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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549**

**FORM 10-Q**

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(Mark One)

**QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended September 30, 2018

OR

**TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission File Number: 001-37383

**Arcadia Biosciences, Inc.**

(Exact Name of Registrant as Specified in its Charter)

**Delaware**  
(State or other jurisdiction of  
incorporation or organization)  
**202 Cousteau Place, Suite 105**  
**Davis, CA**  
(Address of Principal Executive Offices)

**81-0571538**  
(I.R.S. Employer  
Identification No.)

**95618**  
(Zip Code)

Registrant's telephone number, including area code: (530) 756-7077

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.  
Yes  No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes  No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
Emerging growth company	<input checked="" type="checkbox"/>		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes  No

As of October 26, 2018, the registrant had 4,774,919 shares of common stock outstanding, \$0.001 par value per share.

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Arcadia Biosciences, Inc.  
FORM 10-Q FOR THE QUARTER ENDED September 30, 2018

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ITEM 1. CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

**Arcadia Biosciences, Inc.**  
**Condensed Consolidated Balance Sheets**  
**(Unaudited)**  
*(In thousands, except share data)*

	<u>September 30, 2018</u>	<u>December 31, 2017</u>
<b>Assets</b>		
Current assets:		
Cash and cash equivalents	\$ 6,669	\$ 9,125
Short-term investments	17,931	3,898
Accounts receivable	193	1,231
Unbilled revenue	168	4
Inventories — current	354	229
Prepaid expenses and other current assets	888	560
Total current assets	<u>26,203</u>	<u>15,047</u>
Property and equipment, net	265	299
Inventories — noncurrent	742	1,168
Other noncurrent assets	7	56
Total assets	<u>\$ 27,217</u>	<u>\$ 16,570</u>
<b>Liabilities and stockholders' equity</b>		
Current liabilities:		
Accounts payable and accrued expenses	\$ 2,303	\$ 2,496
Amounts due to related parties	18	29
Unearned revenue — current	316	1,000
Total current liabilities	<u>2,637</u>	<u>3,525</u>
Unearned revenue — noncurrent	—	2,038
Common stock warrant liabilities	8,658	—
Other noncurrent liabilities	3,000	3,000
Total liabilities	<u>14,295</u>	<u>8,563</u>
Stockholders' equity:		
Common stock, \$0.001 par value—150,000,000 shares authorized as of September 30, 2018 and December 31, 2017; 4,774,919 and 2,134,154 shares issued and outstanding as of September 30, 2018 and December 31, 2017, respectively	45	42
Additional paid-in capital	190,599	175,223
Accumulated deficit	(177,720)	(167,257)
Accumulated other comprehensive loss	(2)	(1)
Total stockholders' equity	<u>12,922</u>	<u>8,007</u>
Total liabilities and stockholders' equity	<u>\$ 27,217</u>	<u>\$ 16,570</u>

See accompanying notes to the unaudited condensed consolidated financial statements.

**Arcadia Biosciences, Inc.**  
**Condensed Consolidated Statements of Operations and Comprehensive Income (Loss)**

(Unaudited)

(In thousands, except share and per share data)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
<b>Revenues:</b>				
Product	\$ 144	\$ 82	\$ 393	\$ 482
License	10	144	100	353
Contract research and government grants	216	363	527	1,763
Total revenues	<u>370</u>	<u>589</u>	<u>1,020</u>	<u>2,598</u>
<b>Operating expenses:</b>				
Cost of product revenues	124	40	431	262
Research and development	1,334	1,749	4,524	5,241
Selling, general and administrative	3,011	2,415	8,581	8,410
Total operating expenses	<u>4,469</u>	<u>4,204</u>	<u>13,536</u>	<u>13,913</u>
Loss from operations	<u>(4,099)</u>	<u>(3,615)</u>	<u>(12,516)</u>	<u>(11,315)</u>
Interest expense	—	(43)	—	(747)
Other income, net	134	46	266	246
Initial loss on common stock warrant and common stock adjustment feature liability	—	—	(4,000)	—
Change in fair value of common stock warrant liabilities and common stock adjustment feature liability	8,421	—	5,986	—
Offering costs	(1)	—	(2,544)	—
Loss on extinguishing of debt	—	(900)	—	(900)
Net income (loss) before income taxes	<u>4,455</u>	<u>(4,512)</u>	<u>(12,808)</u>	<u>(12,716)</u>
Income tax provision	(5)	(13)	(26)	(31)
Net income (loss)	<u>\$ 4,450</u>	<u>\$ (4,525)</u>	<u>\$ (12,834)</u>	<u>\$ (12,747)</u>
<b>Net income (loss) per share attributable to common stockholders:</b>				
Basic and diluted	<u>\$ 0.93</u>	<u>\$ (2.12)</u>	<u>\$ (3.74)</u>	<u>\$ (5.89)</u>
<b>Weighted-average number of shares used in per share calculations:</b>				
Basic and diluted	<u>4,774,732</u>	<u>2,133,846</u>	<u>3,427,799</u>	<u>2,163,604</u>
<b>Other comprehensive income (loss), net of tax</b>				
Unrealized losses (gains) on available-for-sale securities	(2)	8	(1)	14
Other comprehensive loss (income)	<u>(2)</u>	<u>8</u>	<u>(1)</u>	<u>14</u>
Comprehensive income (loss) attributable to common stockholders	<u>\$ 4,448</u>	<u>\$ (4,517)</u>	<u>\$ (12,835)</u>	<u>\$ (12,733)</u>

See accompanying notes to the unaudited condensed consolidated financial statements.

**Arcadia Biosciences, Inc.**  
**Condensed Consolidated Statements of Stockholders' Equity**

(Unaudited)

(In thousands, except share data)

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss)	Total Stockholders' Equity
	Shares	Amount				
Balance at January 1, 2017	2,224,384	\$ 44	\$ 173,723	\$ (151,550)	\$ (19)	\$ 22,198
Issuance of shares related to employee stock purchase plan	1,964	—	24	—	—	24
Stock-based compensation	—	—	1,474	—	—	1,474
Other comprehensive income	—	—	—	—	18	18
Exchange of membership interest in unconsolidated entity for common stock	(92,194)	(2)	2	—	—	—
Net loss	—	—	—	(15,707)	—	(15,707)
Balance at December 31, 2017	2,134,153	\$ 42	\$ 175,223	\$ (167,257)	\$ (1)	\$ 8,007
Impact of adoption of Topic 606 (Note 5)	—	—	—	2,371	—	2,371
Issuance of shares related to employee stock option exercises	44,354	—	963	—	—	963
Issuance of shares related to employee stock purchase plan	1,122	—	6	—	—	6
Issuance of shares related to Purchase Agreement	1,201,634	1	(1)	—	—	—
Issuance of placement agent warrants related to Purchase Agreement	—	—	526	—	—	526
Reclassification of common stock adjustment feature liability balance	—	—	8,378	—	—	8,378
Issuance of shares related to June Offering	1,392,345	2	4,976	—	—	4,978
Offering costs related to June Offering	—	—	(897)	—	—	(897)
Issuance of placement agent warrants related to June Offering	—	—	427	—	—	427
Stock-based compensation	—	—	998	—	—	998
Issuance of shares related to reverse stock split	1,311	—	—	—	—	—
Other comprehensive income	—	—	—	—	(1)	(1)
Net loss	—	—	—	(12,834)	—	(12,834)
Balance at September 30, 2018	4,774,919	\$ 45	\$ 190,599	\$ (177,720)	\$ (2)	\$ 12,922

See accompanying notes to the unaudited condensed consolidated financial statements.

**Arcadia Biosciences, Inc.**  
**Condensed Consolidated Statements of Cash Flows**  
(Unaudited)  
(In thousands)

	<u>Nine Months Ended September 30,</u>	
	<u>2018</u>	<u>2017</u>
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>		
Net loss	\$ (12,834)	\$ (12,747)
Adjustments to reconcile net loss to cash used in operating activities:		
Initial loss on common stock warrant and common stock adjustment feature liabilities	4,000	—
Change in fair value of common stock warrant liabilities and common stock adjustment feature liability	(5,986)	—
Offering costs	2,544	—
Depreciation and amortization	123	215
Gain on disposal of equipment	(3)	(3)
Net amortization of investment premium	(115)	(82)
Stock-based compensation	998	1,177
Loss on sale of investments	—	2
Accretion of debt discount	—	98
Loss on extinguishment of debt	—	900
Changes in operating assets and liabilities:		
Accounts receivable	1,038	276
Unbilled revenue	(164)	123
Inventories	301	164
Prepaid expenses and other current assets	(334)	(222)
Other noncurrent assets	—	(245)
Accounts payable and accrued expenses	(142)	(496)
Amounts due to related parties	(11)	1
Unearned revenue	(351)	(443)
Net cash used in operating activities	<u>(10,936)</u>	<u>(11,282)</u>
<b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>		
Proceeds from sale of property and equipment	10	4
Purchases of property and equipment	(89)	(77)
Purchases of investments	(22,871)	(19,405)
Proceeds from sales and maturities of investments	8,950	57,778
Net cash (used in) provided by investing activities	<u>(14,000)</u>	<u>38,300</u>
<b>CASH FLOWS FROM FINANCING ACTIVITIES:</b>		
Proceeds from issuance of common stock and warrants from Purchase Agreement	10,000	—
Payments of offering costs relating to Purchase Agreement	(1,308)	—
Proceeds from issuance of common stock and warrants from June Offering	14,000	—
Payments of offering costs relating to June Offering	(1,181)	—
Payment of debt extinguishment costs	—	(1,125)
Proceeds from exercise of stock options and ESPP purchases	969	24
Payment on notes payable	—	(25,000)
Net cash provided by (used in) financing activities	<u>22,480</u>	<u>(26,101)</u>
Net (decrease) increase in cash and cash equivalents	(2,456)	917
Cash and cash equivalents — beginning of period	9,125	2,013
Cash and cash equivalents — end of period	<u>\$ 6,669</u>	<u>\$ 2,930</u>
<b>SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION:</b>		
Cash paid for interest	<u>\$ —</u>	<u>\$ 746</u>
Cash paid for income taxes	<u>\$ 24</u>	<u>\$ 2</u>
<b>NONCASH INVESTING AND FINANCING ACTIVITIES:</b>		
Common stock warrants issued to placement agent and included in offering costs related to Purchase Agreement	<u>\$ 526</u>	<u>\$ —</u>
Common stock warrants issued to placement agent and included in offering costs related to June Offering	<u>\$ 239</u>	<u>\$ —</u>
Purchases of property and equipment included in accounts payable and accrued expenses	<u>\$ —</u>	<u>\$ 2</u>
Reclassification of common stock adjustment feature liability balance to equity	<u>\$ 8,378</u>	<u>\$ —</u>
Exchange of membership interest in unconsolidated entity for common stock	<u>\$ —</u>	<u>\$ 2</u>

See accompanying notes to the unaudited condensed consolidated financial statements.

**Arcadia Biosciences, Inc.**  
**Notes to Condensed Consolidated Financial Statements**  
**(Unaudited)**

**1. Description of Business and Basis of Presentation**

***Organization***

Arcadia Biosciences, Inc. (the “Company”) was incorporated in Arizona in 2002 and maintains its headquarters in Davis, California, with additional facilities in Phoenix, Arizona, and American Falls, Idaho. The Company was reincorporated in Delaware in March 2015.

We are a consumer-driven, agricultural food ingredient company. We aim to create value across the agricultural production and supply chain beginning with enhanced crop productivity for farmers and ultimately delivering accelerated innovation in nutritional quality consumer foods. We use state of the art gene-editing technology and advanced breeding techniques to naturally enhance the nutritional quality of grains and oilseeds to address the rapidly evolving trends in consumer health and nutrition. In addition, we have developed high value crop productivity traits designed to enhance farm economics.

In February 2012, the Company formed Verdeca LLC (“Verdeca,” see Note 6), which is jointly owned with Bioceres, Inc. (“Bioceres”), a U.S. wholly owned subsidiary of Bioceres, S.A., an Argentine corporation. Bioceres, S.A. is an agricultural investment and development cooperative. Verdeca, which is consolidated by the Company, was formed to develop and deregulate soybean varieties using both partners’ agricultural technologies.

***Common Stock Authorized***

In June 2017, the shareholders approved an amendment to the Company’s Amended and Restated Certificate of Incorporation to reduce the number of authorized common stock from four hundred million to one hundred and fifty million shares.

***Reverse Stock Split***

In January 2018, the Company’s board of directors and its shareholders approved a reverse split of 1:20 on the Company’s issued and outstanding common stock which became effective on January 23, 2018. All issued and outstanding common stock, options to purchase common stock and per share amounts contained in the condensed consolidated financial statement have been retroactively adjusted to reflect the reverse stock split for all periods presented. The reverse stock split did not change the total number of authorized shares of common stock which remained at one hundred and fifty million shares.

