bound starch synthase (GBSS), starch synthase II (SSII) or starch branching enzyme I (BEI).

115. Upon information and belief, at least Arcadia's RS100 and RS140 lines of high amylose wheat described in the 2019 Paper infringe claim 1 of the '114 Patent because they are wheat plants that have a null allele stop mutation and/or splice junction mutation on a long arm of chromosome 2 encoding wheat starch branching enzyme IIb, in combination with one or more null alleles of genes which encode wheat starch branching enzyme IIb. For example, the 2019 Paper, in Figure 2(A) in conjunction with section 3.2.1, discloses that RS100 has stop or splice junction null mutations in each

SBEIIb and SBEIIa gene. RS140 is described as having stop or splice junction null mutations in SBEIIb genes of two genomes and stop or splice junction mutations SBEIIa.

116. Upon information and belief, for at least the same reasons as in Paragraph 115, at least Arcadia's RS100 and RS140 lines of high amylose wheat infringe claims 2-9 of the '114 Patent.

117. Upon information and belief, Arcadia has developed and is developing other lines of wheat that infringe claims 1-9 of the '114 Patent.

Arcadia's Infringement of the '139 Patent

118. Representative Claim 1 of the '139 Patent recites:

> A method for decreasing pH of bowel contents, increasing total short chain fatty acid (SCFA) concentration in the bowel contents, increasing total SCFA amount in the bowel contents, increasing concentration of one SCFA in the bowel contents or increasing the amount of one SCFA in the bowel contents in a mammalian animal, comprising the step of feeding the animal an effective amount of an altered wheat starch in the form of grain of a wheat plant, or flour or wholemeal obtained by processing the grain, wherein the proportion of amylose in the starch of the grain, flour or wholemeal is at least 40% and wherein said grain comprises
>
> (i) a reduced level of SBEIIa enzyme activity relative to wild-type grain, flour or wholemeal or a reduced level of SBEIIa protein relative to wild-type grain, flour or wholemeal; and
>
> (ii) amylopectin with a proportion of 4-12 dp chain length fraction of 49.99% or less, as measured by fluorophore-assisted carbohydrate electrophoresis after isoamylase debranching of the amylopectin.

119. Upon information and belief, Arcadia's high amylose wheat lines, including at least the RS100 and RS140 lines of high amylose wheat, and the grain, flour and/or wholemeal derived from any of those wheat lines, infringe claim 1 of the '139 Patent because, once ingested, help promote the decrease of the pH of bowel contents and/or increase short chain fatty acid (SCFA) concentration and total SCFA amounts in the bowel; the grain, flour and/or wholemeal derived from any of those wheat lines have

93.3% and 85.0 % amylose, respectively; have genes that encode for a reduced level of SBEIIa enzyme activity relative to wild-type wheat; and have amylopectin with a proportion of 4-12 dp chain length fraction of 49.99% or less compared to wild-type wheat.

120. Upon information and belief, for at least the same reasons as in Paragraph 119, Arcadia's high amylose wheat lines, including at least the RS100 and RS140 lines of high amylose wheat, infringe claims 2-5, 7-21 and 23-34 of the '139 Patent.

121. Upon further information and belief, Arcadia has knowingly induced infringement of the '139 Patent with the specific intent to do so by developing, promoting and encouraging the use of its wheat lines and will continue to develop, promote and encourage the use of its wheat lines, including at least lines RS100 and RS140, and grain, flour, and/or wholemeal derived from any of those wheat lines, with a proportion of amylose of at least 40%, to be used as food for feeding mammals, which includes the human beings who are participating in clinical studies of the effect of ingesting such wheat product, to decrease the pH of bowel contents or SCFA concentration and total SCFA amounts, to thereby infringe at least claims 1-5, 7-21 and 23-34 of the '139 Patent.

122. Upon information and belief, Arcadia has developed and is developing other lines of wheat that infringe at least claims 1-5 and 7-34 of the '139 Patent.

123. Upon further information and belief, Arcadia has knowingly induced infringement of the '139 Patent with the specific intent to do so by developing, promoting and encouraging the use of other wheat lines and continuing to develop, promote and encourage the use of other wheat lines, the grain, flour, and/or wholemeal derived from such wheat, with a proportion of amylose of at least 40%, to be used as food for feeding

mammals, which includes the human beings who are participating in including clinical studies of the effect of ingesting such wheat product, to decrease the pH of bowel contents or increase SCFA concentration and total SCFA amounts, to thereby infringe at least claims 1-5 and 7-34 of the '139 Patent.

