

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

FORM 10-Q

(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, 2020**

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**

Securities registered pursuant to Section 12(b) of the Act: _____

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common	RKDA	NASDAQ CAPITAL MARKET

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 checked="" 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 November 11, 2020, the registrant had 10,832,203 shares of common stock outstanding, \$0.001 par value per share.

INDEX

	<u>Page</u>
Part I — Financial Information	1
Item 1. Condensed Consolidated Financial Statements:	1
Condensed Consolidated Balance Sheets	1
Condensed Consolidated Statements of Operations and Comprehensive Loss	2
Condensed Consolidated Statements of Stockholders' Equity	3
Condensed Consolidated Statements of Cash Flows	5
Notes to Condensed Consolidated Financial Statements	6
Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations	24
Item 3. Quantitative and Qualitative Disclosures About Market Risk	35
Item 4. Controls and Procedures	35
Part II — Other Information	36
Item 1. Legal Proceedings	36
Item 1A. Risk Factors	36
Item 2. Unregistered Sales of Equity Securities and Use of Proceeds	36
Item 3. Defaults Upon Senior Securities	36
Item 4. Mine Safety Disclosures	36
Item 5. Other Information	36
Item 6. Exhibits	37
SIGNATURES	38

ITEM 1. CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

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

	September 30, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	\$ 10,201	\$ 8,417
Short-term investments	—	16,915
Accounts receivable	373	602
Inventories, net — current	9,416	1,794
Prepaid expenses and other current assets	1,204	712
Total current assets	21,194	28,440
Restricted cash	2,001	—
Property and equipment, net	3,484	1,799
Right of use asset	6,013	1,963
Inventories, net — noncurrent	461	364
Goodwill	301	-
Intangible assets, net	400	-
Other noncurrent assets	23	8
Total assets	<u>\$ 33,877</u>	<u>\$ 32,574</u>
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable and accrued expenses	\$ 6,711	\$ 4,685
Amounts due to related parties	29	40
Debt — current	705	24
Unearned revenue — current	—	42
Operating lease liability — current	700	611
Other current liabilities	263	306
Total current liabilities	8,408	5,708
Debt — noncurrent	2,548	107
Operating lease liability — noncurrent	5,574	1,497
Common stock warrant liabilities	3,065	14,936
Other noncurrent liabilities	2,280	2,000
Total liabilities	21,875	24,248
Commitments and contingencies (Note 14)		
Stockholders' equity:		
Common stock, \$0.001 par value—150,000,000 shares authorized as of September 30, 2020 and December 31, 2019; 10,832,203 and 8,646,149 shares issued and outstanding as of September 30, 2020 and December 31, 2019, respectively	51	49
Additional paid-in capital	231,954	214,826
Accumulated other comprehensive income	—	1
Accumulated deficit	(220,725)	(207,171)
Total Arcadia Biosciences stockholders' equity	11,280	7,705
Non-controlling interest	722	621
Total stockholders' equity	12,002	8,326
Total liabilities and stockholders' equity	<u>\$ 33,877</u>	<u>\$ 32,574</u>

See accompanying notes to the unaudited condensed consolidated financial statements.

Arcadia Biosciences, Inc.

Condensed Consolidated Statements of Operations and Comprehensive Loss

(Unaudited)

(In thousands, except share and per share data)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Revenues:				
Product	\$ 245	\$ 216	\$ 630	\$ 485
License	10	17	110	17
Royalty	16	—	58	—
Contract research and government grants	43	159	106	251
Total revenues	314	392	904	753
Operating expenses:				
Cost of product revenues	1,841	177	3,463	324
Research and development	1,762	1,931	5,999	5,387
Selling, general and administrative	4,292	4,477	11,689	10,434
Total operating expenses	7,895	6,585	21,151	16,145
Loss from operations	(7,581)	(6,193)	(20,247)	(15,392)
Interest expense	(23)	(3)	(32)	(3)
Other income, net	—	119	83	339
Change in fair value of common stock warrant liabilities	1,130	(7,777)	6,212	(6,790)
Loss on extinguishment of warrant liability	(682)	—	(635)	—
Offering costs	—	(336)	—	(702)
Net loss before income taxes	(7,156)	(14,190)	(14,619)	(22,548)
Income tax benefit (provision)	(9)	3	(15)	(14)
Net loss	(7,165)	(14,187)	(14,634)	(22,562)
Net loss attributable to non-controlling interest	(774)	—	(1,081)	—
Net loss attributable to common stockholders	\$ (6,391)	\$ (14,187)	\$ (13,553)	\$ (22,562)
Net loss per share attributable to common stockholders:				
Basic and diluted	\$ (0.60)	\$ (2.04)	\$ (1.42)	\$ (4.03)
Weighted-average number of shares used in per share calculations:				
Basic and Diluted	10,719,618	6,942,612	9,570,259	5,596,545
Other comprehensive loss, net of tax				
Unrealized losses on available-for-sale securities	—	(1)	(1)	—
Other comprehensive loss	—	(1)	(1)	—
Comprehensive loss attributable to common stockholders	\$ (6,391)	\$ (14,188)	\$ (13,554)	\$ (22,562)

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) Income	Non- Controlling Interest	Total Stockholders' Equity
	Shares	Amount					
Balance at December 31, 2019	8,646,149	\$ 49	\$ 214,826	\$ (207,171)	\$ 1	\$ 621	\$ 8,326
Issuance of shares related to employee stock purchase plan	7,946	—	14	—	—	—	14
Stock-based compensation	—	—	772	—	—	—	772
Unrealized losses on available-for-sale securities	—	—	—	—	(1)	—	(1)
Non-controlling interest contributions	—	—	—	—	—	689	689
Net (loss) income	—	—	—	2,525	—	(102)	2,423
Balance at March 31, 2020	8,654,095	\$ 49	\$ 215,612	\$ (204,646)	\$ —	\$ 1,208	\$ 12,223
Issuance of shares related to exercise of June 2018 Warrants	1,392,345	1	5,568	—	—	—	5,569
Issuance of investor warrants related to May 2020 Warrant Transaction	—	—	4,415	—	—	—	4,415
Issuance of placement agent warrants related to issuance of May 2020 Warrants	—	—	215	—	—	—	215
Stock-based compensation	—	—	595	—	—	—	595
Non-controlling interest contributions	—	—	—	—	—	493	493
Net loss	—	—	—	(9,688)	—	(205)	(9,893)
Balance at June 30, 2020	10,046,440	\$ 50	\$ 226,405	\$ (214,334)	\$ —	\$ 1,496	\$ 13,617
Issuance of shares related to exercise of March 2018 PIPE	641,416	1	2,443	—	—	—	2,444
Issuance of investor warrants related to July 2020 Warrant Transaction	—	—	2,059	—	—	—	2,059
Issuance of placement agent warrants related to issuance of July 2020 Warrants	—	—	101	—	—	—	101
Issuance of shares related to employee stock purchase plan	11,721	—	37	—	—	—	37
Stock-based compensation	—	—	477	—	—	—	477
Shares of common stock issued at closing of ISI transaction	132,626	—	432	—	—	—	432
Net loss	—	—	—	(6,391)	—	(774)	(7,165)
Balance at September 30, 2020	<u>10,832,203</u>	<u>\$ 51</u>	<u>\$ 231,954</u>	<u>\$ (220,725)</u>	<u>\$ —</u>	<u>\$ 722</u>	<u>\$ 12,002</u>

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Non- Controlling Interest	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2018	4,774,919	\$ 45	\$ 191,136	\$ (178,366)	\$ —	\$ 12,815
Issuance of shares related to employee stock purchase plan	2,500	—	8	—	—	8
Stock-based compensation	—	—	422	—	—	422
Net loss	—	—	—	(12,612)	—	(12,612)
Balance at March 31, 2019	4,777,419	\$ 45	\$ 191,566	\$ (190,978)	\$ —	\$ 633
Issuance of shares related to June 2019 Offering	1,489,575	2	3,301	—	—	3,303
Issuance of placement agent warrants related to June 2019 Offering	—	—	198	—	—	198
Issuance of shares related to the exercise of warrants issued with the June 2019 offering	1,053,745	1	5,268	—	—	5,269
Offering costs related to June 2019 Offering	—	—	(487)	—	—	(487)
Stock-based compensation	—	—	389	—	—	389
Net loss	—	—	—	4,237	—	4,237
Balance at June 30, 2019	7,320,739	\$ 48	\$ 200,235	\$ (186,741)	\$ —	\$ 13,542
Issuance of shares related to employee stock purchase plan	6,036	—	10	—	—	10
Issuance of shares related to employee stock option exercises	546	—	3	—	—	3
Reclassification of common stock warrant liability balance with exercise	—	—	7,016	—	—	7,016
Issuance of shares related to September 2019 Offering	1,318,828	1	6,570	—	—	6,571
Issuance of placement agent warrants related to September 2019 Offering	—	—	326	—	—	326
Offering costs related to September 2019 Offering	—	—	(796)	—	—	(796)
Stock-based compensation	—	—	1,059	—	—	1,059
Non-controlling interest contributions	—	—	—	—	689	689
Net loss	—	—	—	(14,187)	—	(14,187)
Balance at September 30, 2019	8,646,149	\$ 49	\$ 214,423	\$ (200,928)	\$ 689	\$ 14,233

See accompanying notes to the unaudited condensed consolidated financial statements.