***Basis of Presentation and Principles of Consolidation***

The accompanying unaudited condensed consolidated financial statements include the accounts of the Company and Verdeca in accordance with accounting principles generally accepted in the United States (“GAAP”) for interim financial statements and are in the form prescribed by the Securities and Exchange Commission (the “SEC”) in instructions to Form 10-Q and Rule 10-01 of Regulation S-X. In the opinion of management, the accompanying condensed consolidated financial statements reflect all adjustments, consisting of normal recurring adjustments, considered necessary for a fair statement of the Company’s financial position, results of operations and cash flows for the periods indicated. All material intercompany accounts and transactions have been eliminated in consolidation. The Company uses a qualitative approach in assessing the consolidation requirement for variable interest entities (“VIEs”). This approach focuses on determining whether the Company has the power to direct the activities of the VIE that most significantly affect the VIE’s economic performance and whether the Company has the obligation to absorb losses, or the right to receive benefits, that could potentially be significant to the VIE. For all periods presented, the Company has determined that it is the primary beneficiary of Verdeca, which is a VIE. The Company evaluates its relationships with the VIEs upon the occurrence of certain significant events that affect the design, structure or other factors pertinent to the primary beneficiary determination. Interim results are not necessarily indicative of results for any other interim period or for the full fiscal year. The information included in these condensed consolidated financial statements and notes thereto should be read in conjunction with Management’s Discussion and Analysis of Financial Condition and Results of Operations included herein and Management’s Discussion and Analysis of Financial Condition and Results of Operations and the consolidated financial statements and notes thereto for the fiscal year ended December 31, 2017 included in the Company’s Annual Report on Form 10-K, filed with the SEC on March 20, 2018.

## **Liquidity and Capital Resources**

As of September 30, 2018, the Company had an accumulated deficit of \$177.7 million, cash and cash equivalents of \$6.7 million and short-term investments of \$17.9 million. Since the Company's inception, substantially all of the Company's efforts have been devoted to research and development activities, including the discovery, advancement, and testing of the Company's traits and products incorporating the Company's traits. To date, we have not generated revenues from sales of commercial products, other than limited revenues from the Company's SONOVA products.

In March 2018, the Company executed securities purchase agreements with institutional investors in connection with a private placement of common stock and warrants in the amount of \$10.0 million, exclusive of any related transaction fees, which funding improved the Company's liquidity position. In June 2018, the Company executed agreements with institutional investors for the purchase of common stock and warrants in the amount of \$14.0 million, exclusive of related transaction fees, further improving the Company's liquidity position.

With cash and cash equivalents of \$6.7 million and short-term investments of \$17.9 million as of September 30, 2018, the Company believes that it currently has sufficient cash to fund its operations beyond the look forward period of 12 months from the issuance of these condensed consolidated financial statements.

The Company may seek to raise additional funds through debt or equity financings, if necessary. The Company may also consider entering into additional partner arrangements or pursuing additional government grants. The sale of additional equity would result in dilution to the Company's stockholders. The incurrence of debt would result in debt service obligations, and the instruments governing such debt could provide for additional operating and financing covenants that would restrict operations. If the company does require additional funds and are not able to secure adequate additional funding, the Company may be forced to reduce spending, extend payment terms with suppliers, liquidate assets, or suspend or curtail planned development programs. Any of these actions could materially harm the business, results of operations and financial condition.

## **2. Recent Accounting Pronouncements**

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2014-09, *Revenue from Contracts with Customers*, which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The ASU replaces most existing revenue recognition guidance in U.S. GAAP. In August 2015, the FASB issued ASU No. 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of Effective Date*, which defers the effective date of ASU No. 2014-09 by one year allowing early adoption as of the original effective date January 1, 2017. The deferral results in the new revenue standard being effective for the Company as of January 1, 2018. See Note 5.

In January 2016, the FASB issued ASU No. 2016-01, *Financial Instruments – Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. The amendments in this update impacts classification, additional fair value measurement, impairment assessment of equity investments and current required disclosures. This standard is effective for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years, with early adoption permitted if the entity meets certain early application guidance. The Company adopted ASU No. 2016-01 with no material impact to the condensed consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*. Based on the new standard, lessees would recognize lease assets and lease liabilities for those leases classified as operating leases under previous GAAP and disclose qualitative and quantitative information about leasing arrangements with terms longer than 12 months. The new standard allows a modified-retrospective approach to adoption and is effective for interim and annual periods beginning on January 1, 2019. The adoption will require recording right-of-use assets and corresponding lease obligation liabilities for the current operating leases. Additionally, in July 2018, the FASB issued ASU No. 2018-10, *Codification Improvements to Topic 842, Leases* and ASU No. 2018-11, *Leases (Topic 842) – Targeted Improvements*, both of which are also being evaluated. The Company expects that the adoption of ASU No. 2016-02 will not have a material impact on our Condensed Consolidated Statements of Operations and Comprehensive Loss. The Company continues to evaluate the impact of the adoption of ASU No. 2016-02, ASU No. 2018-10, and ASU No. 2018-11 on its condensed consolidated financial statements and expects adoption to take place on January 1, 2019.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. The amendments affect loans, debt securities, trade receivables, net investments in leases, off-balance-sheet credit exposures, reinsurance receivables, and any other financial assets not excluded from the scope that have the contractual right to receive cash. The amendments in this update are effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. The Company is currently evaluating the impact of the adoption of ASU No. 2016-13 on its condensed consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*. The amendments address cash flow issues such as debt prepayment or debt extinguishment costs and zero-coupon debt instruments. The amendments in this update are effective for fiscal years beginning after December 15, 2018, and interim periods within fiscal years beginning after December 15, 2019. Early adoption is permitted, including adoption in an interim period. The amendments are to be applied using a retrospective transition method to each period presented. If it is impractical to retrospectively apply, it can be applied prospectively as of the earliest date practicable. The Company adopted ASU No. 2016-15 in the current year with no material impact to the condensed consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation – Stock Compensation (Topic 718): Scope of Modification Accounting*. The amendments affect any entity that changes the terms or conditions of a share-based payment award. The amendments in this update are effective for all entities for annual periods, and interim periods within those annual periods, beginning after December 15, 2017. The Company adopted ASU No. 2017-09 with no material impact to the condensed consolidated financial statements.

In February 2018, the FASB issued ASU No. 2018-03, *Technical Corrections and Improvements to Financial Instruments – Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*, which retained the current framework for accounting for financial instruments in generally accepted accounting principles (GAAP) but made targeted improvements to address certain aspects of recognition, measurement, presentation, and disclosure of financial instruments. The amendments in this ASU are effective for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years beginning after June 15, 2018. The Company is currently evaluating the impact of the adoption of ASU No. 2018-03 on its condensed consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-13 *Fair Value Measurement (Topic 820) – Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement*. The amendments affect any entity required to make disclosures about recurring or nonrecurring fair value measurements. The amendments are effective for all entities for fiscal years beginning after December 15, 2019. The Company is currently evaluating the impact of the adoption of ASU No. 2018-13 on its condensed consolidated financial statements.

### 3. SONOVA® Gamma Linolenic Acid (“GLA”) Safflower Oil Inventory

Raw materials costs consist primarily of seed production costs incurred by the Company’s contracted cooperators. Finished goods inventories consist of GLA oil that is available for sale. The Company recorded a \$46,000 write-down of inventory for the three months ended September 30, 2018 and \$223,000 for the nine months ended September 30, 2018. The Company did not record an inventory write-down for the three and nine months ended September 30, 2017. Inventories consist of the following (in thousands):

	September 30, 2018	December 31, 2017
Raw materials	\$ 45	\$ 45
Finished goods	1,051	1,352
Inventories	<u>\$ 1,096</u>	<u>\$ 1,397</u>

### 4. Investments and Fair Value of Financial Instruments

#### *Available-for-Sale Investments*

The Company classified short-term investments as “available-for-sale.” These short-term investments are free of trading restrictions. The investments are carried at fair value, based on quoted market prices or other readily available market information. Unrealized gains and losses, net of taxes, are included in accumulated other comprehensive loss, which is reflected as a separate component of stockholder’s equity in the Consolidated Balance Sheets. Gains and losses are recognized when realized in the Consolidated Statements of Operations and Comprehensive Loss.

The following tables summarize the amortized cost and fair value of the available-for-sale investment securities portfolio at September 30, 2018 and December 31, 2017, and the corresponding amounts of unrealized gains and losses recognized in accumulated other comprehensive income:

<i>(Dollars in thousands)</i>	<u>Amortized Cost</u>	<u>Unrealized Gains</u>	<u>Unrealized Losses</u>	<u>Estimated Fair Value</u>
<b>September 30, 2018</b>				
Cash equivalents:				
Money market funds	6,325	—	—	6,325
Short-term investments:				
Treasury Bills	11,163	—	(2)	11,161
U.S. government securities	2,797	—	—	2,797
Commercial paper	3,973	—	—	3,973
<b>Total Assets at Fair Value</b>	<u>\$ 24,258</u>	<u>\$ —</u>	<u>\$ (2)</u>	<u>\$ 24,256</u>

<i>(Dollars in thousands)</i>	<u>Amortized Cost</u>	<u>Unrealized Gains</u>	<u>Unrealized Losses</u>	<u>Estimated Fair Value</u>
<b>December 31, 2017</b>				
Cash equivalents:				
Money market funds	\$ 8,943	\$ —	\$ —	\$ 8,943
Short-term investments:				
Commercial paper	1,399	—	—	1,399
U.S. government securities	2,500	—	(1)	2,499
<b>Total Assets at Fair Value</b>	<u>\$ 12,842</u>	<u>\$ —</u>	<u>\$ (1)</u>	<u>\$ 12,841</u>

The Company did not have any investment categories that were in a continuous unrealized loss position for more than three months as of September 30, 2018. The unrealized gains and losses amounts above are included in accumulated other comprehensive income or loss.

As of September 30, 2018, for fixed income securities that were in unrealized loss positions, the Company has determined that (i) it does not have the intent to sell any of these investments, and (ii) it is not more likely than not that it will be required to sell any of these investments before recovery of the entire amortized cost basis. The Company anticipates that it will recover the entire amortized cost basis of such fixed income securities and has determined that no other-than-temporary impairments associated with credit losses were required to be recognized during the three and nine months ended September 30, 2018.

#### ***Fair Value Measurement***

Fair value accounting is applied for all financial assets and liabilities and non-financial assets and liabilities that are recognized or disclosed at fair value in the condensed consolidated financial statements on a recurring basis. Assets and liabilities recorded at fair value in the condensed consolidated financial statements are categorized based upon the level of judgment associated with the inputs used to measure their fair value. Hierarchical levels, which are directly related to the amount of subjectivity associated with the inputs to the valuation of these assets or liabilities, are as follows:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the Company can access at the measurement date.
- Level 2 inputs are observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 inputs are unobservable inputs for the asset or liability.

The carrying values of the Company's financial instruments, including cash equivalents, accounts receivable, and accounts payable, approximated their fair values due to the short period of time to maturity or repayment.

The following table sets forth the fair value of the Company's financial assets and liabilities as of September 30, 2018 and December 31, 2017:

	Fair Value Measurements at September 30, 2018			
	Level 1	Level 2	Level 3	Total
<i>(Dollars in thousands)</i>				
<b>Assets at Fair Value</b>				
Cash equivalents:				
Money market funds	\$ 6,325	\$ —	\$ —	\$ 6,325
Short-term investments:				
Treasury Bills	11,161	—	—	11,161
U.S. government securities	2,797	—	—	2,797
Commercial paper	—	3,973	—	3,973
<b>Total Assets at Fair Value</b>	<b>\$ 20,283</b>	<b>\$ 3,973</b>	<b>\$ —</b>	<b>\$ 24,256</b>
<b>Liabilities at Fair Value</b>				
Common stock warrant liabilities	\$ —	\$ —	\$ 8,658	\$ 8,658
<b>Total Liabilities at Fair Value</b>	<b>\$ —</b>	<b>\$ —</b>	<b>\$ 8,658</b>	<b>\$ 8,658</b>

	Fair Value Measurements at December 31, 2017			
	Level 1	Level 2	Level 3	Total
<i>(Dollars in thousands)</i>				
<b>Assets at Fair Value</b>				
Cash equivalents:				
Money market funds	\$ 8,943	\$ —	\$ —	\$ 8,943
Short-term investments:				
Commercial paper	—	1,399	—	1,399
U.S. government securities	2,499	—	—	2,499
<b>Total Assets at Fair Value</b>	<b>\$ 11,442</b>	<b>\$ 1,399</b>	<b>\$ —</b>	<b>\$ 12,841</b>

The Company uses the market approach technique to value its financial instruments and there were no changes in valuation techniques during 2018 or 2017. The Company's financial instruments consist primarily of cash and cash equivalents, accounts receivable, short-term investments and accounts payable and accrued liabilities. For accounts receivable, accounts payable and accrued liabilities, the carrying amounts of these financial instruments as of September 30, 2018 and December 31, 2017 were considered representative of their fair values due to their short term to maturity or repayment. Cash equivalents are carried at cost, which approximates their fair value.