Arcadia's Infringement of the '087 Patent

124. Representative Claim 1 of the '087 Patent recites:

> Wheat grain comprising starch and null mutations of two or three SBEIIa genes, wherein the proportion of amylose in the starch of the grain is at least 30% (w/w) as determined by an iodometric method.

125. Upon information and belief, at least Arcadia's RS100 and RS140 lines of high amylose wheat infringe claim 1 of the '087 Patent because they produce wheat grain with genes that encode for starch and stop mutations and/or splice junction mutation of two or three *SBEIIa* genes and have proportions of 93.3% and 85.0% amylose, respectively, as determined by an iodometric method.

126. Upon information and belief, for at least the same reasons as in Paragraph 125, at least Arcadia's RS100 and RS140 lines of high amylose wheat infringe claims 2-25 and 27-34 of the '087 Patent.

127. Upon information and belief, Arcadia has developed and is developing other lines of wheat that infringe claims 1-25 and 27-34 of the '087 Patent.

Arcadia's Infringement of the '262 Patent

128. Representative Claim 1 of the '262 Patent recites:

> A process for producing a food or beverage, comprising the steps of obtaining wheat grain having a proportion of amylose in its starch of at least 40% (w/w), at least 1% of the starch being resistant starch, and a reduced level of starch branching enzyme IIa (SBEIIa) relative to wild-type wheat grain, optionally processing the grain to produce flour, wholemeal, semolina or starch, and mixing

the grain, flour, wholemeal, semolina or starch with another ingredient, thereby producing the food or beverage.

129. Upon information and belief, Arcadia infringes claim 1 of the ’262 Patent because it has produced food with at least its RS100 line of high amylose wheat, the RS100 line having an amylose proportion of 93.3%, a resistant starch percentage of greater than 1% and a reduced level of SBEIIa relative to wild-type grain. Additionally, Arcadia, upon information and belief, has produced starch, bread and pasta from high amylose wheat grain.

130. Upon information and belief, for at least the same reasons as in Paragraph 129, at least Arcadia’s RS100 line of high amylose wheat infringes at least claims 2-11 and 15 of the ’262 Patent.

131. Upon information and belief, Arcadia has developed and is developing other lines of wheat that, when used for food production, infringe at least claims 1-11 and 15 of the ’262 Patent.

Arcadia’s Infringement of the ’533 Patent

132. Representative Claim 1 of the ’533 Patent recites:

Wheat grain (*Triticum aestivum*) comprising an embryo, an endosperm, starch and a reduced level or activity of total SBEII protein, wherein the embryo comprises a loss of function mutation in alleles of endogenous genes of *SBEIIa-A*, *SBEIIa-B*, *SBEIIa-D*, *SBEIIb-A*, *SBEIIb-B* or *SBEIIb-D*, such that the level or activity of total *SBEII* protein in the grain is between 2% and 30% of the level or activity of total SBEII protein in a wild-type wheat grain, wherein

i) said alleles include 2, 4 or 6 SBEIIb alleles which are null alleles and 5 or 6 SBEIIa alleles which each comprise a loss of function mutation, wherein at least one of the 5 or 6 SBEIIa alleles which comprises a loss of function mutation comprises a loss of function point mutation;
ii) the grain has a germination rate of between about 70% and about 100% relative to the germination rate of a wild-type grain, and
iii) the starch of the grain has an amylose content of at least 50% (w/w) as determined by an iodometric method.

133. Upon information and belief, Arcadia infringes claim 1 of the ’533 Patent because it is developing at least its RS140 line of high amylose wheat having genes that encode for a reduced level or activity of SBEII protein, having stop mutations and/or splice junction mutations in alleles of endogenous genes of *SBEIIa-A*, *SBEIIa-B*, *SBEIIa-D*, *SBEIIb-B*, and *SBEIIa-D*, with the grain of the line having between 2% and 30% of the level or activity of total SBEII protein in a wild-type wheat grain, 2, or 4 *SBEIIb* alleles that are null alleles, 5 or 6 *SBEIIa* alleles that compromise a loss of function mutation, where at least one of the 5 or 6 of the *SBEIIa* alleles that comprise a loss of function mutation comprises a point mutation, and the grain of the line having a germination rate between about 70% and about 100% relative to the germination rate of a wild-type grain, and the starch of the grain having an amylose content of about 85.0%.