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

	Nine Months Ended September 30,	
	2020	2019
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	\$ (14,634)	\$ (22,562)
Adjustments to reconcile net loss to cash used in operating activities:		
Change in fair value of common stock warrant liabilities	(6,212)	6,790
Loss on extinguishment of warrant liability	635	—
Offering costs	—	702
Depreciation	395	133
Lease amortization	745	530
(Gain) Loss on disposal of equipment	(8)	1
Net amortization of investment premium	(44)	(121)
Stock-based compensation	1,844	1,870
Write-down of inventory and prepaid production costs	3,063	—
Changes in operating assets and liabilities:		
Accounts receivable	229	38
Unbilled revenue	-	3
Inventories	(9,609)	(1,411)
Prepaid expenses and other current assets	(1,157)	(36)
Other noncurrent assets	(15)	—
Accounts payable and accrued expenses	2,026	2,425
Amounts due to related parties	(11)	(1)
Other current liabilities	(43)	3
Unearned revenue	(42)	(16)
Operating lease payments	(629)	(534)
Net cash used in operating activities	<u>(23,467)</u>	<u>(12,186)</u>
CASH FLOWS FROM INVESTING ACTIVITIES:		
Proceeds from sale of property and equipment	8	1
Purchases of property and equipment	(2,038)	(878)
Acquisitions, net of cash acquired	(500)	—
Purchases of investments	(1,292)	(18,458)
Proceeds from sales and maturities of investments	18,250	18,050
Net cash provided by (used in) investing activities	<u>14,428</u>	<u>(1,285)</u>
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from warrant exercises, issuance of common stock and warrants from June 2019 Offering	—	7,500
Proceeds from borrowings	3,108	—
Payments of transaction costs relating to extinguishment of warrant liability	(863)	—
Proceeds from issuance of common stock and warrants from Purchase Agreement	—	10,000
Payments of offering costs relating to September 2019 Offering	—	(776)
Payments of offering costs relating to June 2019 Offering	—	(663)
Payments of offering costs relating to June 2018 Offering	—	(24)
Principal payments on notes payable	(26)	(2)
Proceeds from the exercise of warrants	9,372	5,269
Proceeds from ESPP purchases	51	21
Capital contributions received from non-controlling interest	1,182	689
Net cash provided by financing activities	<u>12,824</u>	<u>22,014</u>
Net increase in cash, cash equivalents and restricted cash	3,785	8,543
Cash, cash equivalents and restricted cash — beginning of period	8,417	11,998
Cash, cash equivalents and restricted cash — end of period	<u>\$ 12,202</u>	<u>\$ 20,541</u>
SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION:		
Cash paid for income taxes	<u>\$ 1</u>	<u>\$ 2</u>
Cash paid for interest	<u>\$ 7</u>	<u>\$ —</u>
NONCASH INVESTING AND FINANCING ACTIVITIES:		
Fixed assets acquired with notes payable	<u>\$ 37</u>	<u>\$ 139</u>
Common stock warrants issued to placement agent and included in offering costs related to May 2020 Warrant Transaction	<u>\$ 215</u>	<u>\$ —</u>
Common stock warrants issued to placement agent and included in offering costs related to July 2020 Warrant Transaction	<u>\$ 101</u>	<u>\$ —</u>
Offering costs in accounts payable and accrued expenses at end of period	<u>\$ —</u>	<u>\$ 21</u>
Common stock warrants issued to placement agent and included in offering costs related to June 2019 Offering	<u>\$ —</u>	<u>\$ 86</u>
Common stock warrants issued to placement agent and included in offering costs related to September 2019 Offering	<u>\$ —</u>	<u>\$ 95</u>
Reclassification of common stock warrant liability balance with warrant exercises	<u>\$ —</u>	<u>\$ 7,016</u>
Right of use assets obtained in exchange for new operating lease liabilities	<u>\$ 4,157</u>	<u>\$ 2,328</u>
Purchases of fixed assets included in accounts payable and accrued expenses	<u>\$ —</u>	<u>\$ 6</u>

See accompanying notes to the unaudited condensed consolidated financial statements.

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, American Falls, Idaho, and Molokai, Hawaii. The Company was reincorporated in Delaware in March 2015.

The Company is a leader in science-based approaches to developing high value crop productivity traits primarily in hemp, wheat, and soybean, designed to enhance farm economics by improving the performance of crops in the field, as well as their value as food ingredients, health and wellness products, and their viability for industrial applications. The Company uses state of the art gene-editing technology and advanced breeding techniques to develop these proprietary innovations which are beginning to monetize through a number of methods including seed and grain sales, product extract sales, trait licensing and royalty agreements.

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.

On August 9, 2019, the Company entered into a joint venture agreement with Legacy Ventures Hawaii, LLC (“Legacy,” see Note 7) to grow, extract, and sell hemp products. The new partnership, Archipelago Ventures Hawaii, LLC (“Archipelago”), combines the Company’s extensive genetic expertise and resources with Legacy’s experience in hemp extraction and sales.

The Company is closely monitoring how the spread of the novel coronavirus is affecting its business operations and employees. The Company’s targeted revenues have been adversely impacted as hemp growers have been slower to make decisions to purchase hemp seeds due to economic uncertainty and wheat consumer packaged goods companies have been heavily focused on production over R&D evaluation as demand for staples like pasta and flour have increased. At this time, there is significant uncertainty relating to the trajectory of the novel coronavirus outbreak and impact of related responses. The continued spread of the outbreak may further impact the Company’s business, results of operations, and financial condition.

Basis of Presentation and Principles of Consolidation

The accompanying unaudited condensed consolidated financial statements have been prepared 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 accompanying unaudited condensed consolidated financial statements include the accounts of the Company, Verdeca and Archipelago.

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. Accordingly, the Company consolidates the entity in the condensed consolidated financial statements after eliminating intercompany transactions. The Company evaluates its relationships with its VIEs upon the occurrence of certain significant events that affect the design, structure or other factors pertinent to the primary beneficiary determination. Verdeca LLC had no operations for the three and nine months ended September 30, 2020 and 2019, respectively, and had no assets or liabilities as of September 30, 2020 and December 31, 2019, respectively.

For all periods presented, the Company has determined that it is the primary beneficiary of Archipelago, a joint venture, as it has a controlling interest in Archipelago. Accordingly, the Company consolidates the entity in the condensed consolidated financial statements after eliminating intercompany transactions. For consolidated joint ventures, the non-controlling partner's share of the assets, liabilities and operations of the joint venture is included in non-controlling interests as equity of the Company. The non-controlling partner's interest is generally computed as the joint venture partner's ownership percentage of Archipelago. Net loss attributable to non-controlling interest of \$774,000 and \$1,081,000 is recorded as an adjustment to net loss to arrive at net loss attributable to common stockholders for the three and nine months ended September 30, 2020, respectively. The non-controlling partner's equity interests are presented as non-controlling interests on the condensed consolidated balance sheets as of September 30, 2020.

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 condensed consolidated financial statements and notes thereto for the fiscal year ended December 31, 2019 included in the Company's Annual Report on Form 10-K, filed with the SEC on March 25, 2020.

Restricted Cash

Restricted cash consists of funds that are contractually or legally restricted as to usage or withdrawal and have been presented separately from cash and cash equivalents on the condensed consolidated balance sheets.

Liquidity, Capital Resources, and Going Concern

As of September 30, 2020, the Company had an accumulated deficit of \$220.7 million, and cash and cash equivalents of \$10.2 million. For the nine months ended September 30, 2020, the Company had net losses of \$14.6 million and net cash used in operations of \$23.5 million. For the twelve months ended December 31, 2019, the Company had net losses of \$28.9 million and net cash used in operations of \$17.2 million.

With cash and cash equivalents of \$10.2 million as of September 30, 2020, the Company believes that its existing cash, cash equivalents and investments will be insufficient to meet its anticipated cash requirements for at least through November 2021, and thus raises substantial doubt about the Company's ability to continue as a going concern. The condensed consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

The Company may seek to raise additional funds through debt or equity financings, if necessary and available. The Company may also consider entering into additional partner arrangements. The sale of additional equity would result in dilution to the Company's stockholders and could have unfavorable terms. 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 could restrict operations. If the Company is unable to secure adequate additional funding at terms agreeable to the Company, the Company may be forced to reduce spending, extend payment terms with suppliers, liquidate assets, or suspend or curtail planned development programs or operations. Any of these actions could materially harm the business, results of operations and financial condition.

As previously disclosed, there is significant uncertainty relating to the trajectory of the novel coronavirus outbreak ("COVID-19") and impact of related responses. The continued spread of the outbreak could materially harm the Company's business, results of operations, and financial condition. Due to this uncertainty and plans outside of management's control, the Company may not be able to achieve and implement such plans within one year after the date that the condensed consolidated financial statements are issued to address the substantial doubt that exists.

2. Recent Accounting Pronouncements

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. Additionally, the FASB issued ASU No. 2019-04, *Codification Improvements to Topic 326* in April 2019 and ASU 2019-05, *Financial Instruments – Credit Losses (Topic 326) – Targeted Transition Relief* in May 2019. 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. In November 2019, the FASB issued ASU No. 2019-10, which defers the effective date of ASU No. 2016-13 for smaller reporting companies to fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. The Company is currently evaluating the impact of the adoption of ASU No. 2016-13 on the 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 were effective for all entities for fiscal years beginning after December 15, 2019. The Company adopted ASU No. 2018-13 on January 1, 2020 and expanded its disclosures for significant unobservable inputs used to develop Level 3 fair value measurements. There was no impact on the condensed consolidated financial statements. See Note 4.

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*. The amendments simplify the accounting for income taxes by removing certain exceptions to the general principles in Topic 740 and clarifying other areas of existing guidance. The amendments are effective for all entities for fiscal years beginning after December 15, 2020. The Company is currently evaluating the impact of the adoption of ASU No. 2019-12 on the condensed consolidated balance sheets, statements of operations and comprehensive loss, or statements of cash flows.

In April 2020, the FASB issued a staff question-and-answer (“Q&A”) document to respond to frequently asked questions about the accounting for lease concessions related to the effects of the COVID-19 pandemic. Under current GAAP, subsequent changes to lease payments that are not stipulated in the original lease contract are generally accounted for as lease modifications under Topic 842. The Q&A allows companies to make an accounting policy election to not evaluate lease concessions related to the effects of the COVID-19 pandemic as lease modifications. Entities that make this election then need to decide whether to apply the lease modification guidance in ASC 842 to the concession or account for the concession as if it were contemplated as part of the existing contract. The Company has not entered into any lease modifications that provide concessions related to the effects of the COVID-19 pandemic, and therefore has not evaluated its option to make this accounting policy election.