The Company's Level 3 liabilities, which were measured and recorded on a recurring basis, consist of liabilities related to the Purchase Agreement and the June Offering described in Note 9. The following table sets forth the establishment of these liabilities, as well as a summary of the changes in the fair value and other adjustments (in thousands):

	(Level 3)			Total
	Common Stock Warrant Liability - Purchase Agreement	Common Stock Adjustment Feature Liability - Purchase Agreement	Common Stock Warrant Liability - June Offering	
<i>(Dollars in thousands)</i>				
Balance as of December 31, 2017	\$ —	\$ —	\$ —	\$ —
Common stock and warrants issued in conjunction with securities purchase agreements	10,200	3,800	9,022	23,022
Change in fair value and other adjustments	(6,192)	4,578	(4,372)	(5,986)
Reclassification of common stock adjustment feature liability balance to equity	—	(8,378)	—	(8,378)
<b>Balance as of September 30, 2018</b>	<b>\$ 4,008</b>	<b>\$ —</b>	<b>\$ 4,650</b>	<b>\$ 8,658</b>

In determining the fair value, the Company uses various valuation approaches within the fair value measurement framework. The valuation methodologies used for the Company's instruments measured at fair value and their classification in the valuation hierarchy are summarized below:

- *Money market funds, treasury bills, and U.S. government securities* – Investments in money market funds, treasury bills, and U.S. government securities are classified within Level 1. At September 30, 2018 and December 31, 2017, these investments were included on the consolidated balance sheets in cash and cash equivalents and short-term investments.
- *Commercial paper* – Investments in commercial paper are classified within Level 2. At September 30, 2018 and December 31, 2017, commercial paper investments were included on the consolidated balance sheets in short-term investments.
- *Purchase Agreement common stock warrant liability* – The Company has outstanding warrants to purchase 1,282,832 shares of common stock that it issued to certain accredited investors and its placement agent on March 22, 2018 (as described in Note 9). The common stock warrants were classified as a liability within Level 3 based on the instrument's adjustment features and a contingent cash payment feature. The Company utilized a binomial-lattice pricing model (the Monte Carlo simulation model) that involves a market condition to estimate the fair value of the common stock warrants. The application of the Monte Carlo simulation model requires the use of several assumptions including the Company's stock price, expected life of the warrants, stock price volatility determined from the Company's historical stock prices and the volatility of a peer group, and the risk-free interest rate for the term of the warrant. Although the terms of the common stock warrants became known and fixed following the May 7, 2018 shareholder meeting, the common stock warrants remained a liability given the contingent cash payment feature was still present. The estimated fair value of the common stock warrant liability was subsequently remeasured at September 30, 2018 utilizing a Black Scholes Merton model with the changes recorded on the Company's condensed consolidated statements of operations and comprehensive loss.
- *Purchase Agreement common stock adjustment feature liability* – The Company issued 1,201,634 shares of common stock to certain accredited investors following the closing of the Private Placement on March 22, 2018 (as described in Note 9). The number of common stock shares issued, along with the number and exercise price of the common stock warrants issued, was subject to price adjustments. This common stock adjustment feature was initially classified as a liability within Level 3 based on the instruments adjustment features. The Company utilizes a binomial-lattice pricing model (the Monte Carlo simulation model) that involves a market condition to estimate the fair value of this feature. The application of the Monte Carlo simulation model requires the use of several assumptions including the Company's stock price, expected life of the feature, stock price volatility determined from the Company's historical stock prices and the volatility of a peer group, and risk-free interest rate for the expected life of the common stock adjustment feature. The estimated fair value of the common stock adjustment feature was subsequently remeasured at March 31, 2018 and at May 7, 2018 with the changes recorded on the Company's condensed consolidated statements of operations and comprehensive loss. The liability balance at May 7, 2018 was reclassified to equity as the number of common stock shares issuable became known and fixed.
- *June Offering common stock warrant liability* – The Company has outstanding warrants to purchase 1,461,962 shares of common stock that it issued to certain accredited investors on June 14, 2018 (as described in Note 9). The common stock warrants are classified as a liability within Level 3 due to a contingent cash payment feature. The initial estimated fair value of the common stock warrant liability was subsequently remeasured at September 30, 2018 with the changes recorded on the Company's condensed consolidated statements of operations and comprehensive loss.

## **5. Adoption of ASC Topic 606, "Revenue from Contracts with Customers"**

In May 2014, the FASB issued ASU No. 2014-09 (Topic 606) "Revenue from Contracts with Customers." Topic 606 supersedes the revenue recognition requirements in Topic 605 "Revenue Recognition" (Topic 605) and requires entities to recognize revenue when control of the promised goods or services is transferred to customers at an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services.

On January 1, 2018, the Company adopted Topic 606 using the modified retrospective method applied to those contracts which were not completed as of January 1, 2018. Results for reporting periods beginning after January 1, 2018 are presented in accordance with Topic 606, while prior period amounts are not adjusted and continue to be reported in accordance with the Company's historical accounting under Topic 605. With the adoption of Topic 606, tax recognition will now follow book recognition for up-front license and commercial value sharing fees. Annual license fees and milestone fees may continue to be recognized differently for book and tax to the extent that revenue recognized for book is prior to cash receipts.

The Company recorded a net reduction to its accumulated deficit of \$2.4 million on January 1, 2018, with a corresponding reduction to unearned revenue, due to the cumulative impact of adopting Topic 606. The adjustment pertained to up-front license fees which were previously deferred for which the performance obligation was determined to be complete as of the date of adoption. The impact to revenues with the adoption of Topic 606 for the three and nine months ended September 30, 2018 was a decrease of \$82,000 and \$246,000, respectively, relating to the above mentioned up-front license fee revenues.

Revenues represent amounts earned from product sales, grants and contract research and license agreements. As it pertains to product sales and grants and contract research, there are no changes from Topic 605 compared to the adoption of Topic 606. There is a change in methodology from Topic 605 to Topic 606 that impacts the recognition of revenues from license agreements. The Company's license agreements have one performance obligation and various payment terms over a long commercial development timeline ranging from approximately 10 to 20 years. These payment terms may contain, but are not limited to:

1. Up-front non-refundable license fees
2. Annual license fees
3. Milestone fees
4. Commercial value share fees

Under Topic 605, up-front license fees were deferred and amortized over the estimated commercial development timeline. Under Topic 606, such fees will be recognized upon execution of the agreement. The deferred balance remaining from the existing portfolio of license agreements that were executed prior to January 1, 2018 were recorded as a reduction to accumulated deficit upon the adoption of ASC 606 on January 1, 2018. Up-front license fees for newly executed agreements will be recognized upon execution.

Under Topic 605, annual license fees were recognized on the annual due date as such fees were not due if a milestone was met or if termination of the agreement occurred. Under Topic 606, annual license fees are variable consideration that is initially constrained and recognized only when it is probable that such amounts would not be reversed. The evaluation and analysis of such fees is performed and once an annual license fee is deemed probable to have been earned, it is recognized in full in that period.

Under Topic 605, milestone fees were recognized when the Company and partner licensee mutually agreed the milestone had been achieved. Under Topic 606, milestone fees are variable consideration that is initially constrained and recognized only when it is probable that such amounts would not be reversed. The Company assesses when achievement of milestones are probable in order to determine the timing of revenue recognition for milestone fees. Once a milestone is deemed probable to be achieved, it is recognized in full in that period.

There is no change from Topic 605 to Topic 606 pertaining to future commercial value revenue recognition. Commercial value share fees will be recognized based on subsequent sales by the licensee. The Company has not recognized any of these fees to date and does not expect to do so for several years.

## **6. Variable Interest Entity**

In February 2012, the Company formed Verdeca LLC ("Verdeca"), which is equally owned with Bioceres, Inc. ("Bioceres"), a U.S. wholly owned subsidiary of Bioceres, S.A., an Argentine corporation. Bioceres, S.A. is an agricultural investment and development cooperative owned by approximately 300 shareholders, including some of South America's largest soybean growers. Verdeca was formed to develop and deregulate soybean varieties using both partners' agricultural technologies.

The Company determined that a de facto agency relationship between the Company and Bioceres exists. The Company considers qualitative factors in assessing the primary beneficiary which include understanding the purpose and design of the VIE, associated risks that the VIE creates, activities that could be directed by the Company, and the expected relative impact of those activities on the economic performance of the VIE. Based on an evaluation of these factors, the Company concluded that it is the primary beneficiary of Verdeca.

Both the Company and Bioceres incur expenses in support of specific activities, as agreed upon by joint work plans, which apply fair market value to each partner's activities. Unequal contributions of services are equalized by the partners through cash payments. Verdeca is not the primary obligor for these activities performed by the Company or Bioceres. Under the terms of the joint development agreement, the Company has incurred direct expenses and allocated overhead in the amounts of \$286,000, \$261,000, for the three months ended September 30, 2018 and 2017, respectively; and \$799,000, and \$487,000 for the nine months ended September 30, 2018 and 2017, respectively.

## **7. Collaborative Arrangements**

In August 2017, the Company entered into a collaborative arrangement for the research, development and commercialization of an improved wheat quality trait in North America. This collaborative arrangement is a contractual agreement with Dow AgroSciences, LLC (“Dow”) and involves a joint operating activity where both Arcadia and Dow are active participants in the activities of the collaboration. Arcadia and Dow participate in the research and development, and Arcadia has the primary responsibility for the intellectual property strategy while Dow will generally lead the marketing and commercialization efforts. Both parties are exposed to significant risks and rewards of the collaboration and the agreement includes both cost sharing and profit sharing. The activities are performed with no guarantee of either technological or commercial success.

The Company accounts for research and development (“R&D”) costs in accordance ASC 730, *Research and Development*, which states R&D costs must be charged to expense as incurred. Accordingly, internal R&D costs are expensed as incurred. Third-party R&D costs are expensed when the contracted work has been performed or as milestone results are achieved.

## **8. Debt**

### ***Long-term Debt***

There was no long-term debt as of September 30, 2018 and December 31, 2017.

### ***Term Loan***

In December 2015, the Company entered into a loan and security agreement (“Term Loan”) with Silicon Valley Bank (the “Bank”) providing for a senior secured term loan facility in the amount of \$25.0 million, which proceeds were used to repay all existing debt. In July 2017, the Company repaid the Term Loan with Silicon Valley Bank, along with the \$625,000 end-of-term fee and \$500,000 prepayment fee. The prepayment and end of term fees of \$1.1 million were recorded as a loss on extinguishment of debt, along with \$41,000 of deferred loan issuance fees, partially offset by \$267,000 of end of term fees previously amortized, netting to a loss of \$900,000. As of the payoff date, the Company was in compliance with all covenants.

The Company recognized interest expense of \$43,000 and \$747,000 for the three and nine months ended September 30, 2017, respectively, of which \$0 and \$98,000 was related to the debt discount, respectively. There was no interest expense recognized for the three and nine months ended September 30, 2018.

## **9. Private Placement and Registered Direct Offering**

### ***Private Placement***

On March 22, 2018, the Company issued 300,752 shares of its common stock (“Common Stock”) and warrants to purchase up to 300,752 shares of Common Stock with an initial exercise price equal to \$45.75 (the “Warrants”), in a private placement (the “Private Placement”) in accordance with a securities purchase agreement (the “Purchase Agreement”) entered into with certain institutional and accredited investors (collectively, the “Purchasers”) on March 19, 2018. The Warrants are immediately exercisable, subject to certain ownership limitations, and expire five years after the date of issuance.

The per share purchase price of the Common Stock and per share exercise price for the Warrants were subject to adjustment based on the volume weighted average price for the three trading days (the “VWAP Calculation”) after each of the following: (i) the date that a registration statement covering the resale of the securities being issued in the Private Placement (“Resale Registration Statement”) has been declared effective by the SEC, (ii) if a registration statement covering all securities issued in the Private Placement is not declared effective, then the date that the securities can be sold under Rule 144 under the Securities Act of 1933, as amended, and (iii) if later than the dates set forth in item (i) and (ii), then the date that the Company’s shareholders approve the Private Placement. After each adjustment, the per share purchase price for Common Stock was automatically reduced to 80% of the VWAP Calculation, and the per share exercise price for the Warrant was automatically reduced, to 110% of the VWAP Calculation; provided, that in no event, will the per share purchase price for the Common Stock or the exercise price for the Warrants be less than \$8.322. Upon any adjustment of the per share exercise price for the Warrants, then the number of shares exercisable under the Warrants shall be increased so that the aggregate exercise price payable after adjustment is equal to the aggregate exercise price payable prior to such adjustment.