134. Upon information and belief, for at least the same reasons as in Paragraph 133, at least Arcadia’s RS140 line of high amylose wheat infringes at least claims 2-17 and 23-30 of the ’533 Patent.

135. Upon information and belief, Arcadia has developed and is developing other lines of wheat that infringe at least claims 1-17 and 23-30 of the ’533 Patent.

Arcadia’s Infringement of the ’413 Patent

136. Representative Claim 1 of the ’413 Patent recites:

> A process for producing a food ingredient or a drink ingredient comprising a step of processing wheat grain, wherein the wheat grain comprises an embryo, an endosperm, starch and a reduced level or activity of total SBEII protein, wherein the embryo comprises a loss of function mutation in alleles of endogenous genes of *SBEIIa-A*, *SBEIIa-B*, and *SBEIIa-D*, such that the level or activity of total SBEII protein in the grain is 2% to 30% of the level or activity of total SBEII protein in a wild-type wheat grain, wherein
>
> i) said alleles include 5 or 6 SBEIIa alleles which each comprise a loss of function mutation, wherein at least one of the 5 or 6 SBEIIa

alleles which comprise a loss of function mutation comprises a loss of function point mutation,

ii) the wheat grain has a germination rate of between about 70% and about 100% relative to the germination rate of a wild-type grain, and

iii) the starch of the wheat grain has an amylose content of at least 60% (w/w) as determined by an iodometric method,

thereby producing the food or drink ingredient.

137. Upon information and belief, Arcadia infringes claim 1 of the ’413 Patent because it has produced food or drink ingredients by processing high amylose wheat grain from at least its RS101 and RS140 lines. The RS101 and RS140 lines have genes that encode for a reduced level or activity of total SBEII protein at 2 to 30% of the level of activity of total SBEIIa in a wild-type grain; the RS101 and RS140 lines have stop mutations and/or splice junction mutations in alleles of endogenous genes of *SBEIIa-A*, *SBEIIa-B*, *SBEIIa-D*, *SBEIIb-B*, and/or *SBEIIa-D*, with 5 or 6 *SBEIIa* alleles that have a loss of function mutation, where at least one of the 5 or 6 of the *SBEIIa* alleles that comprise a loss of function point mutation comprises a loss of function point mutation; and, the grain of the lines having a germination rate between about 70% and about 100% relative to the germination rate of a wild-type grain, and the starch of the grain of the lines has an amylose content of about 84.9% and 85.0%, respectively.

138. Upon information and belief, for at least the same reasons as in Paragraph 137, Arcadia’s high amylose wheat lines, including at least the RS101 and RS140 lines of high amylose wheat, when processed into a food or drink ingredient, infringe claims 2-9 and 11-19 of the ’413 Patent.

139. Upon further information and belief, Arcadia has knowingly induced infringement of the ’413 Patent with the specific intent to do so by developing, promoting and encouraging the use of its wheat grain and continuing to develop, promote

and encourage the use of its wheat grain obtained from at least lines RS101 and RS140, by inducing food manufacturers and/or millers to process wheat grain into a food or drink ingredient, wherein the wheat grain have genes that encode for a reduced level or activity of total SBEII protein at 2 to 30% of the level of activity of total SBEIIa in a wild-type grain; have stop mutations and/or splice junction mutations in alleles of endogenous genes of *SBEIIa-A*, *SBEIIa-B*, *SBEIIa-D*, *SBEIIb-B*, and/or *SBEIIa-D*, with 5 or 6 *SBEIIa* alleles that have a loss of function mutation, where at least one of the 5 or 6 of the *SBEIIa* alleles that comprise a loss of function point mutation comprises a loss of function point mutation; and, the grain of the lines having a germination rate between about 70% and about 100% relative to the germination rate of a wild-type grain, and the starch of the grain of the RS100 and RS140 have amylose contents of about 84.9% and 85.0%, respectively, to thereby infringe at least claims 1-9 and 11-19 of the ’413 Patent.