3. Inventory

Inventory costs are tracked on a lot-identified basis and are included as cost of product revenues when sold. Inventories are stated at the lower of cost or net realizable value. The Company makes adjustments to inventory when conditions indicate that the net realizable value may be less than cost due to physical deterioration, obsolescence, changes in price levels, or other factors. Additional adjustments to inventory are made for excess and slow-moving inventory on hand that is not expected to be sold within a reasonable timeframe to reduce the carrying amount to its estimated net realizable value. The write-downs to inventory are based upon estimates about future demand from the Company’s customers and distributors and market conditions. The Company recorded write-downs of wheat inventories, hemp seed inventories, and prepaid production costs of \$1.5 million and \$3.1 million for the three and nine months ended September 30, 2020, respectively. The \$1.3 million write-down of hemp seed inventories related to Archipelago was due to regulatory changes. See Note 7. The developmental hemp seed varieties which did not meet regulatory and quality specifications are the cause for the additional \$176,000 write-down. There were no such write-downs for the three and nine months ended September 30, 2019.

The inventories—current line item on the balance sheet represents inventory forecasted to be sold or used in production in the next 12 months, as of the balance sheet date, and consists primarily of the cost of GoodWheat seed, grain, and flour, GLA oil, and hemp seed. The inventories—noncurrent line item on the balance sheet represents inventory expected to be used in production or sold beyond the next 12 months, as of the balance sheet date, and consists primarily of GoodWheat seed and grain, and GLA oil and seed.

Raw materials inventories consist primarily of the cost to purchase hemp seeds and GLA seed production costs incurred by contracted cooperators. Goods in process inventories consist of costs to process hemp seed, hemp seed production costs incurred by Archipelago, grower fees and related costs for soybeans to be transferred to Verdeca, and GoodWheat seed and grain. Finished goods inventories consist of GoodWheat products, GoodHemp seed and GLA oil that are available for sale.

Inventories, net consist of the following (in thousands):

	September 30, 2020	December 31, 2019
Raw materials	\$ 36	\$ 67
Goods in process	4,079	188
Finished goods	5,762	1,903
Inventories	<u>\$ 9,877</u>	<u>\$ 2,158</u>

4. Investments and Fair Value of Financial Instruments

Investments

The Company’s investments are “available-for-sale” investments and are free of trading restrictions. These investments are classified as short-term due to the maturity dates of the investments. 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 income, which is reflected as a separate component of stockholder’s equity in the condensed consolidated balance sheets. Gains and losses are recognized when realized in the condensed consolidated statements of operations and comprehensive loss.

The following tables summarize the amortized cost and fair value of the cash equivalents and investment securities portfolio at September 30, 2020 and December 31, 2019, and the corresponding amounts of unrealized gains and losses recognized in accumulated other comprehensive income:

(Dollars in thousands)

	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
September 30, 2020				
Cash equivalents:				
Money market funds	\$ 8,064	\$ —	\$ —	\$ 8,064
Total investments	<u>\$ 8,064</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 8,064</u>

(Dollars in thousands)

	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
December 31, 2019				
Cash equivalents:				
Money market funds	\$ 6,864	\$ —	\$ —	\$ 6,864
Commercial paper	900	—	—	900
Short-term investments:				
Corporate securities	3,300	—	—	3,300
Treasury bills	1,495	1	—	1,496
Commercial paper	12,119	—	—	12,119
Total investments	<u>\$ 24,678</u>	<u>\$ 1</u>	<u>\$ —</u>	<u>\$ 24,679</u>

The Company did not have any investment categories that were in a continuous unrealized loss position for more than twelve months as of September 30, 2020.

As of September 30, 2020, the Company did not have any fixed income securities that were in unrealized loss positions, and therefore 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, 2020.

Fair Value Measurement

Fair value accounting is applied for all 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 fair value of the Company's financial assets as of September 30, 2020 and December 31, 2019 were as follows:

	Fair Value Measurements at September 30, 2020			
	Level 1	Level 2	Level 3	Total
<i>(Dollars in thousands)</i>				
Assets at Fair Value				
Cash equivalents:				
Money market funds	\$ 8,064	\$ —	\$ —	\$ 8,064
Total Assets at Fair Value	<u>\$ 8,064</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 8,064</u>

(Dollars in thousands)	Fair Value Measurements at December 31, 2019			
	Level 1	Level 2	Level 3	Total
Assets at Fair Value				
Cash equivalents:				
Money market funds	\$ 6,864	\$ —	\$ —	\$ 6,864
Commercial paper	—	900	—	900
Short-term investments:				
Corporate securities	—	3,300	—	3,300
Treasury bills	1,496	—	—	1,496
Commercial paper	—	12,119	—	12,119
Total Assets at Fair Value	\$ 8,360	\$ 16,319	\$ —	\$ 24,679

The Company's financial instruments consist primarily of cash and cash equivalents, restricted cash, accounts receivable, short-term investments, accounts payable, accrued liabilities and debt. For accounts receivable, accounts payable, accrued liabilities, and the current portion of debt the carrying amounts of these financial instruments as of September 30, 2020 and December 31, 2019 were considered representative of their fair values due to their short term to maturity or repayment. The carrying value of the noncurrent portion of debt is considered representative of their fair values due to the recency of their issuance related to the quarter ended September 30, 2020. Cash equivalents are carried at cost, which approximates their fair value.

There were no changes in valuation techniques during 2020 or 2019. 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 and treasury bills* – Investments in money market funds and treasury bills are valued using the market approach and are classified within Level 1.
- *Commercial paper and corporate securities* – Investments in commercial paper and corporate securities are valued using the market approach and are classified within Level 2.
- *Contingent liability* – A contingent liability resulting from the Anawah acquisition, as described in Note 14, is classified within Level 3. The contingent liability was measured and recorded on a recurring basis as of September 30, 2020 and December 31, 2019 using unobservable quantitative inputs that would impact the Company's ability and intent to pursue certain specific products developed using technology acquired in the purchase. At September 30, 2020 and December 31, 2019, this liability was included on the condensed consolidated balance sheets as a noncurrent liability.
- *Purchase Agreement common stock warrant liability* – The Company has outstanding warrants to purchase common stock that it issued to certain accredited investors and its placement agent on March 22, 2018 (as described in Note 10). 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. At September 30, 2020 and December 31, 2019, this liability was included on the condensed consolidated balance sheets as a noncurrent liability.
- *June 2018, June 2019 and September 2019 Offering common stock warrant liabilities* – The Company has outstanding warrants to purchase common stock that it issued to certain accredited investors (as described in Note 10). The common stock warrants are classified as a liability within Level 3 due to a contingent cash payment feature. At September 30, 2020, the June 2019 and September 2019 warrant liabilities were included on the condensed consolidated balance sheets as noncurrent liabilities. At December 31, 2019, the June 2018, June 2019 and September 2019 warrant liabilities were included on the condensed consolidated balance sheets as noncurrent liabilities.

The estimated fair value of the common stock warrant liabilities related to the March 2018 Purchase Agreement, the June 2018 Offering, the June 2019 Offering and the September 2019 Offering (the "warrant liabilities") were remeasured at September 30, 2020 and December 31, 2019 utilizing the Black-Scholes Model, with the changes recorded on the Company's condensed consolidated statements of operations and comprehensive loss. The Black-Scholes Model utilizes the following inputs to estimate fair value of an instrument: stock price, expected term, expected volatility, risk-free interest rate, and expected dividend yield. Volatility is considered by the Company to be a significant unobservable input and is calculated using a weighted average of historical stock prices of a combination of the Company and peer companies, due to the lack of sufficient historical data of the Company's own stock price. A change in the mix or weighting of the peer companies could have resulted in a significantly lower (higher) fair value measurement as of September 30, 2020. Volatility rates used in the measurement of the warrant liabilities ranged from 125.0% to 130.0%, and the weighted average was 127.2%.

The following table summarizes the changes in the fair value of the Company's Level 3 liabilities (in thousands):

	(Level 3)					Total
	Common Stock Warrant Liability - March 2018 Purchase Agreement	Common Stock Warrant Liability - June 2018 Offering	Common Stock Warrant Liability - June 2019 Offering	Common Stock Warrant Liability - September 2019 Offering	Contingent Liability	
<i>(Dollars in thousands)</i>						
Balance as of December 31, 2019	\$ 4,579	\$ 5,444	\$ 1,993	\$ 2,920	\$ 2,000	\$ 16,936
Change in fair value	(2,155)	(1,426)	(1,064)	(1,567)	—	(6,212)
Exercise of warrants (Note 10)	(1,641)	(4,018)	—	—	—	(5,659)
ISI acquisition contingent consideration	—	—	—	—	280	280
Balance as of September 30, 2020	\$ 783	\$ —	\$ 929	\$ 1,353	\$ 2,280	\$ 5,345

5. Industrial Seed Innovations Acquisition

On August 21, 2020, the Company acquired by merger Industrial Seed Innovations (ISI), an Oregon-based industrial hemp breeding and seed company. As a result of the acquisition, the Company acquired ISI's commercial and genetic assets, including seed varieties, germplasm library and intellectual property. ISI's Rogue and Umpqua seed varieties are now part of Arcadia's portfolio, alongside the Company's GoodHemp line of genetically superior hemp seeds, transplants, and extracts. The acquisition has significantly broadened and accelerated commercialization of Arcadia's hemp-related breeding platform, as well as established a breeding research and development facility in the Pacific Northwest, a key production area in the hemp industry.

The purchase price consideration for the acquisition totaled an estimated \$1,212,000, of which \$500,000 in cash and \$432,000, in the form of 132,626 shares of the Company's common stock, was paid during the third quarter ended September 30, 2020. The remaining amount of \$280,000 will be recognized in two annual installments, each of up to 132,626 shares of the Company's common stock, subject to the achievement of revenue milestones in 2021 and 2022. The cash consideration paid for the acquisition was funded by cash on hand.