The Company filed the Resale Registration Statement with the SEC on March 30, 2018, and it was declared effective on April 23, 2018. As described above and based upon the applicable VWAP Calculations relating to these events, each of these events caused an adjustment to the number of shares issued in the Private Placement and underlying the Warrants. Following the effectiveness of the Resale Registration Statement, on April 23, 2018 the number of shares issued pursuant to the Purchase Agreement increased from 300,752 to 798,754, the total number of shares issuable upon exercise of the Warrants increased from 300,752 to 799,300 and the per share exercise price of the Warrants reduced from \$45.75 to \$17.2143. The Company held a special meeting of its shareholders on May 2, 2018 and obtained shareholder approval for the issuance of Common Stock in the Private Placement. Following shareholder approval of the issuance of shares in the Private Placement, on May 8, 2018 the number of shares issued pursuant to the Purchase Agreement increased from 798,754 to 1,201,636, the total number of shares issuable upon exercise of the Warrants increased from 799,300 to 1,282,832 and the per share exercise price of the Warrants reduced from \$17.2143 to \$10.7258. These condensed consolidated financial statements reflect these additional issuances.

The aggregate net proceeds received by the Company from the Private Placement was \$8.7 million, consisting of gross proceeds of \$10.0 million less offering costs of \$1.3 million. The Company entered into the Private Placement to secure additional capital to strengthen its cash resources required to launch its new health and nutrition ingredient product commercialization and production scale-up plans, as well as to continue the deregulation and commercialization of its stress tolerant HB4 soybean trait. More specifically, net proceeds will be used for working capital to fund the continued introgression of quality ingredient traits into elite germ plasm, additional seed bulk-up, increased planting acreage, consumer brand development and a number of other pre-commercialization and commercialization activities.

The common stock adjustment feature and common stock warrants were determined to be liabilities based on each instrument's adjustment features and the contingent cash payment feature of the common stock warrants. The liabilities were accounted for at their respective fair values at inception using a Monte Carlo simulation model with the following assumptions: volatility of 100 percent, stock price of \$32.52 and risk-free rate of 2.63%. At inception, the fair values of the common stock adjustment feature and the common stock warrant liabilities were \$3.8 million and \$10.2 million, respectively. As the combined value of the liabilities exceeded the \$10.0 million of proceeds, no value was assigned to the common stock issued and an initial loss of \$4.0 million was recognized. The liabilities are marked-to-market and were valued at \$15.9 million at March 31, 2018, resulting in an additional loss of \$1.9 million in the first quarter of 2018.

In May 2018, following the Private Placement's final adjustment, the terms of the warrants and the number of common stock shares issuable in the private placement became known and fixed. As a result, the common stock adjustment feature liability was marked-to-market and valued at \$8.4 million at May 7, 2018, resulting in an additional loss of \$2.4 million recognized in the second quarter of 2018. The Company subsequently reclassified the common stock adjustment feature liability's balance of \$8.4 million to stockholders' equity. The common stock warrant liability was marked-to-market and valued at \$8.0 million at June 30, 2018, resulting in income of \$1.9 million recognized in the second quarter of 2018. The common stock warrant liability was marked-to-market and valued at \$4.0 million at September 30, 2018, resulting in income of \$4.0 million recognized in the third quarter of 2018. The common stock warrant liability remained at September 30, 2018 as the contingent cash payment feature was still in effect.

#### ***Registration Rights Agreement***

In connection with the Private Placement, the Company entered into a registration rights agreement (the "Registration Rights Agreement"). Pursuant to the Registration Rights Agreement, the Company filed the Resale Registration Statement with the SEC on March 30, 2018 for purposes of registering the resale of the shares of Common Stock issued pursuant to the Purchase Agreement and the shares of Common Stock issuable upon exercise of the Warrants. The SEC declared the registration statement effective on April 23, 2018.

#### ***Offering Costs***

In connection with the Private Placement, the Company paid to a placement agent an aggregate fee equal to \$850,000. The Company also granted warrants to purchase a total of 15,038 shares of common stock (the "Placement Agent Warrants") that have an exercise price per share equal to \$41.5625 and a term of five years. The Placement Agent Warrants were issued for services performed by the placement agent as part of the Private Placement and were treated as offering costs. The value of the Placement Agent Warrants was determined to be \$526,000 using the Black-Scholes Model with input assumptions including the Company's stock price, expected life of the warrants, stock price volatility determined from the Company's historical stock prices and the volatility of a peer group, and the risk-free interest rate for the term of the warrants. The Company incurred additional offering costs totaling \$458,000 that consist of direct incremental legal, advisory, accounting and filing fees relating to the Private Placement. The offering costs, inclusive of the Placement Agent Warrants, totaled \$1.8 million, of which \$0 and \$1.8 million were expensed in the three and nine months ended September 30, 2018, respectively.

### **Registered Direct Offering**

On May 11, 2018, the Company filed a shelf Registration Statement on Form S-3 with the SEC which was declared effective on June 8, 2018. This shelf registration process allows the Company to sell any combination of common stock, preferred stock, warrants and units consisting of such securities in one or more offerings from time to time having an aggregate initial offering price of \$50 million.

On June 11, 2018, the Company entered into agreements with several institutional and accredited investors (the "June Purchase Agreement") for the purchase of 1,392,345 shares of its common stock at a purchase price of \$9.93 per share for gross proceeds of \$13.8 million (the "June Offering"). The 1,392,345 shares of common stock sold in the June Offering were issued pursuant to a prospectus, dated June 8, 2018, and a prospectus supplement dated June 11, 2018, in connection with a takedown from the Company's shelf Registration Statement on Form S-3. The June Offering closed on June 14, 2018.

Additionally, in a concurrent private placement (the "June Private Placement"), the Company issued to the investors unregistered warrants to purchase up to 1,392,345 shares of common stock at a purchase price per warrant of \$0.125, for gross proceeds of \$174,000. The warrants, and the shares of common stock underlying the warrants, have not been registered with the SEC and have an exercise price of \$9.94 per share. Subject to certain ownership limitations, the warrants are exercisable upon issuance and expire five and one-half years after the date of issuance.

The aggregate net proceeds received by the Company for the June Offering were \$12.8 million, consisting of gross proceeds of \$14.0 million less offering costs of \$1.2 million. The Company intends to use the net proceeds from this offering for general corporate purposes, including, but not limited to, scale-up of its GoodWheat™ Resistant Starch wheat production, early commercialization activities, continued research and development activities and for general and administrative expenses.

The common stock warrants were determined to be a liability as they have a contingent cash payment feature. The common stock warrants were accounted for at their fair value at inception using a Black Scholes Merton model with the following assumptions: volatility of 108 percent, stock price of \$8.20 and risk-free rate of \$2.83%. At inception, the fair value of the common stock warrants was \$9.0 million and the remaining \$5.0 million of the \$14.0 million of proceeds was allocated to the common stock using the residual method and accounted for as stockholders' equity. The common stock warrants were marked-to-market and valued at \$9.1 million at June 30, 2018, resulting in a loss of \$42,000 in the second quarter of 2018. The common stock warrants were marked-to-market and valued at \$4.6 million at September 30, 2018, resulting in income of \$4.5 million recognized in the third quarter of 2018.

### **Offering Costs**

In connection with the June Offering, the Company paid to a placement agent an aggregate fee equal to \$980,000. The Company also granted warrants to purchase a total of 69,617 shares of common stock ("June Placement Agent Warrants") that have an exercise price per share equal to \$12.568 and a term of five years. The Placement Agent Warrants were issued for services performed by the placement agent as part of the June Offering and were treated as offering costs. The value of the June Placement Agent Warrants was determined to be \$427,000 using the Black-Scholes Model with input assumptions including the Company's stock price, expected life of the warrants, stock price volatility determined from the Company's historical stock prices and the volatility of a peer group, and the risk-free interest rate for the term of the warrants. The Company incurred additional offering costs totaling \$197,000 that consist of direct incremental legal, advisory, accounting and filing fees relating to the June Offering. The offering costs, inclusive of the June Placement Agent Warrants, totaled \$1.6 million and allocated to the common stock warrant liability and the common stock using their relative fair values. A total of \$710,000 was allocated to the common stock warrant liability, of which \$4,000 and \$710,000 were expensed in the three and nine months ended September 30, 2018. The remaining \$897,000 was allocated to the common stock and offset to additional paid in capital.

## **10. Stock-Based Compensation and Warrants**

### **Stock Incentive Plans**

The Company has two equity incentive plans: the 2006 Stock Plan ("2006 Plan") and the 2015 Omnibus Equity Incentive Plan ("2015 Plan").

In 2006, the Company adopted the 2006 Plan, which provided for the granting of stock options to executives, employees, and other service providers under terms and provisions established by the Board of Directors. The Company granted non-statutory stock options ("NSOs") under the 2006 Plan until May 2015, when the 2006 Plan was terminated as to future awards. The 2006 Plan continues to govern the terms of options that remain outstanding and were issued under the 2006 Plan. The 2015 Plan became effective in May 2015 and all shares that were reserved, but not issued, under the 2006 Plan were assumed by the 2015 Plan. Upon effectiveness, the 2015 Plan had 154,387 shares of common stock reserved for future issuance, which included 10,637 shares under

the 2006 Plan that were transferred to and assumed by the 2015 Plan. The 2015 Plan provides for automatic annual increases in shares available for grant. In addition, shares subject to awards under the 2006 Plan that are forfeited or canceled will be added to the 2015 Plan. The 2015 Plan provides for the grant of incentive stock options (“ISOs”), NSOs, restricted stock awards, stock units, stock appreciation rights, and other forms of equity compensation, all of which may be granted to employees, officers, non-employee directors, and consultants. The ISOs and NSOs will be granted at a price per share not less than the fair value at the date of grant. Options granted generally vest over a four-year period, with 25% vesting at the end of one year and the remaining vesting monthly thereafter; however, the options granted in the third quarter of 2018 vest over a two-year period, vesting monthly on a pro-rated basis. Options granted, once vested, are generally exercisable for up to 10 years after grant.

As of September 30, 2018, a total of 484,539 shares of common stock were reserved for issuance under the 2015 Plan, of which 26,740 shares of common stock are available for future grant. As of September 30, 2018, a total of 67,397 and 457,797 options are outstanding under the 2006 and 2015 Plans, respectively.

A summary of activity under the stock incentive plans is as follows (in thousands, except share data and price per share):

	Shares Subject to Outstanding Options	Weighted- Average Exercise Price Per Share	Aggregate Intrinsic Value
Outstanding — Balance at December 31, 2017	288,129	\$ 63.62	\$ —
Options granted	287,577	6.76	
Options exercised	(44,354)	21.73	
Options cancelled and forfeited	(6,158)	41.54	
Outstanding — Balance at September 30, 2018	<u>525,194</u>	\$ 36.34	\$ 63
Vested and expected to vest — September 30, 2018	<u>510,184</u>	\$ 36.90	\$ 61
Exercisable — September 30, 2018	<u>149,624</u>	\$ 84.00	\$ 1

As of September 30, 2018, there was \$1.7 million of unrecognized compensation cost related to unvested stock-based compensation grants that will be recognized over the weighted-average remaining recognition period of 2.2 years.

The fair value of stock option awards to executives and employees was estimated at the date of grant using a Black-Scholes option-pricing model with the following weighted-average assumption.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Expected term (years)	5.52	6.00	5.97	6.12
Expected volatility	100%	80%	99%	79%
Risk-free interest rate	2.96%	1.94%	2.95%	1.89%

#### **Employee Stock Purchase Plan**

The Company’s 2015 Employee Stock Purchase Plan (“ESPP”) became effective on May 14, 2015. The ESPP allows eligible employees to purchase shares of the Company’s common stock at a discount of up to 15% of their eligible compensation through payroll deductions, subject to any plan limitations.

The ESPP provides for six-month offering periods, and at the end of each offering period, employees are able to purchase shares at 85% of the lower of the fair market value of the Company’s common stock on the first trading day of the offering period or on the last trading day of the offering period. As of September 30, 2018, the number of shares of common stock reserved for future issuance under the ESPP is 89,489. The ESPP provides for automatic annual increases in the shares available for purchase beginning on January 1, 2016. As of September 30, 2018, 6,853 shares had been issued under the ESPP. The Company recorded \$4,000 and \$6,000 of compensation expense for the three and nine months ended September 30, 2018 and \$6,000 and \$11,000 for the three and nine months ended September 30, 2017, respectively.

#### **Warrants**

As of September 2018, the Company has 2,826,687 common stock warrants outstanding with a weighted average exercise price of \$18.78. The expiration of the warrants range from December 2018 to June 2023.

On December 2013, the Company issued warrants to Mahyco International to purchase 3,784 shares of common stock, exercisable as of the issuance date, at an exercise price of \$330.40 per share. The warrants expire five years from the issuance date.

In connection with the Series D preferred stock financing in the first half of 2014, the Company issued warrants, exercisable as of the issuance date, to the Series D preferred stock investors to purchase an aggregate of 61,397 shares of common stock at an exercise price of \$363.20 per share and to the placement agents to purchase 1,674 shares of common stock at \$268.80. The warrants expire five years from the issuance date.

As of September 2018, 1,282,832 common stock warrants are outstanding that were issued in the June Private Placement. The final exercise price for these warrants is \$10.7258 as adjusted in accordance with the Purchase Agreement's adjustment provisions. See Note 9.