140. Upon information and belief, Arcadia has developed and is developing other lines of wheat that it has processed into a food or drink ingredient wherein the wheat grain derived from those wheat lines have genes that encode for a reduced level or activity of total SBEII protein at 2 to 30% of the level of activity of total SBEIIa in a wild-type grain; have stop mutations and/or splice junction mutations in alleles of endogenous genes of *SBEIIa-A*, *SBEIIa-B*, *SBEIIa-D*, *SBEIIb-B*, and/or *SBEIIa-D*, with 5 or 6 *SBEIIa* alleles that have a loss of function mutation, where at least one of the 5 or 6 of the *SBEIIa* alleles that comprise a loss of function point mutation comprises a loss of function point mutation; and, the grain of the lines having a germination rate between about 70% and about 100% relative to the germination rate of a wild-type grain, and the

starch of the grain of the lines have an amylose content of at least 60% w/w, to thereby infringe at least claims 1-9 and 11-19 of the ’413 Patent.

141. Upon information and belief, Arcadia has knowingly induced infringement of the ’413 Patent with the specific intent to do so by developing and promoting and continuing to develop and promote other lines of wheat by inducing food manufacturers and/or millers to process the wheat grain into a food or drink ingredient wherein the wheat grain derived from those wheat lines have genes that encode for a reduced level or activity of total SBEII protein at 2 to 30% of the level of activity of total SBEIIa in a wild-type grain; have stop mutations and/or splice junction mutations in alleles of endogenous genes of *SBEIIa-A*, *SBEIIa-B*, *SBEIIa-D*, *SBEIIb-B*, and/or *SBEIIa-D*, with 5 or 6 *SBEIIa* alleles that have a loss of function mutation, where at least one of the 5 or 6 of the *SBEIIa* alleles that comprise a loss of function point mutation comprises a loss of function point mutation; and, the grain of the lines having a germination rate between about 70% and about 100% relative to the germination rate of a wild-type grain, and the starch of the grain of the lines have an amylose content of at least 60% w/w to thereby infringe at least claims 1-9 and 11-19 of the ’413 Patent.

142. Upon information and belief, Arcadia has knowingly induced infringement of claim 10 of the ’413 Patent with the specific intent to do so by developing, promoting and encouraging the use of its wheat lines and will continue to develop, promote and encourage the use of its wheat lines, including at least lines RS101 and RS140, and grain, flour, and/or wholemeal derived from any of those wheat lines, by providing a subject with a food product that has been processed from this wheat grain, flour, and/or wholemeal, including human beings who are participating in clinical studies

of the effect of ingesting such wheat products, that once ingested, help improve one or more parameters of metabolic heath, bowel health and/or cardiovascular health and/or prevent or reduce the severity or incidence of metabolic disease, bowel disease or cardiovascular disease.

143. Upon information and belief, Arcadia has knowingly induced infringement of the ’413 Patent with specific intent to do so by developing, promoting and encouraging the use of other wheat lines and continuing to develop, promote and encourage the use of other wheat lines, the grain, flour, and/or wholemeal derived from such wheat, by providing a subject with a food product that has been processed from this wheat grain, flour, and/or wholemeal, including human beings who are participating in clinical studies of the effect of ingesting such wheat products, that once ingested, help improve one or more parameters of metabolic heath, bowel health and/or cardiovascular health and/or prevent or reduce the severity or incidence of metabolic disease, bowel disease or cardiovascular disease.

CLAIM I: INFRINGEMENT OF U.S. PATENT NO. 7,667,114

144. Plaintiffs restate and incorporate by reference each of its allegations in Paragraphs 1-143 as if fully set forth herein.

145. Upon information and belief, Arcadia infringes claims 1-9 of the ’114 Patent, both literally and/or under the doctrine of equivalents.

146. Upon information and belief, Arcadia has directly infringed the ’114 Patent, both literally and/or under the doctrine of equivalents, through its development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat. Upon further information and belief, Arcadia will continue to infringe the ’114 Patent by

continuing to develop, make including by breeding, growing and/or milling, use, offer to sell and/or sell high amylose wheat.

147. From at least as early as December 3, 2013, and no later than the service of this Complaint, Arcadia has been on notice of infringement of the ’114 Patent, and its infringement has been and continues to be willful and egregious, entitling Plaintiffs to enhanced damages in accordance with 35 U.S.C. § 284.