For the three months period ended September 30, 2020 no revenues from ISI were recorded, and expenses were immaterial. The pro forma impact of the acquisition to the historical financial results was determined to not be significant.

Acquisition costs are not included as components of consideration transferred and instead are accounted for as expenses in the period in which the costs are incurred. The Company incurred costs related to the ISI acquisition of approximately \$67,000 included in selling, general and administrative expenses in the Company's Consolidated Statements of Operations and Comprehensive Loss.

The following table presents the preliminary allocation of the purchase price of ISI assets acquired, based on their relative fair values, which have been assessed during the quarter ended September 30, 2020:

	Purchase Price Allocation
Inventory	\$ 511
Intangible assets	400
Goodwill	301
Total consideration allocated	\$ 1,212

The former shareholders of ISI remain responsible for ISI's pre-acquisition liabilities. Pursuant to the definitive acquisition agreement, the Company entered into a lease agreement with ISI for the use of land, equipment, greenhouses and buildings. The lease was effective upon the execution of the definitive acquisition agreement and has a term of 3 years with the option to renew for three additional 3-year terms.

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 \$240,000 and \$340,000, for the three months ended September 30, 2020 and 2019, respectively, and \$454,000 and \$982,000 for the nine months ended September 30, 2020 and 2019, respectively.

7. Consolidated Joint Venture

On August 9, 2019, the Company and Legacy Ventures Hawaii, LLC, a Nevada limited liability company (“Legacy”), formed Archipelago Ventures Hawaii, LLC, a Delaware limited liability company (“Archipelago”) and entered into a Limited Liability Company Operating Agreement (the “Operating Agreement”). The Company and Legacy formed Archipelago to develop, extract and commercialize hemp-derived products from industrial hemp grown in Hawaii. The Company continued to cultivate hemp through third quarter of 2020 with the intention of producing CBD oil for sale. However, with the recently issued Drug Enforcement Agency (“DEA”) interim final ruling (“IFR”) and the expiration of the Hawaiian Industrial Pilot Program on October 31, 2020, Archipelago’s joint operating committee made the decision to temporarily cease operations in the manner in which it is currently configured. The DEA IFR specifies that should the THC content exceed 0.3% at any point during the extraction process, processors will be considered to be in possession of a Schedule I controlled substance. The Company will continue to monitor the regulatory environment and determine when and in what manner it is feasible and beneficial to re-enter the market. As a result, the Company destroyed the hemp plants that were currently in the ground and disposed of the biomass that had already been harvested, prior to October 31, 2020 as neither would have been able to be processed into CBD oil and remain in compliance with the regulatory framework effective November 1, 2020. The value of the plants and biomass totaled \$1.3 million and was written off from inventory to cost of product revenues in the three months ended September 30, 2020.

Pursuant to the Operating Agreement, a joint operating committee consisting of two individuals appointed by the Company and two individuals appointed by Legacy will manage Archipelago. As of September 30, 2020, the Company and Legacy hold 50.75% and 49.25% percentage interests in Archipelago, respectively, and have made capital contributions to Archipelago of \$1,927,000 and \$1,871,000, respectively, as determined by the joint operating committee. The Operating Agreement includes indemnification rights, non-competition obligations, and certain rights and obligations in connection with the transfer of membership interests, including rights of first refusal.

The Company consolidates Archipelago in the condensed consolidated financial statements after eliminating intercompany transactions. Net loss attributable to non-controlling interest of \$774,000 and \$1,081,000 is recorded as an adjustment to net loss to arrive at net loss attributable to common stockholders on the condensed consolidated statements of comprehensive loss for the three and nine months ended September 30, 2020, respectively. Legacy’s equity interests are presented as noncontrolling interests on the condensed consolidated balance sheets. Refer to Note 1 for basis of presentation.

8. 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 Corteva AgriScience (“Corteva”) and involves a joint operating activity where both the Company and Corteva are active participants in the activities of the collaboration. The Company and Corteva participate in the research and development, and the Company has the primary responsibility for the intellectual property strategy while Corteva 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*, and expenses internal R&D costs as incurred. Third-party R&D costs are expensed when the contracted work has been performed or as milestone results are achieved.

9. Leases

Operating Leases

As of September 30, 2020, the Company leases office space in Davis, CA, Phoenix, AZ, and Molokai, HI, as well as additional buildings, land and equipment. Leases with an initial term of 12 months or less are not recorded on the balance sheet; the Company recognizes lease expense for these short-term leases on a straight-line basis. The Company subleases a portion of the Davis office lease to third parties. During the nine months ended September 30, 2020, the Company entered into three lease amendments that provide for additional office space in Davis, CA, and extend the term through April 2025, with one option to renew for an additional five-year term. The Company expects to exercise its options to renew, and in accordance with ASC 842, accounted for the amendment and expected renewal as a lease modification and remeasured the operating lease liability, resulting in an additional \$3.8 million operating lease liability and right of use asset. The Company also entered into a lease amendment for additional parcels of land in Molokai, HI, modified the Molokai office space lease to extend the term by 12 months, and entered into new lease agreements for office equipment, collectively resulting in an additional \$0.1 million of operating lease liabilities and right of use assets. During the three months ended September 30, 2020, the Company also entered into a lease amendment for the land and greenhouse in Woodland, CA, modified the Woodland lease to extend the term by 4 years collectively, and entered into a new lease for the premises and equipment related to the purchase of ISI in Oregon with a three-year term, resulting in an additional \$0.5 million of operating lease liabilities and right of use assets. There are no finance leases or material leases that have not yet commenced as of September 30, 2020.

Some leases (the Davis office, warehouse, greenhouse and a copy machine) include one or more options to renew, with renewal terms that can extend the lease term from one to six years. The exercise of lease renewal options is at the Company’s sole discretion.

The Company’s lease agreements do not contain any material variable lease payments, material residual value guarantees or material restrictive covenants. Leases consisted of the following (in thousands):

Leases	Balance Sheet Line Item	September 30, 2020	December 31, 2019
Assets			
Operating lease assets	Right of use asset	\$ 6,013	\$ 1,963
Total leased assets		\$ 6,013	\$ 1,963
Liabilities			
Current - Operating	Operating lease liability- current	\$ 700	\$ 611
Noncurrent - Operating	Operating lease liability- noncurrent	5,574	1,497
Total leased liabilities		\$ 6,274	\$ 2,108

Lease Cost	Classification	For the Three Months Ended September 30, 2020	For the Three Months Ended September 30, 2019	For the Nine Months Ended September 30, 2020	For the Nine Months Ended September 30, 2019
Operating lease cost	SG&A and R&D Expenses	\$ 261	\$ 177	\$ 745	\$ 529
Short term lease cost (1)	R&D Expenses	109	45	303	138
Short term lease cost	SG&A Expenses	—	—	3	—
Sublease income (2)	SG&A and R&D Expenses	(12)	(13)	(34)	(40)
Net lease cost		\$ 358	\$ 209	\$ 1,017	\$ 627

(1) Short term lease cost included in R&D expenses consists primarily of field trial lease agreements with a lease term of 12 months or less.

(2) Sublease income is recorded as a credit to lease expense.

Lease Term and Discount Rate	September 30, 2020	December 31, 2019
Weighted-average remaining lease term (years)	5.8	2.6
Weighted-average discount rate	6.6%	7.0%

10. Private Placement and Registered Direct Offering

Private Placement (2018) and July Warrant Exercise Transaction (2020)

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 “March 2018 Warrants”), in a private placement (the “March 2018 Private Placement”) in accordance with a securities purchase agreement (the “March 2018 Purchase Agreement”) entered into with certain institutional and accredited investors (collectively, the “Purchasers”) on March 19, 2018. The number of shares of common stock, the number and exercise price of the March 2018 Warrants issued to the Purchasers were subject to adjustments as provided in the March 2018 Purchase Agreement. The March 2018 Warrants are immediately exercisable, subject to certain ownership limitations, and expire five years after the date of issuance.

Following the adjustments as provided in the March 2018 Purchase Agreement, the number of shares issued to the Purchasers was 1,201,634, the total number of shares issuable upon exercise of the March 2018 Warrants was 1,282,832 and the per share exercise price of the March 2018 Warrants was \$10.7258. These condensed consolidated financial statements reflect these additional issuances.

The adjustment feature for the common stock and the March 2018 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 March 2018 Warrant liability was marked-to-market and valued at \$0.8 million at September 30, 2020, resulting in income of \$0.2 million and income of \$2.2 recognized during the three and nine months ended September 30, 2020, respectively. The March 2018 Warrant liability was marked-to-market and valued at \$3.8 million at September 30, 2019, resulting in expense of \$1.6 million and \$1.6 million recognized during the three and nine months ended September 30, 2019, respectively.

On July 8, 2020, pursuant to the terms of a letter agreement entered into on July 6, 2020 (the “transaction date”), an existing accredited investor exercised its March 2018 Warrants (the “July 2020 Warrant Exercise Transaction”) to purchase up to an aggregate of 641,416 shares of the Company’s common stock at a reduced exercise price of \$3.975 per share for gross proceeds of \$2.6 million. The 641,416 shares of common stock sold in the July 2020 Warrant Exercise Transaction are registered for resale pursuant to a Registration Statement on Form S-3 (File No. [333-224061](#)). The July 2020 Warrant Exercise Transaction closed on July 8, 2020.

As consideration for the exercise of the March 2018 Warrants, the Company issued new unregistered warrants to purchase up to 641,416 shares of common stock (the “July 2020 Warrants”) at an exercise price of \$3.85 per share with an exercise period of five and one-half years from the date of issuance.

The aggregate net proceeds received by the Company for the July 2020 Warrant Exercise Transaction were \$2.3 million, consisting of gross proceeds of \$2.6 million less offering costs of \$269,000. The Company currently intends to use the net proceeds from the offering to pay for general corporate expenses.