As of September 2018, 1,461,962 common stock warrants are outstanding in accordance with the June Offering. Of the total, 1,392,345 shares have a purchase price of \$9.94 and the remaining 69,617 common stock warrants have an exercise price of \$12.568. See Note 9.

## **11. Income Taxes**

Income tax expense during interim periods is based on applying an estimated annual effective income tax rate to year-to-date income, plus any significant unusual or infrequently occurring items that are recorded in the interim period. The computation of the annual estimated effective tax rate at each interim period requires certain estimates and significant judgment including, but not limited to, the expected operating income for the year, projections of the proportion of income earned and taxed in various jurisdictions, permanent and temporary differences, and the likelihood of recovering deferred tax assets generated in the current year. The accounting estimates used to compute the provision for income taxes may change as new events occur, more experience is obtained, additional information becomes known, or as the tax environment changes.

The interim financial statement provision for income taxes expense is different from the amounts computed by applying the United States federal statutory income tax rate of 21%. The Company's effective tax rate (ETR) was 0.1% and -0.2% for the three and nine months ended September 30, 2018 and -0.2% for the three and nine months ended September 30, 2017. The difference between the effective tax rate and the federal statutory rate of 21% was primarily due to the full valuation allowance recorded on the Company's net deferred tax assets and foreign withholding taxes.

The Company may have experienced an ownership change under IRC Section 382 as a result of the common shares issued in connection with the Purchase Agreement in March 2018 or in the June Offering. Such an ownership change may limit the Company's ability to utilize its net operating loss carryforwards prior to expiration. Given the full valuation allowance, such a limitation would not impact the deferred tax asset balance as currently recorded.

As of September 30, 2018, there have been no material changes to the Company's uncertain tax positions.

## **12. Contingent Liability Related to the Anawah Acquisition**

On June 15, 2005, the Company completed its agreement and plan of merger and reorganization with Anawah, Inc. ("Anawah"), to purchase the food and agricultural research company through a non-cash stock purchase. Pursuant to the merger with Anawah, and in accordance with the ASC 805 - Business Combinations, the Company incurred a contingent liability not to exceed \$5.0 million. This liability represents amounts to be paid to Anawah's previous stockholders for cash collected on revenue recognized by the Company upon commercial sale of certain specific products developed using technology acquired in the purchase. As of December 31, 2010, the Company ceased activities relating to three of the six Anawah product programs, thus, the contingent liability was reduced to \$3.0 million. During the third quarter of 2016, one of the programs previously accrued for was abandoned and another program previously abandoned was reactivated. As of September 30, 2018, the Company continues to pursue three development programs using this technology and believes that the contingent liability is probable. As a result, \$3.0 million remains on the Condensed Consolidated Balance Sheet as an other noncurrent liability.

## **13. Net Loss per Share**

Basic net loss per share is calculated by dividing net loss attributable to common stockholders by the weighted-average number of common shares outstanding during the period and excludes any dilutive effects of stock-based awards and warrants. Diluted net loss per share attributable to common stockholders is computed giving effect to all potentially dilutive common shares, including common stock issuable upon exercise of stock options and warrants. As of September 30, 2018, all potentially dilutive common shares were determined to be anti-dilutive after evaluation.

Securities that were not included in the diluted per share calculations because they would be anti-dilutive were as follows (*in shares*):

	<u>Nine Months Ended September 30,</u>	
	<u>2018</u>	<u>2017</u>
Options to purchase common stock	525,194	293,288
Warrants to purchase common stock	2,826,687	66,845
Total	<u>3,351,881</u>	<u>360,133</u>

#### 14. Related-Party Transactions

The Company's related parties include Moral Compass Corporation ("MCC") and the John Sperling Revocable Trust ("JSRV"). The rights to the intellectual property previously owned by Blue Horse Labs, Inc. ("BHL") were assigned to JSRV due to BHL's dissolution. The JSRV is deemed a related party of the Company because MCC, the Company's largest stockholder, and JSRV share some common officers and directors.

Transactions with related parties are reflected in the condensed consolidated financial statements under amounts due to related parties.

JSRV receives a single digit royalty from the Company when revenue has been collected on product sales or for license payments from third parties that involve certain intellectual property developed under research funding originally from BHL. Royalty fees due to JSRV, and previously BHL, were \$18,000 and \$29,000 as of September 30, 2018 and December 31, 2017, respectively, and are included in the Condensed Consolidated Balance Sheets as amounts due to related parties.

#### 15. Subsequent Events

The Company has reviewed and evaluated subsequent events through November 7, 2018, the date the condensed consolidated financial statements were available to be issued.

## ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

### Special Note Regarding Forward-Looking Statements

*The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our unaudited condensed consolidated financial statements and the related notes to those statements included herein. In addition to historical financial information, this report contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed in the forward-looking statements. The statements contained in this report that are not purely historical are forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. Forward-looking statements are often identified by the use of words such as, but not limited to, "anticipate," "believe," "can," "continue," "could," "estimate," "expect," "intend," "may," "plan," "project," "seek," "should," "strategy," "target," "will," "would" and similar expressions or variations intended to identify forward-looking statements. These statements are based on the beliefs and assumptions of our management based on information currently available to management. Such forward-looking statements are subject to risks, uncertainties and other important factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those discussed in the section titled "Risk Factors" included in the most recent Annual Report on Form 10-K filed by the Company. Furthermore, such forward-looking statements speak only as of the date of this report. Except as required by law, we undertake no obligation to update any forward-looking statements to reflect events or circumstances after the date of such statements.*

*"Arcadia Biosciences," "Sonova" and "Sonova GLA Safflower Oil and design" are our registered trademarks in the United States and, in some cases, in certain other countries. Other trademarks and service marks that we own include: "Sonova 400" and "Sonova ULTRA." This report may also contain trademarks, service marks, and trade names of other companies. Solely for convenience, the trademarks, service marks and trade names referred to in this report may appear without the ®, TM, or SM symbols, but such references do not constitute a waiver of any rights that might be associated with the respective trademarks, service marks, or trade names.*

### Overview

We are a consumer-driven, agricultural food ingredient company. We aim to create value across the agricultural production and supply chain beginning with enhanced crop productivity for farmers and ultimately delivering accelerated innovation in nutritional quality consumer foods. We use state of the art gene-editing technology and advanced breeding techniques to naturally enhance the nutritional quality of grains and oilseeds to address the rapidly evolving trends in consumer health and nutrition. In addition, we have developed a broad pipeline of high value crop productivity traits designed to enhance farm economics.

Consumers are demanding food companies provide healthier, high quality foods, naturally and sustainably produced with greater ingredient simplicity and transparency. Now, more than ever, consumers are paying premium pricing to satisfy their dietary health requirements, such as higher fiber and lower gluten in grains, healthier oils and fewer processed ingredients. Consumer food companies recognize this shift but cannot rely upon the legacy ag-supply chain and traditional crop breeding techniques to meet these demands. Conventional and transgenic breeding processes can take between nine and 13 years to bring new food varieties or quality traits to market, causing consumer food companies to search for alternative means to satisfy the evolving customer demands. The need for rapid product differentiation at the consumer level has opened up a premium food market opportunity that is becoming one of the fastest growing segments in the food industry.

To address this large and growing demand, we are building on our industry leading scientific expertise and advanced plant breeding and transformation technologies developed over the past 15 years, to directly edit the plant genome without introducing foreign DNA, to produce nutrient-dense crops for use in the major foods we eat. By employing gene editing technology and our TILLING platform, we believe we can reduce the time to market for novel ingredient traits by half, thereby providing consumer food companies a steady and reliable source of cost effective, healthy natural food options.

We recently launched our GoodWheat™ consumer brand, a non-transgenic (non-GM) platform that enables food manufacturers to differentiate their consumer-facing brands. The brand launch is a key element of the company's go-to-market strategy to achieve greater value for its innovations by participating in downstream consumer revenue opportunities. Arcadia designed the brand to make an immediate connection with consumers that products made with GoodWheat™ meet their demands for healthier wheat options that also taste great. The GoodWheat™ brand encompasses Arcadia's current and future non-GM wheat portfolio of high fiber Resistant Starch (RS) and Reduced Gluten wheat varieties, as well as future wheat innovations. In October 2018, the U.S. Patent and Trademark Office has granted Arcadia a patent for extended shelf life wheat, the newest trait in our non-genetically modified (non-GM) GoodWheat™ portfolio. This new trait was designed to promote whole wheat consumption by improving the shelf life and taste of whole grain wheat products.

First to market will be our RS wheat, a product with more dietary fiber than conventional wheat. Increased fiber consumption is well recognized as a way to improve gut health and to control excessive weight gain. Concurrently, we are developing three additional wheat varieties, a reduced gluten wheat, an extended shelf life wheat and a superior yielding wheat. In the American diet, each day more than 500 calories come from wheat products, 25 percent of the FDA's recommended daily caloric intake for a woman and 20 percent for a man, which creates a natural market opportunity for our first two wheat products. We believe these varieties have broad application in the global wheat market which is estimated by the USDA (US Department of Agriculture) to be 758 million metric tons, which roughly equates to \$208 billion farm-gate value.

In years to come, we expect to achieve enhanced nutritional characteristics within a number of other broad acre crops using advanced breeding and gene-editing techniques. Targets include but are not limited to higher fiber, longer shelf life and enhanced protein in crops other than wheat.

Another aspect of our business is improving farmer productivity through the development of more robust crop varieties, by developing specific crop traits designed to counteract the detrimental impact of environmental stresses on harvest yields. Traditional genetic modification (GM) trait development has concentrated on crops where the combination of large acreage and high input costs (such as chemical costs for pest and weed control) create significant economic value for herbicidal or insecticidal traits. However, far more deleterious to crop yields are abiotic stresses, such as drought, heat, nutrient deficiency, water scarcity, and soil salinity, and remains largely unpenetrated by the GM seed industry today. For example, industry estimates indicate greater than 80 percent of wheat yield loss and 65 percent of corn yield loss globally are lost due to abiotic factors. These stresses are prevalent in most agricultural environments with varying degrees of severity and often have material consequences on crop production, quality, and farmers' incomes.

Phillips McDougall estimates the abiotic stress mitigation trait market to be worth several billion dollars. We devoted much of our early research to building a comprehensive array of abiotic stress traits. Furthermore, through out-licensing arrangements with our commercialization partners, many of our traits have been bred into several global crops, including rice, wheat, and soybeans, and we have demonstrated significant yield improvements in multiple years of field testing. Upon commercialization, we share in the trait fees ranging between 10% and 50%, depending upon the geography, crop and specific trait.

However, a key component of the development cycle of GM traits is local, or in some instances, global deregulation of the trait by one or more regulatory agencies may be required. As there continues to be a significant debate about the role of GM traits in agricultural crops, we have seen this issue impact some regulatory agencies which exercise control over the pace of deregulation of our products. We have experienced delays in the review of many of our traits from certain of these government regulatory authorities. For example, in India, where regulators have not approved new products containing GM traits for a number of years, which has significantly delayed the trait development and crop commercialization timelines of our license partner in India, Mahyco. The majority of our actively licensed GM trait technologies have been licensed to Mahyco. Commercialization of these traits is primarily dependent upon successful regulatory approval and product commercialization led by Mahyco in India and other geographies they retain license rights.

We believe the fundamental value of these traits remains commercially viable and we, along with our development and commercialization partners, remain committed to their ultimate commercialization. However, to compensate for the impact of these regulatory delays on our anticipated timing and amount of our commercialization revenue share, in 2017 the Company completed a comprehensive strategic review of its technology programs, product pipeline, partner progress, competitive landscape and market conditions to prioritize and appropriately resource its most promising products and opportunities. As a result, some programs were terminated or placed on hold while investments in other programs were accelerated with the aim of preserving the potential near-term value for the Company and its shareholders.

In addition, in cooperation with its primary licensee partner, Mahyco, the Company has undertaken an evaluation of the current regulatory environment by territory of its license portfolio to determine the optimal strategy for continued deregulation and commercialization of its traits. In December 2017, we agreed with Mahyco for the return of licensed geographies for certain Water Use Efficiency, Nitrogen Use Efficiency & Salinity Tolerance traits where Mahyco either lacks the resources or expertise to effectively progress trait deregulation and commercialization. In addition, for other geographies where Mahyco has progressed trait development but does not possess the familiarity with, or influence on, the regulatory environment to affect deregulation, we have agreed to jointly pursue new in-country licensees that we believe to be equipped and capable to achieve trait deregulation and commercialization. We will continue to work with our partners to closely monitor the progress of deregulation activities affecting our GM traits, and at the same time, we are realigning our core capabilities and evolving our business model to accelerate the development and near-term commercialization of non-GM nutrition and quality traits.

Balancing our near-term revenue goals with long-term value capture, we will continue to provide active support to our commercial partners working to advance our high value traits through development and deregulation for commercialization. We believe the commercialization of these traits is four to seven years away, each trait having their own estimated time to deregulation and commercialization. Once a product containing our traits is commercialized, we are entitled to receive a portion of the revenue that it generates for our commercial partner. For seeds incorporating valuable traits, farmers typically pay either a premium for the seed or a trait fee. This premium or trait fee represents the additional value generated for our commercial partner by our trait(s), and we

receive a percentage of this additional value. Typically, our share of this value ranges from 15 to 20%, and it can increase to a range of 37 to 50% under certain agreements if we elect to co-invest in product development and/or deregulation.