148. Upon information and belief, Arcadia has infringed the ’114 Patent with knowledge of and/or willful blindness to the fact that Arcadia’s development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat infringes the ’114 Patent; has disregarded an objectively high likelihood of infringement of the ’114 Patent; and has acted, continues to act, willfully, wantonly, and in deliberate disregard for Plaintiffs’ rights.

149. As the direct and proximate result of Arcadia’s conduct, Plaintiffs have suffered, and if Arcadia’s conduct is not stopped, will continue to suffer severe harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Plaintiffs’ remedy at law is inadequate, Plaintiffs seek, in addition to damages, injunctive relief.

150. Plaintiffs are entitled to injunctive relief and to damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283 and 284.

151. Arcadia’s conduct, including its infringement of the ’114 Patent, is exceptional and entitles Plaintiffs to attorney’s fees and costs under 35 U.S.C. § 285.

CLAIM II: INFRINGEMENT OF U.S. PATENT NO. 7,700,139

152. Plaintiffs restate and incorporate by reference each of its allegations in Paragraphs 1-151 as if fully set forth herein.

153. Upon information and belief, Arcadia infringes at least claims 1-5 and 7-34 of the ’139 Patent, both literally and/or under the doctrine of equivalents.

154. Upon information and belief, Arcadia has directly infringed the ’139 Patent, both literally and/or under the doctrine of equivalents, through its development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat. Upon further information and belief, Arcadia will continue to infringe the ’139 Patent by continuing to develop, make including by breeding, growing and/or milling, use, offer to sell and/or sell high amylose wheat.

155. From at least as early as December 3, 2013, and no later than the service of this Complaint, Arcadia has been on notice of infringement of the ’139 Patent, and its infringement has been and continues to be willful and egregious, entitling Plaintiffs to enhanced damages in accordance with 35 U.S.C. § 284.

156. Upon information and belief, Arcadia has infringed the ’139 Patent with knowledge of and/or willful blindness to the fact that Arcadia’s development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat infringes the ’139 Patent; has disregarded an objectively high likelihood of infringement of the ’139 Patent; and has acted, continues to act, willfully, wantonly, and in deliberate disregard for Plaintiffs’ rights.

157. Upon information and belief, Arcadia has induced the infringement of the ’139 Patent by conducting taste tests and clinical studies with products derived from high amylose wheat flour.

158. Upon information and belief, Arcadia will continue to induce infringement of the ’139 Patent by engaging in further taste tests and clinical studies with products derived from high amylose wheat flour.

159. As the direct and proximate result of Arcadia’s conduct, Plaintiffs have suffered, and if Arcadia’s conduct is not stopped, will continue to suffer severe harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Plaintiffs’ remedy at law is inadequate, Plaintiffs seek, in addition to damages, injunctive relief.

160. Plaintiffs are entitled to injunctive relief and to damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283 and 284.

161. Arcadia’s conduct, including its infringement of the ’139 Patent, is exceptional and entitles Plaintiffs to attorney’s fees and costs under 35 U.S.C. § 285.

CLAIM III: INFRINGEMENT OF U.S. PATENT NO. 8,115,087

162. Plaintiffs restate and incorporate by reference each of its allegations in Paragraphs 1-161 as if fully set forth herein.

163. Upon information and belief, Arcadia infringes claims 1-34 of the ’087 Patent, both literally and/or under the doctrine of equivalents.

164. Upon information and belief, Arcadia has directly infringed the ’087 Patent, both literally and/or under the doctrine of equivalents, through its development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat. Upon further information and belief, Arcadia will continue to infringe the ’087 Patent by continuing to develop, make including by breeding, growing and/or milling, use, offer to sell and/or sell high amylose wheat.

165. From at least as early as December 3, 2013, and no later than the service of this Complaint, Arcadia has been on notice of infringement of the ’087 Patent, and its infringement has been and continues to be willful and egregious, entitling Plaintiffs to enhanced damages in accordance with 35 U.S.C. § 284.

166. Upon information and belief, Arcadia has infringed the ’087 Patent with knowledge of and/or willful blindness to the fact that Arcadia’s development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat infringes the ’087 Patent; has disregarded an objectively high likelihood of infringement of the ’087 Patent; and has acted, continues to act, willfully, wantonly, and in deliberate disregard for Plaintiffs’ rights.