The March 2018 Warrants were determined to be a liability in accordance with ASC 480, *Distinguishing Liabilities from Equity*, and ASC 815-40, *Derivatives and Hedging – Contracts in Entity’s Own Equity*, as the Company is required to make a cash payment to the warrant holders if it fails to make timely filings with the SEC. The July 2020 Warrants do not include the same cash penalty provisions for untimely SEC filings, and therefore were determined to be an equity instrument. The March 2018 Warrants liability was marked-to-market and valued at \$1.6 million on July 6, 2020, resulting in income of \$2.2 million in the nine months ended September 30, 2020. In connection with the July 2020 Warrant Exercise Transaction, the Company recognized a loss on extinguishment of warrant liability of approximately \$682,000 in the nine months ended September 30, 2020. The loss on extinguishment of warrant liability is comprised of the difference between the reacquisition price and the carrying amount of the March 2018 Warrants. The reacquisition price includes the fair value of the 641,416 shares of common stock issued, the fair value of the July 2020 Warrants, and the transaction costs of \$0.4 million incurred (see “Offering Costs (July 2020 Warrants)” below). The shares of common stock issued were valued at \$2.4 million as of the transaction date. The July 2020 Warrants were valued at \$2.1 million which was calculated using the Black-Scholes Model with the following assumptions: volatility of 126 percent, stock price of \$3.73 and risk-free rate of 0.30%. The carrying amount of the March 2018 Warrants includes both the fair value of the March 2018 Warrants liability and the cash gross proceeds of \$2.6 million received by the Company as result of the exercise of the March 2018 Warrants. The carrying value of the March 2018 Warrants was valued at \$1.6 million which was calculated using the Black-Scholes Model with the following assumptions: volatility of 151 percent, stock price of \$3.81 and risk-free rate of 0.19%.

The March 2018 Warrants were marked-to-market and valued at \$3.8 million at September 30, 2019, resulting in expense of \$1.6 million for the nine months ended September 30, 2019.

Offering Costs (July 2020 Warrants)

In connection with the July 2020 Warrant Exercise Transaction, the Company paid to a placement agent an aggregate fee equal to \$178,000. The Company also granted warrants to purchase a total of 32,071 shares of common stock (the “July 2020 Placement Agent Warrants”) that have an exercise price per share equal to \$4.969 and a term of five and one-half years. The July 2020 Placement Agent Warrants were issued for services performed by the placement agent as part of the Warrant Exercise Transaction and were treated as offering costs. The value of the July 2020 Placement Agent Warrants was determined to be \$101,000 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 \$91,000 that consist of direct incremental legal, advisory, accounting and filing fees relating to the Warrant Exercise Transaction. The offering costs, inclusive of the July 2020 Placement Agent Warrants, totaled \$0.4 million. The value of the July 2020 Placement Agent Warrants of \$101,000 was recorded as additional paid in capital in the three months ended September 30, 2020, and the remainder was recorded to loss on extinguishment of warrant liability.

Registration of July Warrant Shares (2020)

On August 13, 2020, the Company filed a registration statement on Form S-3/A (File No. [333-239641](#)) with the SEC to register for resale 32,071 shares of common stock underlying the July 2020 Placement Agent Warrants and 641,416 shares of common stock underlying the July 2020 Warrants.

Registered Direct Offering (2018) and May Warrant Exercise Transaction (2020)

On June 11, 2018, the Company entered into agreements with several institutional and accredited investors (the “June 2018 Purchase Agreement”) for the purchase of 1,392,345 shares of its common stock at a purchase price of \$9.93 per share.

Additionally, in a concurrent 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 (the “June 2018 Warrants”). The June 2018 Warrants have an exercise price of \$9.94 per share. Subject to certain ownership limitations, the June 2018 Warrants are exercisable upon issuance and expire five and one-half years after the date of issuance.

On May 18, 2020, pursuant to the terms of letter agreements entered into on May 14, 2020 (the “transaction date”), several existing accredited investors exercised the June 2018 Warrants (the “May 2020 Warrant Exercise Transaction”) to purchase up to an aggregate of 1,392,345 shares of the Company’s common stock at a reduced exercise price of \$4.90 per share for gross proceeds of \$6.8 million. The 1,392,345 shares of common stock sold in the May 2020 Warrant Exercise Transaction are registered for resale pursuant to a Registration Statement on Form S-1 (File No. [333-229047](#)). The May 2020 Warrant Exercise Transaction closed on May 18, 2020.

As consideration for the exercise of the June 2018 Warrants, the Company issued new unregistered warrants to purchase up to 1,392,345 shares of common stock (the “May 2020 Warrants”) at an exercise price of \$4.775 per share with an exercise period of five years from the date of issuance.

The aggregate net proceeds received by the Company for the May 2020 Warrant Exercise Transaction were \$6.2 million, consisting of gross proceeds of \$6.8 million less offering costs of \$594,000. The Company intends to use the net proceeds from this offering to pursue a range of near-term inorganic growth opportunities within the Company’s hemp business unit.

The June 2018 Warrants were determined to be a liability in accordance with ASC 480, *Distinguishing Liabilities from Equity*, and ASC 815-40, *Derivatives and Hedging – Contracts in Entity’s Own Equity*, as the Company is required to make a cash payment to the warrant holders if it fails to make timely filings with the SEC. The May 2020 Warrants do not include the same cash penalty provisions for untimely SEC filings, and therefore were determined to be an equity instrument. The June 2018 Warrants liability was marked-to-market and valued at \$4.0 million on May 14, 2020, resulting in income of \$1.4 million in the nine months ended September 30, 2020. In connection with the May 2020 Warrant Exercise Transaction, the Company recognized a gain on extinguishment of warrant liability of approximately \$47,000 in the nine months ended September 30, 2020. The gain on extinguishment of warrant liability is comprised of the difference between the reacquisition price and the carrying amount of the June 2018 Warrants. The reacquisition price includes the fair value of the 1,392,345 shares of common stock issued, the fair value of the May 2020 Warrants, and the transaction costs of \$0.8 million incurred (see “Offering Costs (May 2020 Warrants)” below). The shares of common stock issued were valued at \$5.6 million as of the transaction date. The May 2020 Warrants were valued at \$4.4 million which was calculated using the Black-Scholes Model with the following assumptions: volatility of 128 percent, stock price of \$3.81 and risk-free rate of 0.38%. The carrying amount of the June 2018 Warrants includes both the fair value of the June 2018 Warrants

liability and the cash proceeds of \$6.8 million received by the Company as result of the exercise of the June 2018 Warrants. The carrying value of the June 2018 Warrants was valued at \$4.0 million which was calculated using the Black-Scholes Model with the following assumptions: volatility of 140 percent, stock price of \$4.00 and risk-free rate of 0.28%.

The June 2018 Warrants were marked-to-market and valued at \$4.5 million at September 30, 2019, resulting in expense of \$1.9 million and \$1.8 million recognized during the three and nine months ended September 30, 2019, respectively.

Offering Costs (May 2020 Warrants)

In connection with the May 2020 Warrant Exercise Transaction, the Company paid to a placement agent an aggregate fee equal to \$478,000. The Company also granted warrants to purchase a total of 69,617 shares of common stock (the "May 2020 Placement Agent Warrants") that have an exercise price per share equal to \$6.125 and a term of five years. The May 2020 Placement Agent Warrants were issued for services performed by the placement agent as part of the Warrant Exercise Transaction and were treated as offering costs. The value of the May 2020 Placement Agent Warrants was determined to be \$215,000 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 \$116,000 that consist of direct incremental legal, advisory, accounting and filing fees relating to the Warrant Exercise Transaction. The offering costs, inclusive of the May 2020 Placement Agent Warrants, totaled \$0.8 million. The value of the May 2020 Placement Agent Warrants of \$215,000 was recorded as additional paid in capital in the nine months ended September 30, 2020, and the remainder was recorded to gain on extinguishment of warrant liability.

Registration of May Warrant Shares (2020)

On July 2, 2020, the Company filed a registration statement on Form S-3 (File No. [333-239641](#)) with the SEC to register for resale 69,617 shares of common stock underlying the May 2020 Placement Agent Warrants and 1,392,345 shares of common stock underlying the May 2020 Warrants.

Registered Direct Offering (June 2019)

On June 12, 2019, the Company entered into a securities purchase agreement with certain institutional and accredited investors (the "June 2019 Purchase Agreement") relating to the offering and sale of 1,489,575 shares of its common stock at a purchase price of \$4.91.

Additionally, in a concurrent private placement, the Company issued to the investors unregistered warrants to purchase up to 1,489,575 shares of common stock at a purchase price per warrant of \$0.125 (the "June 2019 Warrants"). The June 2019 Warrants have an exercise price of \$5.00 per share. Subject to certain ownership limitations, the June 2019 Warrants are exercisable upon issuance and expire five and one-half years after the date of issuance.

The June 2019 Warrants were determined to be a liability as they have a contingent cash payment feature. In August and September 2019, investors exercised 1,053,745 warrants. The remaining 435,830 June 2019 Warrants outstanding were marked to market and valued at \$0.9 million at September 30, 2020, resulting in income of \$0.4 million and income of \$1.1 million recognized during the three and nine months ended September 30, 2020, respectively. The June 2019 Warrant liability was marked-to-market and valued at \$1.6 million at September 30, 2019, resulting in expense of \$5.3 million and \$4.5 million recognized during the three and nine months ended September 30, 2019, respectively.

Registered Direct Offering (September 2019)

On September 5, 2019, the Company entered into a securities purchase agreement with certain institutional and accredited investors (the "September 2019 Purchase Agreement") relating to the offering and sale of 1,318,828 shares of its common stock at a purchase price of \$7.52.

Additionally, in a concurrent private placement, the Company issued to the investors unregistered warrants to purchase up to 659,414 shares of common stock at a purchase price per warrant of \$0.125 (the "September 2019 Warrants"). The September 2019 Warrants have an exercise price of \$7.52 per share. Subject to certain ownership limitations, the September 2019 Warrants are exercisable upon issuance and expire five and one-half years after the date of issuance.

The September 2019 Warrants were determined to be a liability as they have a contingent cash payment feature. The September 2019 Warrants were marked-to-market and valued at \$1.4 million at September 30, 2020, resulting in income of \$0.5 million and income of \$1.6 million recognized during the three and nine months ended September 30, 2020, respectively.