While we seek patent protection on our technologies and traits, we have structured our commercial agreements so that we receive our percentage of additional commercial value whether or not patent protection is in effect at any particular time or place. Nearly all of our agreements provide access to our traits, and our right to receive a share of commercial value, continue for a set number of years after products containing our traits are commercialized. While the exclusive rights afforded by patents may enable our commercial partners to realize greater commercial value attributable to our traits, our right to receive a portion of that increased commercial value is not dependent on the existence of patent rights in a particular geography.

Our commercial strategy is to migrate forward in the ag-food supply chain from the farmer and seed company to the consumer food company. Due to early stage focus on the development of abiotic stress traits, we have historically been commercially aligned with farmers and seed companies. However, by also establishing commercial relationships with consumer food companies and developing consumer brand awareness of our high value premium ingredients, we expect to be better positioned to garner a greater share of our product's value proposition. Consumer food companies are looking to simplify their food ingredient formulations and consumer are demanding "clean labeling" in their foods, paying more for foods having fewer artificial ingredients and more natural, recognizable and healthy ingredients. Ninety-one per cent of U.S. consumers believe food and beverage options with recognizable ingredients are healthier. Because we increase nutrient density directly in the primary grains and oils, we provide the mechanism for food formulation simplification naturally, cost effectively and in a time-frame to meet evolving consumer demands. Our branding strategy is to link consumer's health and nutrition appreciation with the nutrients we source directly from the farm, enabling us to share premium economics throughout the ag-food supply chain.

This forward migration in the ag-food supply chain will require that we build additional organizational capabilities and industry expertise. For instance, we are expanding our in-house commercial grain production and logistics resources for greater scale capacity to bring our identity preserved products to market. We are also developing product branding strategies to build customer brand recognition and loyalty.

Since our inception, we have devoted substantially all our efforts to research and development activities, including the discovery, development, and testing of our traits and products in development incorporating our traits. To date, we have not generated revenues from sales of commercial products, other than limited revenues from our SONOVA products. We do receive revenues from fees associated with the licensing of our traits to commercial partners. Our long-term business plan and growth strategy is based in part on our expectation that revenues from products that incorporate our traits will comprise a significant portion of our future revenues.

We have never been profitable and had an accumulated deficit of \$177.7 million as of September 30, 2018. We incurred net losses of \$12.8 million and \$12.7 million for the nine months ended September 30, 2018 and 2017, respectively. We expect to incur substantial costs and expenses before we obtain any revenues from the sale of seeds or ingredients incorporating our traits. As a result, our losses in future periods could become even more significant, and we may need additional funding to support our operating activities.

## **Components of Our Statements of Operations Data**

### *Revenues*

We derive our revenues from product revenues, licensing agreements, contract research agreements, and government grants. Given our acute focus on the near-term commercialization of our nutritional ingredient traits and products, we do not intend to continue pursuing contract research agreements and government grant projects at the levels we have historically. Over the next 36 months, we expect these revenues to decline as our current contract research agreements and government grant projects conclude and not replaced. Concurrently, as we introduce our new nutritional ingredient traits and products to the market, we expect revenues to increase from such activities. Furthermore, with the implementation of ASC Topic 606, as described more fully in Note 5, future license revenues will no longer include the amortization of deferred up-front license fees from existing license agreements.

### *Product Revenues*

Our product revenues to date have consisted solely of sales of our SONOVA products. We generally recognize revenue from product sales upon sale to our third-party distributors or customers. Our revenues fluctuate depending on the timing of orders from our customers and distributors.

### *License Revenues*

Our license revenues to date consist of up-front, nonrefundable license fees, annual license fees, and subsequent milestone payments that we receive under our research and license agreements. We have historically recognized nonrefundable up-front license

fees and guaranteed, time-based payments as revenue proportionally over the expected development period. With the implementation of ASC Topic 606, revenue generated from up-front license fees will be recognized upon execution of the agreement. We recognize annual license fees when it is probable that a material reversal will not occur.

Milestone fees are a variable consideration that is initially constrained and recognized only when it is probable that such amounts would not be reversed. The Company assesses when achievement of milestones is probable to determine the timing of revenue recognition for milestone fees. Milestones typically consist of significant stages of development for our traits in a potential commercial product, such as achievement of specific technological targets, completion of field trials, filing with regulatory agencies, completion of the regulatory process, and commercial launch of a product containing our traits. Given the seasonality of agriculture and time required to progress from one milestone to the next, achievement of milestones is inherently uneven, and our license revenues are likely to fluctuate significantly from period to period.

#### *Contract Research and Government Grant Revenues*

Contract research and government grant revenues consist of amounts earned from performing contracted research primarily related to breeding programs or the genetic engineering of plants for third parties. Contract research revenue will continue to be accounted for as a single performance obligation for which revenues are recognized over time using the input method (e.g. costs incurred to date relative to the total estimated costs at completion). In addition, we are entitled to receive a portion of the revenues generated from sales of products that incorporate our seed traits. Products expected to result from such contract research are in various stages of the product development cycle and we expect to generate revenues from the sale of any such products in as soon as the next two to four years.

We receive payments from government entities in the form of government grants. Government grant revenue will continue to be accounted for as a single performance obligation for which revenues are recognized over time using the input method (e.g. costs incurred to date relative to the total estimated costs at completion). Our obligation with respect to these agreements is to perform the research on a best-efforts basis. Given the nature and uncertain timing of receipt of government grants and timing of eligible research and development expenses, such revenues are likely to fluctuate significantly from period to period.

#### ***Operating Expenses***

##### *Cost of Product Revenues*

Cost of product revenues relates to the sale of our SONOVA products and consists of in-licensing and royalty fees, any adjustments or write-downs to inventory, as well as the cost of raw materials, including inventory and third-party services costs related to procuring, processing, formulating, packaging, and shipping our SONOVA products.

##### *Research and Development Expenses*

Research and development expenses consist of costs incurred in the discovery, development, and testing of our products and products in development incorporating our traits. These expenses consist primarily of employee salaries and benefits, fees paid to subcontracted research providers, fees associated with in-licensing technology, land leased for field trials, chemicals and supplies, and other external expenses. These costs are expensed as incurred. Additionally, we are required from time to time to make certain milestone payments in connection with the development of technologies in-licensed from third parties. We expense these milestone payments at the time the milestone is achieved and deemed payable. Our research and development expenses may fluctuate from period to period as a result of the timing of various research and development projects.

##### *Selling, General, and Administrative Expenses*

Selling, general, and administrative expenses consist primarily of employee costs, professional service fees, and overhead costs. Our selling, general, and administrative expenses may fluctuate from period to period. In connection with our commercialization activities for our consumer ingredient products, we expect to increase our investments in sales and marketing and business development.

##### ***Interest Expense***

Interest expense consists primarily of contractual interest and amortization of debt discount on our term loan that was repaid in July 2017.

##### ***Other Income, Net***

Other income, net, consists of interest income and the amortization of investment premium and discount on our cash and cash equivalents and investments.

### **Initial Loss on Common Stock Warrant and Common Stock Adjustment Feature Liabilities**

Initial loss on common stock warrant and common stock adjustment feature liabilities is comprised of the loss associated with the initial recognition of the common stock warrant and common stock adjustment feature liabilities associated with the Private Placement in March 2018 at their respective fair values.

### **Change in the Estimated Fair Value of Common Stock Warrant Liabilities and Common Stock Adjustment Feature Liability**

Change in the estimated fair value of common stock warrant liabilities and common stock adjustment feature liability is comprised of the fair value remeasurement of the liabilities associated with the Private Placement and the June Private Placement.

### **Offering Costs**

Offering costs consists of the costs incurred with the issuance of common stock and common stock warrants in connection with the Private Placement. Also included are costs incurred with the June Offering and June Private Placement that have been allocated to the common stock warrant liability. Costs include placement agent, legal, advisory, accounting and filing fees.

### **Income Tax Provision**

Our income tax provision has not been historically significant, as we have incurred losses since our inception. The provision for income taxes consists of state and foreign income taxes. Due to cumulative losses, we maintain a valuation allowance against our U.S. deferred tax assets as of September 30, 2018 and 2017. We consider all available evidence, both positive and negative, including but not limited to, earnings history, projected future outcomes, industry and market trends and the nature of each of the deferred tax assets in assessing the extent to which a valuation allowance should be applied against our U.S. deferred tax assets.

## **Results of Operations**

### **Comparison of the Three Months Ended September 30, 2018 and 2017**

	<u>Three Months Ended September 30,</u>		<u>\$ Change</u>	<u>% Change</u>
	<u>2018</u>	<u>2017</u>		
	<u>(In thousands except percentage)</u>			
Revenues:				
Product	\$ 144	\$ 82	\$ 62	76%
License	10	144	(134)	(93)%
Contract research and government grants	216	363	(147)	(40)%
Total revenues	370	589	(219)	(37)%
Operating expenses:				
Cost of product revenues	124	40	84	210%
Research and development	1,334	1,749	(415)	(24)%
Selling, general and administrative	3,011	2,415	596	25%
Total operating expenses	4,469	4,204	265	6%
Loss from operations	(4,099)	(3,615)	(484)	(13)%
Interest expense	—	(43)	43	(100)%
Other income, net	134	46	88	191%
Change in fair value of common stock warrant liabilities	8,421	—	8,421	100%
Offering costs	(1)	—	(1)	(100)%
Loss on extinguishment of debt	—	(900)	900	100%
Net income (loss) before income taxes	4,455	(4,512)	8,967	199%
Income tax provision	(5)	(13)	8	62%
Net income (loss) and net income (loss) attributable to common stockholders	\$ 4,450	\$ (4,525)	\$ 8,975	198%

### **Revenues**

Product revenues accounted for 39% and 14% of our total revenues in the three months ended September 30, 2018 and 2017, respectively. Our product revenues from sales of our SONOVA products increased by \$62,000, or 76%, in the quarter-to-quarter comparison, primarily due to the timing of encapsulated orders.

License revenues accounted for 3% and 24% of our total revenues for three months ended September 30, 2018 and 2017, respectively. Our license revenues decreased by \$134,000, or 93%, in the three months ended September 30, 2018 compared to revenues in the same period of 2017. The decrease in license revenue was due to the adoption of ASC Topic 606 on January 1, 2018. Revenue recognized in the third quarter of 2017 for the amortization of up-front license fees previously collected and amortized over the entire commercial development timeline is not present in 2018 as up-front fees are currently recognized upon agreement execution under the new guidance. There were no agreements executed in the second quarter of 2018.

Contract research and government grant revenues accounted for 58% and 62% of our total revenues for the three months ended September 30, 2018 and 2017, respectively. Our contract research and government grant revenues decreased by \$147,000, or 40%, in the three months ended September 30, 2018 compared to the same period in 2017. The decrease in grant and contract research revenue was primarily driven by the completion of several government grants during 2017, as well as less activity for existing grants. Contract research and government grant revenues can vary from quarter-to-quarter depending on the timing of contract research projects and the completion of services provided, and the timing of eligible research and development expenses. Given our acute focus on the near-term commercialization of our nutritional ingredient traits and products, we do not intend to continue pursuing contract research agreements and government grant projects at the levels we have historically. Over the next 36 months, we expect these revenues to decline as our current contract research agreements and government grant projects conclude and not replaced.

#### *Cost of Product Revenues*

Cost of product revenues increased by \$84,000, or 210%, in the three months ended September 30, 2018 compared to the three months ended September 30, 2017 due to an inventory write-down in the amount of \$46,000 recorded this quarter as a result of a reduction in the forecasted GLA sales volume and increased product revenues this quarter.

#### *Research and Development*

Research and development expenses decreased by \$415,000, or 24%, in the three months ended September 30, 2018 compared to the three months ended September 30, 2017. The decrease was primarily driven by the termination of a license and subcontracted research agreement at the end of 2017, as well as the timing of expenses relating to Verdeca and less subcontracting expense in support of government grants. Given our acute focus on the near-term commercialization of our nutritional ingredient traits and products, we do not intend to continue pursuing contract research agreements and government grant projects at the levels we have historically. Over the next 36 months, we expect these revenues to decline as our current contract research agreements and government grant projects conclude and are not replaced.

#### *Selling, General, and Administrative*

Selling, general, and administrative expenses increased by \$596,000, or 25%, in the three months ended September 30, 2018 compared to the three months ended September 30, 2017. The increase was primarily driven by higher intellectual property legal fees and marketing costs in the third quarter of 2018, and was partially offset by lower advisory fees.

#### *Interest Expense*

Interest expense decreased by \$43,000, or 100%, in the three months ended September 30, 2018 compared to the three months ended September 30, 2017. The decrease was the result of the extinguishment of debt in July 2017. See Note 8.