167. As the direct and proximate result of Arcadia’s conduct, Plaintiffs have suffered, and if Arcadia’s conduct is not stopped, will continue to suffer severe harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Plaintiffs’ remedy at law is inadequate, Plaintiffs seek, in addition to damages, injunctive relief.

168. Plaintiffs are entitled to injunctive relief and to damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283 and 284.

169. Arcadia’s conduct, including its infringement of the ’087 Patent, is exceptional and entitles Plaintiffs to attorney’s fees and costs under 35 U.S.C. § 285.

CLAIM IV: INFRINGEMENT OF U.S. PATENT NO. 8,501,262

170. Plaintiffs restate and incorporate by reference each of its allegations in Paragraphs 1-169 as if fully set forth herein.

171. Upon information and belief, Arcadia infringes at least claims 1-11 and 15 of the ’262 Patent, both literally and/or under the doctrine of equivalents.

172. Upon information and belief, Arcadia has directly infringed the ’262 Patent, both literally and/or under the doctrine of equivalents, through its development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat. Upon further information and belief, Arcadia will continue to infringe the ’262 Patent by continuing to develop, make including by breeding, growing and/or milling, use, offer to sell and/or sell high amylose wheat.

173. From at least as early as October 6, 2016, and no later than the service of this Complaint, Arcadia has been on notice of infringement of the ’262 Patent, and its infringement has been and continues to be willful and egregious, entitling Plaintiffs to enhanced damages in accordance with 35 U.S.C. § 284.

174. Upon information and belief, Arcadia has infringed the ’262 Patent with knowledge of and/or willful blindness to the fact that Arcadia’s development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat infringes the ’262 Patent; has disregarded an objectively high likelihood of infringement of the ’262 Patent; and has acted, continues to act, willfully, wantonly, and in deliberate disregard for Plaintiffs’ rights.

175. As the direct and proximate result of Arcadia’s conduct, Plaintiffs have suffered, and if Arcadia’s conduct is not stopped, will continue to suffer severe harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Plaintiffs’ remedy at law is inadequate, Plaintiffs seek, in addition to damages, injunctive relief.

176. Plaintiffs are entitled to injunctive relief and to damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283 and 284.

177. Arcadia's conduct, including its infringement of the '262 Patent, is exceptional and entitles Plaintiffs to attorney's fees and costs under 35 U.S.C. § 285.

CLAIM V: INFRINGEMENT OF U.S. PATENT NO. 9,060,533

178. Plaintiffs restate and incorporate by reference each of its allegations in Paragraphs 1-177 as if fully set forth herein.

179. Upon information and belief, Arcadia infringes at least claims 1-17 and 23-30 of the '533 Patent, both literally and/or under the doctrine of equivalents.

180. Upon information and belief, Arcadia has directly infringed the '533 Patent, both literally and/or under the doctrine of equivalents, through its development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat. Upon further information and belief, Arcadia will continue to infringe the '533 Patent by continuing to develop, make including by breeding, growing and/or milling, use, offer to sell and/or sell high amylose wheat.

181. From at least as early as May 10, 2012, and no later than the service of this Complaint, Arcadia has been on notice of the application that issued as the '533 Patent and has been on notice of its infringement of the '533 Patent from at least June 23, 2015, and its infringement has been and continues to be willful and egregious, entitling Plaintiffs to enhanced damages in accordance with 35 U.S.C. § 284.

182. Upon information and belief, Arcadia has infringed the '533 Patent with knowledge of and/or willful blindness to the fact that Arcadia's development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat infringes the '533 Patent; has disregarded an objectively high likelihood of infringement of the

'533 Patent; and has acted, continues to act, willfully, wantonly, and in deliberate disregard for Plaintiffs' rights.

183. As the direct and proximate result of Arcadia's conduct, Plaintiffs have suffered, and if Arcadia's conduct is not stopped, will continue to suffer severe harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Plaintiffs' remedy at law is inadequate, Plaintiffs seek, in addition to damages, injunctive relief.

184. Plaintiffs are entitled to injunctive relief and to damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283 and 284.