11. Debt

Vehicle Loans

The Company has various vehicle loans that mature in 2024 and have interest rates that range from 7.64% to 8.00%. As of September 30, 2020, the outstanding balance of vehicle loans was \$145,000.

Paycheck Protection Program Note

On April 16, 2020, the Company borrowed \$1.1 million and entered into a promissory note for the same amount (the "PPP Note") under the Paycheck Protection Program ("PPP") that was established under the Coronavirus Aid Relief, and Economic Security Act ("CARES Act") of 2020. The PPP Note matures on April 16, 2022, bears an interest rate of 1.00% per year, and is payable monthly beginning on November 2, 2020. The Company may prepay the PPP Note at any time prior to maturity with no prepayment penalties. The principal amount of the PPP Note and accrued interest are eligible for forgiveness if the proceeds are used for qualifying expenses, including payroll, rent, and utilities during the eight week period commencing on April 16, 2020. The Company will be obligated to repay any portion of the principal amount of the PPP Note that is not forgiven, together with accrued interest thereon, until such unforgiven portion is paid in full. The Company intends to apply for loan forgiveness within the required timeframe. No assurance is provided that the Company will obtain forgiveness of the PPP Note in whole or in part. As of September 30, 2020, the outstanding balance of the PPP Note was \$1.1 million.

Promissory Note

On June 26, 2020, the Company executed a promissory note (the "Note") in the amount of \$2.0 million, payable to MidFirst Bank, a federally chartered savings association (the "Lender"). The Note was issued in accordance with the terms of a Loan Agreement dated as of May 18, 2020 entered into by the Company and the Lender (the "Loan Agreement") in which the Lender agreed to make advances to the Company from time to time, at any amount up to but not to exceed \$2.0 million. Pursuant to the Loan Agreement, the Note accrues interest, adjusted monthly, at a rate equal to the greater of (i) 3.25% and (ii) the sum of (a) the quotient of the LIBOR Index divided by (one minus the reserve requirement set by the Federal Reserve), and (b) 2.50%. The Company is required to make monthly interest payments on the Note to the Lender and pay the full principal amount plus any accrued but unpaid interest outstanding under the Note no later than May 18, 2023. The Company and the Lender also entered into a Pledge and Security Agreement dated as of May 18, 2020 whereby the Company agreed to secure the Note by granting a security interest to the Lender for the Company's deposit account held with and controlled by the Lender. Due to the lender's control of the deposit account, the balance of \$2.0 million is included in restricted cash on the condensed consolidated balance sheets as of September 30, 2020. As of September 30, 2020, the outstanding balance of the Note was \$2.0 million.

Maturities of current and noncurrent debt as of September 30, 2020 are as follows (in thousands):

Years ending December 31,	Amounts
Remainder of 2020	\$ 126
2021	774
2022	285
2023	2,039
2024	29
Thereafter	—
Total	\$ 3,253

12. 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 for 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; 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.

In June 2019, the shareholders approved an amendment to the Company’s 2015 Plan for a one-time increase to the number of shares of common stock that may be issued under the 2015 Plan by 120,000 shares. As of September 30, 2020, a total of 1,047,188 shares of common stock were reserved for issuance under the 2015 Plan, of which 85,532 shares of common stock are available for future grant. As of September 30, 2020, a total of 19,227 and 961,656 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, 2019	661,701	\$ 21.60	\$ 305
Options granted	491,494	4.32	
Options exercised	—	—	
Options forfeited	(131,849)	6.39	
Options expired	(40,463)	48.57	
Outstanding — Balance at September 30, 2020	980,883	\$ 13.87	\$ 1
Vested and expected to vest — September 30, 2020	965,445	\$ 14.03	\$ 1
Exercisable — September 30, 2020	540,267	\$ 21.51	\$ —

As of September 30, 2020, there was \$1.2 million of unrecognized compensation cost related to unvested stock-based compensation grants that will be recognized over the weighted-average remaining recognition period of 2.7 years.

The fair value of stock option awards to employees, executives, directors, and other service providers was estimated at the date of grant using the Black-Scholes Model with the following weighted-average assumption. There were 491,494 and 186,571 options granted during the nine months ended September 30, 2020 and 2019, respectively.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Expected term (years)	6.01	6.24	6.50	7.13
Expected volatility	230%	99%	133%	99%
Risk-free interest rate	0.38%	1.84%	1.03%	2.05%
Dividend yield	—	—	—	—

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, 2020, the number of shares of common stock reserved for future issuance under the ESPP is 105,036. The ESPP provides for automatic annual increases in the shares available for purchase on January 1 of each year. As of September 30, 2020, 35,056 shares had been issued under the ESPP. The Company recorded \$12,200 and \$4,300 of stock compensation expense for the three months ended September 30, 2020 and 2019, respectively, and \$40,500 and \$6,000 for the nine months ended September 30, 2020 and 2019, respectively.

Warrants

As of September 30, 2020, the Company has 4,450,689 common stock warrants outstanding with a weighted average exercise price of \$6.31. The expiration of the warrants ranges from July 2021 to December 2025.

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. Of the 63,071 warrants issued, 1,759 expired on March 28, 2019 and the remaining 61,312 expired in the second quarter of 2019, along with those issued to the placement agents.

As of September 30, 2020, 656,454 common stock warrants are outstanding that were issued in the March 2018 Private Placement. Of the total, 641,416 shares have a purchase price of \$10.7258 and the remaining 15,038 common stock warrants have an exercise price of \$41.5625. See Note 10.

As of September 30, 2020, 69,617 common stock warrants are outstanding in accordance with the June 2018 Offering, all of which have an exercise price of \$12.568. See Note 10.

In connection with a professional services agreement with a non-affiliated third party, executed in April 2019, the Company issued 45,154 warrants (“Service Warrants”) at an exercise price of \$6.18. The Service Warrants vest ratably over 12 months and expire in five years from the date of issuance. The Service Warrants are cancelable immediately prior to a change of control subsequent to the termination/expiration of the advisory agreement. The Company also issued 100,000 performance-based warrants (“Performance Warrants”) at an exercise price of \$6.18 and vest in 1/6 increments upon the achievement of a qualifying milestone as defined within the agreement. The Performance Warrants expire in five years from the date of issuance and are cancelable immediately prior to a change of control subsequent to the sixth month anniversary of the termination/expiration of the advisory agreement.

The Service and Performance Warrants were determined to be equity instruments. Stock compensation expense associated with the Service Warrants is recognized ratably over the service period (i.e. one-year term). A performance acceleration event was deemed to have been achieved in August 2019, triggering the full vesting of the Performance Warrants. The Company recognized a portion of the Performance Warrants’ stock compensation expense during the third quarter of 2019 as a cumulative adjustment for the period during which services have already been provided. The remaining Performance Warrants expense is being recognized ratably over the remaining service period. For the Service Warrants, \$145,000 of stock compensation expense was recognized during the three and nine months ended September 30, 2020 and \$56,000 and \$100,000 of stock compensation expense was recognized during the three and nine months ended September 30, 2019, respectively.

In June 2019, concurrent with the June 2019 Offering and pursuant to the June 2019 Purchase Agreement, the Company commenced a private placement whereby it issued and sold warrants exercisable for an aggregate of 1,489,575 shares of common stock, which equals 100% of the shares of common stock sold in the June 2019 Offering, with a purchase price of \$0.125 per underlying warrant share and with an exercise price of \$5.00 per share. The June 2019 Warrants are exercisable upon issuance and will expire five and a half years from the date of issuance. In August and September 2019, investors exercised a portion of the June 2019 Warrants and purchased 1,053,745 shares of common stock. The Company also issued warrants to the placement agents to purchase a total of 74,479 shares of common stock with an exercise price equal to \$6.2938. The placement agent warrants are exercisable upon issuance and will expire five years from the date of issuance. As of September 30, 2020, the investors and placement agent hold outstanding warrants to purchase 510,309 shares of common stock warrants issued pursuant to the June 2019 Offering. See Note 10.

In July 2019, the Company issued warrants to purchase 10,000 shares of common stock to an independent contractor at an exercise price of \$2.19 and in August 2019, the Company issued warrants to purchase 20,000 shares of common stock to two affiliated third-parties at an exercise price of \$1.92. These warrants were determined to be equity instruments and were measured on the grant date using the Black Scholes Model. The warrants issued in July vest ratably over 12 months and expire two years from the date of issuance. As such, stock compensation expense associated with these warrants is recognized ratably over the 12-month service period. The August warrants vested on the issuance date of August 5, 2019 and expire two years from the date of issuance. As such, stock compensation expense associated with the August warrants was recognized as vested on the issuance date. For the warrants issued in July 2019, stock compensation expense of \$2,000 and \$10,000 was recognized during the three and nine months ended September 30, 2020.

In September 2019, concurrent with the September 2019 Offering and pursuant to the September 2019 Purchase Agreement, the Company commenced a private placement whereby it issued and sold warrants exercisable for an aggregate of 659,414 shares of common stock, which equals 50% of the shares of common stock sold in the September 2019 Offering, with a purchase price of \$0.125 per underlying warrant share and with an exercise price of \$7.52 per share. The September 2019 Warrants are exercisable upon

issuance and will expire five and a half years from the date of issuance. The Company also issued warrants to the placement agents to purchase a total of 65,942 shares of common stock with an exercise price equal to \$9.4781. The placement agent warrants are exercisable upon issuance and will expire five years from the date of issuance. As of September 30, 2020, all 725,356 common stock warrants are outstanding that were issued with the September 2019 Offering. See Note 10.

In February 2020, the Company issued warrants to purchase 10,000 shares of common stock to an independent contractor at an exercise price of \$4.91. These warrants were determined to be equity instruments and were measured on the grant date using the Black Scholes Model. The warrants vest ratably over 12 months and expire two years from the date of issuance. As such, stock compensation expense associated with these warrants is recognized ratably over the 12-month service period. Stock compensation expense of \$9,400 and \$28,200 associated with these warrants was recognized during the three and nine months ended September 30, 2020, respectively.