#### *Other Income, Net*

Other income, net, of \$134,000 for the three months ended September 30, 2018 was an increase of \$88,000, or 191%, in income when compared to other income, net, of \$46,000 for the three months ended September 30, 2017. The increase was primarily related to the higher investment balance in 2018.

#### *Change in the Estimated Fair Value of Common Stock Warrant Liabilities and Common Stock Adjustment Feature Liability*

Change in the estimated of fair value of \$8.4 million for the three months ended September 30, 2018 includes the common stock warrant liability fair value remeasurement on September 30, 2018, combined with the June Offering common stock warrants' fair value remeasurement on September 30, 2018. The estimated fair value of the Purchase Agreement's common stock warrants decreased by \$4.0 million and the estimated fair value of the June Offering common stock warrants decreased by \$4.7 million, both driven by the decrease in the Company's stock price. See Note 9.

### Offering Costs

Offering costs for the three months ended September 30, 2018 of \$1,000 is comprised of additional legal fees related to the June Offering and June Private Placement.

### Income Tax Provision

Income tax provision of \$5,000 for the three months ended September 30, 2018 was consistent with the \$13,000 recorded for three months ended September 30, 2017.

### Comparison of the Nine Months Ended September 30, 2018 and 2017

	Nine Months Ended September 30,		\$ Change	% Change
	2018	2017		
(In thousands except percentage)				
Revenues:				
Product	\$ 393	\$ 482	\$ (89)	(18)%
License	100	353	(253)	(72)%
Contract research and government grants	527	1,763	(1,236)	(70)%
Total revenues	1,020	2,598	(1,578)	(61)%
Operating expenses:				
Cost of product revenues	431	262	169	65%
Research and development	4,524	5,241	(717)	(14)%
Selling, general and administrative	8,581	8,410	171	2%
Total operating expenses	13,536	13,913	(377)	(3)%
Loss from operations	(12,516)	(11,315)	(1,201)	11%
Interest expense	—	(747)	747	(100)%
Loss on extinguishment of debt	—	(900)	900	(100)%
Other income, net	266	246	20	8%
Initial loss on common stock warrant and common stock adjustment feature liabilities	(4,000)	—	(4,000)	(100)%
Change in fair value of common stock warrant liabilities and common stock adjustment feature liability	5,986	—	5,986	100%
Offering costs	(2,544)	—	(2,544)	(100)%
Net income (loss) before income taxes	(12,808)	(12,716)	(92)	(1)%
Income tax provision	(26)	(31)	5	(16)%
Net income (loss) and net income (loss) attributable to common stockholders	<u>\$ (12,834)</u>	<u>\$ (12,747)</u>	<u>\$ (87)</u>	<u>(1)%</u>

### Revenues

Product revenues accounted for 39% and 19% of our total revenues for the nine months ended September 30, 2018 and 2017, respectively. Product revenues from sales of our SONOVA products decreased by \$89,000 or 18%, primarily as a function of a large distributor order in 2017 that did not recur in 2018.

License revenues accounted for 10% and 14% of our total revenues for the nine months ended September 30, 2018 and 2017, respectively. Our license revenues decreased by \$253,000, or 72%, in the nine months ended September 30, 2018 compared to revenues in the same period of 2017. The decrease in license revenue was due to the adoption of ASC Topic 606 on January 1, 2018. Revenue recognized in the nine months ended September 30, 2017 pertaining to the amortization of up-front license fees previously collected and amortized over the entire commercial development timeline is not present in 2018 as up-front fees are currently recognized upon agreement execution under the new guidance. There were no agreements executed in the nine months of 2018, but a milestone was determined to be probable of achievement by a licensee and the applicable fee of \$90,000 was recognized in the second quarter of 2018.

Contract research and government grant revenues accounted for 52% and 68% of our total revenues for the nine months ended September 30, 2018 and 2017, respectively. Our contract research and government grant revenues decreased by \$1.2 million or 70%, in the nine months ended September 30, 2018 compared to the same period in 2017. The decrease was primarily due to a short-term research contract in 2017 that was not present in 2018, as well as the completion of several government grants during 2017. Given our

acute focus on the near-term commercialization of our nutritional ingredient traits and products, we do not intend to continue pursuing contract research agreements and government grant projects at the levels we have historically. As such, we expect these revenues to decline over the next 36 months.

#### *Cost of Product Revenues*

Cost of product revenues increased by \$169,000, or 65%, in the nine months ended September 30, 2018 compared to the nine months ended September 30, 2017 due primarily to an inventory write-down in the amount of \$223,000 recorded as a result of a reduction in the forecasted GLA sales volume.

#### *Research and Development*

Research and development expenses decreased by \$717,000, or 14%, in the nine months ended September 30, 2018 compared to the nine months ended September 30, 2017. The decrease was primarily driven by the termination of a license and subcontracted research agreement at the end of 2017 and less subcontracting expense in support of government grants. Given our acute focus on the near-term commercialization of our nutritional ingredient traits and products, we do not intend to continue pursuing contract research agreements and government grant projects at the levels we have historically. Over the next 36 months, we expect these revenues to decline as our current contract research agreements and government grant projects conclude and are not replaced.

#### *Selling, General, and Administrative*

Selling, general, and administrative expenses increased by \$171,000, or 2%, in the nine months ended September 30, 2018 compared to the nine months ended September 30, 2017. The slight increase was primarily driven by higher intellectual property legal fees and bonus expense, partially offset by lower salaries and benefits, mainly as a result of the reductions in our workforce and lower advisory fees in the nine months ended September 30, 2018.

#### *Interest Expense*

Interest expense decreased by \$747,000, or 100%, in the nine months ended September 30, 2018 compared to the nine months ended September 30, 2017. The decrease was the result of the extinguishment of debt in July 2017. See Note 8.

#### *Other Income, Net*

Other income, net, of \$266,000 for the nine months ended September 30, 2018 was an increase of \$20,000, or 8% when compared to Other income, net, of \$246,000 for the nine months ended September 30, 2017. The increase of income was primarily related to higher investment income earned in 2018.

#### *Initial Loss on Common Stock Warrant and Common Stock Adjustment Feature Liabilities*

Initial loss on common stock warrant and common stock adjustment feature liabilities of \$4.0 million is comprised of the non-cash loss associated with the initial recognition of the common stock warrant and common stock adjustment feature liabilities associated with the Private Placement in March 2018 at estimated fair values of \$10.2 million and \$3.8 million, respectively. The combined fair value of \$14 million less \$10 million of proceeds yields the \$4.0 million initial loss.

#### *Change in the Estimated Fair Value of Common Stock Warrant Liabilities and Common Stock Adjustment Feature Liability*

Change in the estimated fair value of common stock warrant liabilities and common stock adjustment feature liability of \$6.0 million for the nine months ended September 30, 2018 resulted from the fair value remeasurements of the Purchase Agreement liabilities at March 31, 2018 and the final remeasurement of the common stock adjustment feature on May 7, 2018. Also included is the remeasurement of the June Offering liability and the Purchase Agreement common stock warrant liability on June 30 and September 30, 2018. The estimated fair value of the Purchase Agreement common stock adjustment feature increased by \$4.6 million, the estimated fair value of the Purchase Agreement common stock warrants decreased by \$6.2 million, and the estimated fair value of the June Offering common stock warrants decreased by \$4.4 million due to the decrease in the Company's stock price. The Purchase Agreement common stock adjustment feature liability was released to equity following the final fair value remeasurement in May 2018. See Note 9.

### *Offering Costs*

Offering costs for the nine months ended September 30, 2018 of \$2.5 million is comprised of \$1.8 million associated with the Private Placement and \$710,000 related to the June Offering and June Private Placement.

### *Income Tax Provision*

Income tax provision of \$26,000 for the nine months ended September 30, 2018 was relatively consistent with the \$31,000 recorded for nine months ended September 30, 2017.

### **Seasonality**

We and our commercial partners operate in different geographies around the world and conduct field trials used for data generation, which must be conducted during the appropriate growing seasons for particular crops and markets. Often, there is only one crop-growing season per year for certain crops and markets. Similarly, climate conditions and other factors that may influence the sales of our products may vary from season to season and year to year. In particular, weather conditions, including natural disasters such as heavy rains, hurricanes, hail, floods, tornadoes, freezing conditions, drought, or fire, may affect the timing and outcome of field trials, which may delay milestone payments and the commercialization of products incorporating our seed traits. In the future, sales of commercial products that incorporate our seed traits will vary based on crop growing seasons and weather patterns within particular regions.

The level of seasonality in our business overall is difficult to evaluate at this time due to our relatively early stage of development, our relatively limited number of commercialized products, our expansion into new geographical markets, and our introduction of new products and traits.

### **Liquidity and Capital Resources**

We have funded our operations primarily with the net proceeds from our initial public offering and private placements of equity and debt securities, as well as proceeds from the sale of our SONOVA products and payments under license agreements, contract research agreements, and government grants. Our principal use of cash is to fund our operations, which are primarily focused on progressing our agricultural yield and product quality seed traits through the regulatory process and to commercialization. This includes replicating field trials, coordinating with our partners on their development programs, and collecting, analyzing, and submitting field trial data to regulatory authorities. As of September 30, 2018, we had cash and cash equivalents of \$6.7 million.

As is disclosed in Note 9, the Company has obtained funding through two separate arrangements during the first half of 2018. On March 19, 2018, the Company entered into securities purchase agreements with institutional investors in connection with a private placement of common stock and warrants in the amount of \$10 million, exclusive of any related transaction fees. On June 11, 2018, the Company entered into agreements with institutional investors through a registered direct offering in the amount of \$14 million, exclusive of any related transaction fees.

The Company believes its existing cash, cash equivalents, and investments will be sufficient to meet its anticipated cash requirements for at least the next 12 months. See Note 1.

We may seek to raise additional funds through debt or equity financings, if necessary. We may also consider entering into additional partner arrangements or pursuing additional government grants. Our sale of additional equity would result in dilution to our stockholders. Our incurrence of debt would result in debt service obligations, and the instruments governing our debt could provide for additional operating and financing covenants that would restrict our operations. If we do require additional funds and are not able to secure adequate additional funding, we may be forced to reduce our spending, extend payment terms with our suppliers, liquidate assets, or suspend or curtail planned development programs. Any of these actions could materially harm our business, results of operations and financial condition.

## Cash Flows

The following table summarizes our cash flows for the periods indicated (in thousands):

	Nine Months Ended September 30,	
	2018	2017
Net cash provided by (used in):		
Operating activities	\$ (10,936)	\$ (11,282)
Investing activities	(14,000)	38,300
Financing activities	22,480	(26,101)
Net (decrease) increase in cash	<u>\$ (2,456)</u>	<u>\$ 917</u>

### Cash used in operating activities

Cash used in operating activities for the nine months ended September 30, 2018 was \$10.9 million. Our net loss of \$12.8 million, the change in fair value of common stock warrant liabilities and common stock adjustment feature liability of \$6.1 million and net amortization of investment premium and discount of \$115,000 were partially offset by the initial loss on common stock warrant and adjustment feature liabilities of \$4 million, non-cash charges of \$998,000 for stock-based compensation, and depreciation and amortization of \$123,000, as well as \$2.5 million for offering costs included in financing activities and adjustments in our working capital accounts of \$337,000.

Cash used in operating activities for the nine months ended September 30, 2017 was \$11.3 million. Our net loss of \$12.7 million, net amortization of investment premium and discount of \$82,000 and adjustments in our working capital accounts of \$842,000 were partly offset by non-cash charges of \$1.2 million for stock-based compensation, loss on extinguishment of debt of \$900,000, depreciation and amortization of \$215,000, and accretion of debt discount of \$98,000.

### Cash provided by (used in) investing activities

Cash used in investing activities for the nine months ended September 30, 2018 consisted of \$22.9 million in purchases of short-term investments and \$89,000 in purchases of property and equipment, which was offset by \$9.0 million in proceeds from sales and maturities of investments.

Cash provided by investing activities for the nine months ended September 30, 2017 of \$38.3 million primarily consisted of \$57.8 million in proceeds from sales and maturities of investments, which was offset by \$19.4 million in purchases of short-term investments.

### Cash provided by financing activities

Cash provided by financing activities for the nine months ended September 30, 2018 consisted of proceeds from the issuance of stock and warrants relating to the Purchase Agreement of \$10.0 million and the June Offering and June Private Placement of \$14.0 million, partially offset by \$2.5 million of offering costs for both transactions paid during the period. Proceeds from the exercise of stock options and the purchase of ESPP shares totaled \$969,000.

Cash used in financing activities for the nine months ended September 30, 2017 of \$26.1 million consisted of payments on notes payable and related debt extinguishment costs (Note 8).

## Off-Balance Sheet Arrangements

Since our inception, we have not engaged in any off-balance sheet arrangements, including the use of structured finance, special purpose entities, or variable interest entities other than Verdeca, which is discussed in the notes to our condensed consolidated financial statements.