185. Arcadia's conduct, including its infringement of the '533 Patent, is exceptional and entitles Plaintiffs to attorney's fees and costs under 35 U.S.C. § 285.

CLAIM VI: INFRINGEMENT OF U.S. PATENT NO. 9,585,413

186. Plaintiffs restate and incorporate by reference each of its allegations in Paragraphs 1-185 as if fully set forth herein.

187. Upon information and belief, Arcadia infringes at least claims 1-9 and 11-19 of the '413 Patent, both literally and/or under the doctrine of equivalents.

188. Upon information and belief, Arcadia has directly infringed the '413 Patent, both literally and/or under the doctrine of equivalents, through its development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat. Upon further information and belief, Arcadia will continue to infringe the '413 Patent by continuing to develop, make including by breeding, growing and/or milling, use, offer to sell and/or sell high amylose wheat.

189. From at least as early as February 13, 2014, and no later than the service of this Complaint, Arcadia has been on notice of the application which issued as the '413 Patent and has

been on notice of its infringement of the ’413 Patent from at least March 7, 2017, and its infringement has been and continues to be willful and egregious, entitling Plaintiffs to enhanced damages in accordance with 35 U.S.C. § 284.

190. Upon information and belief, Arcadia has infringed the ’413 Patent with knowledge of and/or willful blindness to the fact that Arcadia’s development, making including by breeding, growing and/or milling, using, offering to sell and/or selling of high amylose wheat infringes the ’413 Patent; has disregarded an objectively high likelihood of infringement of the ’413 Patent; and has acted, continues to act, willfully, wantonly, and in deliberate disregard for Plaintiffs’ rights.

191. Upon information and belief, Arcadia has induced the infringement of the ’413 Patent by conducting taste tests and clinical studies with products derived from high amylose wheat flour.

192. Upon information and belief, Arcadia will continue to induce infringement of the ’413 Patent by engaging in further taste tests and clinical studies with products derived from high amylose wheat flour.

193. As the direct and proximate result of Arcadia’s conduct, Plaintiffs have suffered, and if Arcadia’s conduct is not stopped, will continue to suffer severe harm, irreparable injury, and significant damages, in an amount to be proven at trial. Because Plaintiffs’ remedy at law is inadequate, Plaintiffs seek, in addition to damages, injunctive relief.

194. Plaintiffs are entitled to injunctive relief and to damages of no less than a reasonable royalty in accordance with 35 U.S.C. §§ 271, 281, 283 and 284.

195. Arcadia’s conduct, including its infringement of the ’413 Patent, is exceptional and entitles Plaintiffs to attorney’s fees and costs under 35 U.S.C. § 285.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs respectfully pray for entry of judgment as follows:

a) That Arcadia has infringed one or more claims of the patents-in-suit, and a declaration that any future acts within the scope of one or more claims of the patents-in-suit would be infringing;

b) That Arcadia has induced infringement of one or more claims of the patents-in-suit, and a declaration that any future acts within the scope of one or more claims of the patents-in-suit would be infringing;

c) That Plaintiffs recover all damages to which they are entitled under 35 U.S.C. § 284, including damages for research use and damages for Arcadia's unauthorized use of Plaintiffs' patents and technology that have allowed Arcadia to develop a commercial product and enter the market years sooner than if it had not infringed the Arista Patents, but in no event less than a reasonable royalty;

d) That Arcadia be preliminarily and permanently enjoined from further infringing the patents-in-suit;

e) That Plaintiffs, as the prevailing party, shall recover from Arcadia all taxable costs of court;

f) That Plaintiffs shall recover from Arcadia all pre- and post-judgment interest on the damages award, calculated at the highest interest rates allowed by law;

g) That Arcadia's conduct was willful and that Plaintiffs should therefore recover treble damages, including attorney's fees, expenses, and costs incurred in this action, and an increase in the damage award pursuant to 35 U.S.C. § 284;

h) That this case is exceptional and that Plaintiffs shall therefore recover their attorney's fees and other recoverable expenses, under 35 U.S.C. § 285; and

i) That Plaintiffs shall recover from Arcadia such other and further relief as the Court deems appropriate.

JURY DEMAND

Plaintiffs request a trial by jury as to all issues triable herein.

Dated: April 1, 2019

/s/ Geoffrey G. Grivner

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