In connection with an extension of the professional services agreement with a non-affiliated third party, executed in April 2019, the Company issued an additional 150,000 warrants to purchase shares of common stock in February 2020 at an exercise price of \$4.71. These warrants were determined to be equity instruments and were measured on the grant date using the Black Scholes Model. The warrants vest ratably over 12 months and expire two years from the date of issuance. As such, stock compensation expense associated with these warrants is recognized ratably over the 12-month service period. Stock compensation expense of \$135,400 and \$406,200 associated with these warrants was recognized during the three and nine months ended September 30, 2020, respectively.

In connection with a professional services agreement with a non-affiliated third party, executed in March 2020, the Company issued warrants to purchase 18,350 shares of common stock at an exercise price of \$2.50. The warrants vested on the issuance date and expire in three years from the date of issuance. The warrants are cancelable immediately prior to a change of control subsequent to the termination/expiration of the advisory agreement. These warrants were determined to be equity instruments and were measured on the grant date using the Black Scholes Model. As such, stock compensation expense associated with these warrants was recognized as vested on the issuance date. Stock compensation expense of \$0 and \$36,700 was recognized during the three and nine months ended September 30, 2020, respectively.

In May 2020, in consideration for the exercise of the June 2018 Warrants in the May 2020 Warrant Exercise Transaction, the Company issued warrants to purchase 1,392,345 shares of common stock at an exercise price of \$4.775 per share with an exercise period of five years from the date of issuance. The Company also issued placement agent warrants to purchase a total of 69,617 shares of common stock that have an exercise price per share equal to \$6.125 and a term of five years. As of September 30, 2020, all 1,461,962 common stock warrants are outstanding that were issued with the May 2020 Warrant Exercise Transaction. See Note 10.

In July 2020, in consideration for the exercise of the March 2018 Warrants in the July 2020 Warrant Exercise Transaction, the Company issued warrants to purchase 641,416 shares of common stock at an exercise price of \$3.85 per share with an exercise period of five and one-half years from the date of issuance. The Company also issued placement agent warrants to purchase a total of 32,071 shares of common stock that have an exercise price per share equal to \$4.969 and a term of five and one-half years. As of September 30, 2020, all 673,487 common stock warrants are outstanding that were issued with the July 2020 Warrant Exercise Transaction. See Note 10.

13. 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 is different from the amounts computed by applying the United States federal statutory income tax rate of 21%. The Company's effective tax rate was -0.1% and -0.1% for the three and nine months ended September 30, 2020, and was 0.0% and -0.1% for the three and nine months ended September 30, 2019. 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 experienced an ownership change under IRC Section 382 as a result of the common shares issued in connection with the June 2018 Offering. This ownership change limited the Company's ability to utilize its net operating loss carryforwards prior to expiration and certain net operating loss carryforwards were written off as a result. The Company is currently conducting additional analysis regarding the valuation of the Company at the time of the ownership change to assess what, if any, portion of the limitation may be reversed. Any adjustment to the amount of limitation will not impact the deferred tax asset balance due to the full valuation allowance.

During the nine months ended September 30, 2020, there were no material changes to the Company's uncertain tax positions.

14. Commitments and Contingencies

Leases

The Company leases office and laboratory space, greenhouse space, grain storage bins, warehouse space, farmland, and equipment under operating lease agreements having initial lease terms ranging from one to five years, including certain renewal options available to the Company at market rates. The Company also leases land for field trials on a short-term basis. See Note 9.

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 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. During the fourth quarter of 2019, the Company determined that one of the technologies was no longer active and decided to abandon the previously accrued program. As a result, the Company recognized a gain of \$1.0 million in the consolidated statements of operations and comprehensive loss. As of September 30, 2020, the Company continues to pursue two development programs using this technology and believes that the contingent liability is probable. As a result, \$2.0 million remains on the condensed consolidated balance sheets as an other noncurrent liability.

Contingent Liability Related to the ISI Acquisition

On August 21, 2020, the Company acquired by merger Industrial Seed Innovations (ISI), an Oregon-based industrial hemp breeding and seed company. A portion of the purchase price consideration for the acquisition in the amount of \$280,000 will be recognized in two annual installments, each of up to 132,626 shares of the Company's common stock, subject to the achievement of revenue milestones in 2021 and 2022. See Note 5.

Contracts

The Company has entered into a non-cancelable agreement with an unrelated party to provide research and development services. The agreement requires the Company to pay certain minimum funding commitments. The following table sets forth the minimum funding requirements under this agreement as of September 30, 2020 (in thousands):

Years ending December 31,	Amounts
Remainder of 2020	\$ 500
2021	750
2022	—
2023	—
2024	—
Thereafter	—
Total	\$ 1,250

15. Net Loss per Share

Basic net loss per share is calculated by dividing net loss 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 is computed giving effect to all potentially dilutive common shares, including common stock issuable upon exercise of stock options and warrants.

Securities that were not included in the diluted per share calculations because they would have been anti-dilutive were as follows:

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2020	2019	2020	2019
Options to purchase common stock	980,883	691,001	980,883	691,001
Warrants to purchase common stock	4,450,689	4,170,651	4,450,689	4,170,651
Total	<u>5,431,572</u>	<u>4,861,652</u>	<u>5,431,572</u>	<u>4,861,652</u>

The following table sets forth the computation of basic and diluted net loss per common share (*in thousands, except share and per share amounts*):

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2020	2019	2020	2019
Net loss per share - Basic				
Numerator:				
Net loss attributable to common stockholders	\$ (6,391)	\$ (14,187)	\$ (13,553)	\$ (22,562)
Denominator:				
Weighted average number of common shares outstanding	<u>10,719,618</u>	<u>6,942,612</u>	<u>9,570,259</u>	<u>5,596,545</u>
Basic net loss per share attributable to common stockholders:	<u>\$ (0.60)</u>	<u>\$ (2.04)</u>	<u>\$ (1.42)</u>	<u>\$ (4.03)</u>
Net loss per share - Diluted				
Numerator:				
Net loss attributable to common stockholders	\$ (6,391)	\$ (14,187)	\$ (13,553)	\$ (22,562)
Denominator:				
Weighted average number of common shares outstanding	10,719,618	6,942,612	9,570,259	5,596,545
Effect of dilutive stock options	—	—	—	—
Effect of dilutive warrants	—	—	—	—
Weighted average number of common shares outstanding - diluted	<u>10,719,618</u>	<u>6,942,612</u>	<u>9,570,259</u>	<u>5,596,545</u>
Diluted net loss per share attributable to common stockholders:	<u>\$ (0.60)</u>	<u>\$ (2.04)</u>	<u>\$ (1.42)</u>	<u>\$ (4.03)</u>

16. Related-Party Transactions

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

JSF 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 JSF were \$29,000 and \$40,000 as of September 30, 2020 and December 31, 2019, respectively, and are included in the condensed consolidated balance sheets as amounts due to related parties.

The Company currently leases land on the island of Molokai, Hawaii from an entity owned by Kevin Comcowich, the Chair of the Company's Board of Directors, and his wife. The Company grows hemp on this land to support the operations of its joint venture Archipelago Ventures Hawaii. The original lease was executed in February 2019, covers 10 acres of land, has a term of two years and

provides for rent payments of \$1,200 per acre per year. The Company engaged a third-party contractor to construct a fence on the property to adhere to the rules of the hemp pilot program. Out of pocket costs to build this fence were approximately \$126,400. Mr. Comcowich supplied materials to the contractor and received payments from the contractor totaling approximately \$44,000. In March and April 2020, the Company entered into two lease amendments for two additional 10-acre parcels and two additional 15-acre parcels, at the same lease rate of \$1,200 per acre per year, and with a term of two years. The Company made lease payments in the amount of \$36,000 and \$84,000 for the three and nine months ended September 30, 2020, respectively.

17. Subsequent Events

Verdeca LLC Sale Transaction

On November 12, 2020, Arcadia Biosciences, Inc. (the “Company”) entered into a Master Transaction Agreement (the “Agreement”) with Bioceres Crop Solutions Corp. (“BIOX”) pursuant to which (i) the Company sold all of its membership interests it owned in Verdeca, LLC (“Verdeca”) to Bioceres, Inc., a wholly owned subsidiary of BIOX, and (ii) the Company and BIOX entered into a license agreement for certain intellectual property rights, including rights to the Company’s HB4 soybean trait and its GoodWheat portfolio of specialty wheat products in South and Central America. Prior to the transaction, Verdeca was equally owned by the Company and Bioceres, Inc.

In consideration for the sale of the membership interests in Verdeca and entering into the license agreement, on November 12, 2020, BIOX paid the Company \$5,000,000 in cash and issued the Company 1,875,000 shares of BIOX common stock. BIOX will also pay the Company an additional (i) \$1,000,000 payable in five equal monthly payments beginning on December 12, 2020 for transaction expenses and fees and (ii) \$2,000,000 payable in four equal quarterly payments with the first payment commencing within thirty days of either BIOX reaching commercial plantings of at least 200,000 hectares of HB4 soybeans or if China approves the HB4 soybean trait for “food and feed”. In addition to the above payments, BIOX will also pay the Company quarterly royalty payments equal to six percent (6%) for the net revenues BIOX, or its affiliates, receive from HB4 soybean sales and twenty-five percent (25%) from wheat sales; provided that royalty payments for HB4 soybeans shall not exceed \$10,000,000.

The Company agreed not to sell or transfer any shares of BIOX common stock it received in this transaction for a period of 180 days without the prior written consent of BIOX, subject to certain exceptions allowing the Company to pledge shares to a lender as collateral. In addition, by December 12, 2020, the Company is required to seek consents from certain third parties who have right of first refusal or other similar rights to the traits being licensed by the Company to BIOX. If a third party exercises their rights of first refusal on the same terms and conditions as agreed upon by BIOX, then the Company has an option to pay BIOX \$5,000,000 or 625,000 shares of BIOX common stock. Upon such payment, BIOX shall have no further rights to such trait which was subject to the right of first refusal. The Company entered into a pledge and security agreement with BIOX for the 625,000 shares of BIOX common stock that are subject to the potential clawback.