## Critical Accounting Policies and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported revenue generated, and expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the

circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We consider our critical accounting policies and estimates to be revenue recognition, inventories, income taxes, the liabilities relating to the Purchase Agreement and the June Offering, and stock-based compensation. See Notes 4 and 9 for the estimates made in connection with the securities purchase agreements executed during the first six months of 2018 and Note 5 for our accounting policies in effect with the adoption of ASC Topic 606.

**ITEM 3: QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

Not Required.

**ITEM 4: CONTROLS AND PROCEDURES**

**Evaluation of Disclosure Controls and Procedures**

We maintain “disclosure controls and procedures,” as such term is defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, or Exchange Act, that are designed to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in Securities and Exchange Commission rules and forms, and that such information is accumulated and communicated to our management, including our President and Chief Executive Officer and our Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating our disclosure controls and procedures, management recognized that disclosure controls and procedures, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the disclosure controls and procedures are met. Our disclosure controls and procedures have been designed to meet reasonable assurance standards. Additionally, in designing disclosure controls and procedures, our management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible disclosure controls and procedures. The design of any disclosure controls and procedures also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

Based on their evaluation as of the end of the period covered by this Quarterly Report on Form 10-Q, our President and Chief Executive Officer and our Chief Financial Officer have concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

**Changes in Internal Control over Financial Reporting**

There were no changes in our internal control over financial reporting (as such term is defined in Rule 13a-15(f) under the Exchange Act) identified in connection with the evaluation identified above that occurred during the quarter ended September 30, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

**PART II. OTHER INFORMATION**

**ITEM 1. LEGAL PROCEEDINGS**

Except as set forth below, we currently are not a party to any material litigation or other material legal proceedings. From time to time, we may be subject to legal proceedings and claims in the ordinary course of business.

In February 2018, we initiated an interference proceeding with the United States Patent and Trademark Office (USPTO) concerning a patent application owned by us and a patent owned by Arista Cereals Technologies Pty. Ltd. relating to our Resistant Starch Wheat products to determine priority of invention. On August 14, 2018, the USPTO issued a decision on claim construction that resulted in termination of the interference. We appealed that decision on September 4, 2018, to the U.S. Court of Appeals for the Federal Circuit. Our initial brief in that appeal is due November 30, 2018. A decision on the appeal is not expected until the latter half of 2019.

If the USPTO determines Arista was the later to invent, the patent in question will be assigned to us. To the contrary, if the USPTO concludes Arcadia is the later to invent, our patent application will not be granted. We believe such a ruling, in and of itself, would not preclude Arcadia from commercializing its Resistance Starch Wheat product.

On September 4, 2018, we filed a complaint, as amended on October 26, 2018, in the United States District Court for the Southern District of New York against Vilmorin & Cie, Limagrain Céréales Ingrédients S.A., and Arista Cereal Technologies Pty Ltd. asserting claims for correction of inventorship, breach of contract, breach of the implied covenant of good faith and fair dealing, unfair

competition, misappropriation, unjust enrichment, conversion, and tortious interference related to the defendants' unauthorized use of our technology that was previously disclosed to them. Defendants have filed motions to dismiss. The case is currently in discovery and has a trial date scheduled for May 2019.

## **ITEM 1A. RISK FACTORS**

In addition to the other information set forth in this Quarterly Report, you should carefully consider the factors discussed in Part I, "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2017, which could materially affect our business, financial condition, liquidity or future results. The risks described in our Annual Report on Form 10-K are not the only risks facing our company. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition, liquidity or future results.

***If we or one of our collaborators are sued for infringing the intellectual property rights of a third party, such litigation could be costly and time consuming and could prevent us or our collaborators from developing or commercializing our products.***

Our ability to generate significant revenues from our products depends on our and our collaborators' ability to develop, market and sell our products and utilize our proprietary technology without infringing the intellectual property and other rights of any third parties. In the United States and abroad there are numerous third-party patents and patent applications that may be applied toward our proprietary technology, business processes, or developed traits, some of which may be construed as containing claims that cover the subject matter of our products or intellectual property. Because of the rapid pace of technological change, the confidentiality of patent applications in some jurisdictions (including U.S. provisional patent applications), and the fact that patent applications can take many years to issue, there may be currently pending applications that are unknown to us that may later result in issued patents upon which our products in development or proprietary technologies infringe. Similarly, there may be issued patents relevant to our products in development of which we are not aware. These patents could reduce the value of the traits we develop or the plants containing our traits or, to the extent they cover key technologies on which we have unknowingly relied, require that we seek to obtain licenses or cease using the technology, no matter how valuable to our business. We may not be able to obtain such a license on commercially reasonable terms. If any third-party patent or patent application covers our intellectual property or proprietary rights and we are not able to obtain a license to it, we and our collaborators may be prevented from commercializing products containing our traits.

As the agricultural biotechnology industry continues to develop, we may become party to, or threatened with, litigation or other adverse proceedings regarding intellectual property or proprietary rights in our technology, processes, or developed traits. Third parties may assert claims based on existing or future intellectual property rights and the outcome of any proceedings is subject to uncertainties that cannot be adequately quantified in advance. Any litigation proceedings could be costly and time consuming, and negative outcomes could result in liability for monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent. There is also no guarantee that we would be able to obtain a license under such infringed intellectual property on commercially reasonable terms or at all. A finding of infringement could prevent us or our collaborators from developing, marketing or selling a product or force us to cease some or all of our business operations. Even if we are successful in these proceedings, we may incur substantial costs and the time and attention of our management and scientific personnel may be diverted as a result of these proceedings, which could have a material adverse effect on us. Claims that we have misappropriated the confidential information or trade secrets of third parties could similarly have a negative impact on our business.

Our success will depend in part on our ability to uphold and enforce patents or patent applications owned or co-owned by us or licensed to us, which cover products we successfully develop. Proceedings involving our patents or patent applications could result in adverse decisions regarding:

- ownership of patents and patent applications;
- rights concerning licenses;
- the patentability of our inventions relating to our products; and/or
- the enforceability, validity or scope of protection offered by our patents relating to our products.

Even if we are successful in these proceedings, we may incur substantial costs and divert management's time and attention in pursuing these proceedings, which could have a material adverse effect on us.

***Our commercial success depends on our ability to protect our intellectual property and our proprietary technologies and on the ability to operate without infringing the patents and other proprietary rights of third parties.***

Our success will depend in part on our ability to obtain and maintain patent protection both in the United States and in other countries for any products we successfully develop. The patents and patent applications in our patent portfolio are either owned by us, exclusively licensed to us, or co-owned by us and others and exclusively licensed to us. Our ability to protect any products we successfully develop from unauthorized or infringing use by third-parties depends substantially on our ability to obtain and maintain valid and enforceable patents. Due to evolving legal standards relating to the patentability, validity and enforceability of patents covering biotechnology inventions and the scope of claims made under these patents, our ability to obtain and enforce patents is uncertain and involves complex legal and factual questions. Accordingly, rights under any issued patents may not provide us with sufficient protection for any products we successfully develop or provide sufficient protection to afford us a commercial advantage against our competitors or their competitive products or processes. In addition, we cannot guarantee that any patents will be issued from any pending or future patent applications owned by or licensed to us. Even if patents have been issued or will be issued, we cannot guarantee that the claims of these patents are, or will be, valid or enforceable, or provide us with any significant protection against competitive products or otherwise be commercially valuable to us.

The U.S. Congress passed the Leahy-Smith America Invents Act, or the America Invents Act, which was signed into law in September 2011. The America Invents Act reforms U.S. patent law in part by changing the standard for patent approval from a “first to invent” standard to a “first inventor to file” standard and developing a post-grant review system. This new legislation affects U.S. patent law in a manner that may impact our ability to obtain or maintain patent protection for current or future inventions in the U.S. or otherwise cause uncertainty as to our patent protection.

We may not have identified all patents, published applications or published literature that may affect our business, either by blocking our ability to commercialize our traits, by preventing the patentability of our traits by us, our licensors or co-owners, or by covering the same or similar technologies that may invalidate our patents, limiting the scope of our future patent claims or adversely affecting our ability to market our products. For example, patent applications are maintained in confidence for at least 18 months after their filing. In some cases, patent applications remain confidential in the USPTO for the entire time prior to issuance of a U.S. patent. Patent applications filed in countries outside the United States are not typically published until at least 18 months from their first filing date. Similarly, publication of discoveries in the scientific or patent literature often lags behind actual discoveries. Therefore, we cannot be certain that we or our licensors or co-owners were the first to invent, or the first inventors to file, patent applications on our processes, products or their uses. In the event that another party has filed a U.S. patent application covering the same invention as one of our patent applications or patents, we may have to participate in an adversarial proceeding, known as an interference, declared by the USPTO to determine priority of invention in the United States. For example, in February 2018, we initiated an interference proceeding with the USPTO concerning a patent application owned by us and a patent owned by Arista Cereals Technologies Pty. Ltd. relating to our Resistant Starch Wheat products to determine priority of invention.

On August 14, 2018, the USPTO issued a decision that resulted in termination of the interference which we appealed. A decision on the appeal is not expected until the latter half of 2019. If the USPTO determines Arista was the later to invent, the patent in question will be assigned to Arcadia. To the contrary, if the USPTO concludes Arcadia is the later to invent, our patent application will not be granted. We believe such a ruling, in and of itself, would not preclude Arcadia from commercializing its Resistance Starch Wheat product.

Additionally, the Company is aware Arista has issued patents and pending patent applications relating to high amylose wheat. The Company believes that its products and traits relating to high amylose wheat do not infringe any valid claims under Arista’s issued patents. However, there is no guarantee that a court would make the same determination, and an adverse decision would affect the Company’s ability to exploit such product containing the patented claims.

**ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS**

None.

**ITEM 3. DEFAULTS UPON SENIOR SECURITIES**

None.

**ITEM 4. MINE SAFETY DISCLOSURES**

Not applicable.

**ITEM 5. OTHER INFORMATION**

None.

**ITEM 6. EXHIBITS**

The following exhibits are attached hereto or are incorporated herein by reference.

<u>Exhibit Number</u>	<u>Exhibit Description</u>
31.1	<a href="#"><u>Principal Executive Officer's Certifications Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u></a>
31.2	<a href="#"><u>Principal Financial Officer's Certifications Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u></a>
32.1(1)	<a href="#"><u>Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u></a>
32.2(1)	<a href="#"><u>Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u></a>
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

- (1) This certification is deemed not filed for purpose of Section 18 of the Exchange Act or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act or the Exchange Act.

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Arcadia Biosciences, Inc.

November 7, 2018

By: /s/ RAJENDRA KETKAR  
Rajendra Ketkar  
President and Chief Executive Officer

November 7, 2018

By: /s/ MATTHEW T. PLAVAN  
Matthew T. Plavan  
Chief Financial Officer

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER  
PURSUANT TO EXCHANGE ACT RULE 13a-14(a)/15d-14(a)  
AS ADOPTED PURSUANT TO SECTION 302  
OF THE SARBANES-OXLEY ACT OF 2002**

I, Rajendra Ketkar, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Arcadia Biosciences, Inc. for the period ended September 30, 2018;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:
  - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles; and
  - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: November 7, 2018

/s/ RAJENDRA KETKAR

\_\_\_\_\_  
Rajendra Ketkar  
President and Chief Executive Officer  
(Principal Executive Officer)

**CERTIFICATION OF CHIEF FINANCIAL OFFICER  
PURSUANT TO EXCHANGE ACT RULE 13a-14(a)/15d-14(a)  
AS ADOPTED PURSUANT TO SECTION 302  
OF THE SARBANES-OXLEY ACT OF 2002**

I, Matthew T. Plavan, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Arcadia Biosciences, Inc. for the period ended September 30, 2018;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:
  - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles; and
  - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: November 7, 2018

/s/ MATTHEW T. PLAVAN

\_\_\_\_\_  
Matthew T. Plavan  
Chief Financial Officer  
(Principal Financial Officer)

**CERTIFICATION  
PURSUANT TO 18 U.S.C. SECTION 1350  
AS ADOPTED PURSUANT TO  
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the accompanying Quarterly Report of Arcadia Biosciences, Inc. (the "Company"), on Form 10-Q for the quarter ended September 30, 2018 (the "Report"), I, Rajendra Ketkar, President and Chief Executive Officer of the Company, hereby certify pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002 that:

- (1) the Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: November 7, 2018

/s/ RAJENDRA KETKAR

\_\_\_\_\_  
Rajendra Ketkar

President and Chief Executive Officer  
(Principal Executive Officer)

**CERTIFICATION  
PURSUANT TO 18 U.S.C. SECTION 1350  
AS ADOPTED PURSUANT TO  
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the accompanying Quarterly Report of Arcadia Biosciences, Inc. (the "Company"), on Form 10-Q for the quarter ended September 30, 2018 (the "Report"), I, Matthew T. Plavan, Chief Financial Officer of the Company, hereby certify pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002 that:

- (1) the Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: November 7, 2018

/s/ MATTHEW T. PLAVAN

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Matthew T. Plavan,  
Chief Financial Officer  
(Principal Financial Officer)