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.

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 leader in science-based approaches to developing high value crop productivity traits primarily in hemp, wheat, and soybean, designed to enhance farm economics by improving the performance of crops in the field, as well as their value as food ingredients, health and wellness products, and their viability for industrial applications. We use state of the art gene-editing technology and advanced breeding techniques to develop these proprietary innovations which we are beginning to monetize through a number of methods including seed and grain sales, product extract sales, trait licensing and royalty agreements.

Our commercial strategy is to link consumer's nutrition, health and wellness demands with the superior functional benefits our crops deliver directly from the farm, enabling us to share premium economics throughout the ag-food supply chain and to build a world-class estate of high value traits and varieties. In particular, we believe the recent legalization of hemp in the U.S. and many other areas of the world has created a significant agricultural and financial opportunity. The demonstrated broad demand for industrial, nutritional, health and wellness products from hemp, coupled with its poor genetics represent a vast, new opportunity for Arcadia to add substantial value to its existing high value trait and seed estate. We are applying our proprietary, rapid prototyping technology platform, ArcaTech, to deliver innovations addressing the many challenges farmers face in growing what is essentially an undomesticated crop. As such, our forward discovery research is focused on non-GM hemp innovations.

The passage of the U.S. Agriculture Improvement Act of 2018 – also known as the Farm Bill – confirmed the federal legalization of hemp, the term given to non-psychoactive cannabis containing less than 0.3% tetrahydrocannabinol (THC). It also included provisions for legalizing on a federal level hemp's cultivation, transport and sale for the first time in more than 75 years. Hemp, not previously distinguished by the federal government from cannabis, a Schedule 1 drug and banned as an agricultural crop, lacks substantive plant biology research and suffers from suboptimal genetics, highly fragmented germplasm and rampant inconsistencies. We are targeting hemp-based solutions that allow farmers to reliably and consistently achieve compliance with USDA regulations, through varieties with improved functionality and application of specific attributes such as select cannabinoid contents for health and wellness, enhanced proteins profiles for plant-based dietary applications and industrial applications such as clothing and hempcrete. Arcadia conducts its business in only federal and state markets in which its activities are legal.

On October 31, 2019, the USDA published the interim final rule as authorized by the Agriculture Improvement Act of 2018 for hemp cultivation, which mandates that states test hemp crops and dispose of "hot" crops that exceed 0.3% THC. While hemp farmers will have access to crop protection options, the destruction of hot crops that fail these stringent inspections will not be a covered loss under crop insurance programs. In 2019 alone, more than 20% of U.S. hemp crops were non-compliant, representing over \$2 billion in losses for growers.

We continued to cultivate hemp through third quarter of 2020 with the intention of producing CBD oil for sale. However, with the recently issued Drug Enforcement Agency (“DEA”) interim final ruling (“IFR”) and the expiration of the Hawaiian Industrial Pilot Program on October 31, 2020, Archipelago’s joint operating committee made the decision to temporarily cease operations in the manner in which it is currently configured. The DEA IFR specifies that should the THC content exceed 0.3% THC at any point during the extraction process, processors will be considered to be in possession of a Schedule I controlled substance. We will continue to monitor the regulatory environment and determine when and in what manner it is feasible and beneficial to re-enter the market. As a result, we destroyed the hemp plants that were currently in the ground and disposed of the biomass that had already been harvested, prior to October 31, 2020 as neither would have been able to be processed into CBD oil and remain in compliance with the regulatory framework effective November 1, 2020. The value of the plants and biomass totaled \$1.3 million and was written off from inventory to cost of product revenue in the three months ended September 30, 2020.

Arcadia GoodHemp

In December 2019, we announced the launch of a new product line, GoodHemp, as the company's new commercial brand for delivering genetically superior hemp seeds, transplants, flower and extracts. The first products in the GoodHemp catalog include stable varieties for compliant CBD production. Additionally, six new proprietary hybrid varieties are in early adopter farmer trials. Sales are expected in the 2020 season.

In August 2020, we completed the acquisition of Industrial Seed Innovations (ISI) in Oregon, adding their portfolio of strong performing, federally complaint hemp varieties to our GoodWheat line of hemp seeds and transplants. Specializing in organically grown, high-CBD feminized hemp seeds and seedlings, ISI’s popular Umpqua, Rogue and Santiam seed varieties each bring unique and desirable characteristics to further differentiate our GoodHemp catalog of offerings. The acquisition also included ISI’s genetic assets and germplasm library, strengthening our hemp breeding and seed production capabilities.

The Hemp Business Journal estimates the hemp CBD market – the primary non-psychoactive compound in hemp – totaled \$190 million in U.S. sales in 2018. By 2022, the Brightfield Group, a hemp and CBD market research firm, projects U.S. sales to reach \$22 billion. Additionally, Grandview research estimates the market for non-cannabinoid, industrial hemp market will exceed \$15 billion by 2027.

Archipelago Ventures Hawaii, LLC

In August 2019, we formed a new joint venture to serve the Hawaiian, North American and Asian hemp markets, Archipelago Ventures Hawaii, LLC (“Archipelago”). This new venture between Arcadia and Legacy Ventures Hawaii (“Legacy”) combines Arcadia’s extensive genetic expertise and seed innovation history with Legacy’s growth capital and strategic advisory expertise in the Hawaiian markets. Additionally, Legacy brings to the partnership years of proven success in extraction, product formulation and sales of cannabinol oil and distillate products through its equity partner, Vapen CBD. Legacy was originally formed to be a vehicle for its partners to pursue hemp opportunities within the Hawaiian Islands. Legacy’s primary role within Archipelago is to build world class cGMP extraction facilities to allow Hawaiian farmers an outlet for maximizing their profits growing and converting hemp to high grade CBD, as well as other high-value compounds. Legacy’s equity partner, Vapen CBD, is a wholly owned subsidiary of VEXT which is a publicly traded cannabis operator based in Phoenix, Arizona listed on both the Canadian and Frankfurt exchanges.

Archipelago creates a vertically integrated supply chain, from seed to sale, we believe the first of its kind in Hawaii, and has three important strategic imperatives: (1) ensure a reliable supply chain during critical scale up of the global hemp market, a major risk mitigation for success, (2) ensure high quality throughout the supply chain, from genetics to the field and field to the customer and (3) ensure being well-positioned to address the unique needs and opportunities of the Hawaiian market.

As noted in the Overview above, we recognized a \$1.3 million write-off of hemp inventory in the third quarter in reaction to recent DEA ruling.

Arcadia GoodWheat

In 2018, we launched our GoodWheat brand, a non-genetically modified (non-GM) portfolio of wheat products that enables food manufacturers to differentiate their consumer-facing brands. Consumer food companies are looking to simplify their food ingredient formulations and consumers are demanding “clean labeling” in their foods, paying more for foods having fewer artificial ingredients and more natural, recognizable and healthy ingredients. A 2017 survey by PR agency Ingredient Communications found that 73% of consumers are happy to pay a higher retail price for a food or drink product made with ingredients they recognize. Because GoodWheat increases the nutrient density directly in the primary grains and oils, it provides the mechanism for food formulation simplification naturally, cost effectively and in a time-frame to meet evolving consumer demands.

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. We 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 our 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 June 2020, the U.S. Patent and Trademark Office granted us the latest patents for extended shelf life wheat, the newest trait in our non-genetically modified wheat portfolio. This new trait was designed to promote whole wheat consumption by improving the shelf life and taste of whole grain wheat products.

With additional patents granted in 2020, we now hold more than 19 global patents on our high fiber RS and Reduced Gluten wheat varieties, protecting both bread wheat and durum (pasta) wheat. Claims granted in 2020 strengthen our intellectual property for our RS and Reduced Gluten portfolios of products.

We announced in August 2019 an agreement with Bay State Milling Company and Arista Cereal Technologies to bring to market our resistant starch GoodWheat in North America and other key markets, beginning in late 2019. In the daily American diet approximately 500 calories come from wheat products, 25% of the FDA's recommended daily caloric intake for a woman and 20% for a man. The GoodWheat portfolio of specialty wheat varieties delivers new functional value through an ingredient already an important component of the human diet.

As recently announced, Arcadia is partnering with Three Farm Daughters, LLLP, to develop and market food products using our patented non-GMO GoodWheat technology. Together, the companies will develop Three Farm Daughters-branded food products such as flours, pastas and baking mixes that leverage the enhanced nutritional profiles of GoodWheat ingredients. The products will be sold domestically in grocery stores and on-line, as well as internationally through the direct to consumer market.

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.

Verdeca HB4® Soybean

In 2012, we partnered with Bioceres, Inc. ("Bioceres") an Argentina-based technology company, to form Verdeca LLC ("Verdeca"), a U.S.-based joint venture company to deploy next-generation soybean traits developed to benefit soybean producers through quality improvement, stress mitigation and management practices. The HB4® soybean varieties deliver two layers of value for growers: drought and herbicide tolerance, offering resistance to a broad-spectrum herbicide utilized to prevent growth of a wide range of annual and perennial broadleaf weeds and grasses.

HB4® was discovered by researchers of the CONICET, the National Scientific and Research Council in Argentina, through the identification of one gene that gives sunflower the capacity to tolerate hydric and saline stress. This gene was transferred from sunflower to soybean.

Verdeca's HB4® soybeans have undergone extensive testing, including multi-location field trials in Argentina and the United States and multiple regulatory field trials. The results of these trials demonstrate that the HB4® trait can provide yield advantages under stress conditions – including drought and low-water conditions – found in several soybean production areas. Verdeca introduced a trait stack combining HB4® with an herbicide tolerance trait to deliver two layers of value for growers.

HB4® is the first trait offering tolerance to drought and salinity in soybeans, with 30 international patents. HB4® is currently approved in the four main countries producing this strategic crop – the U.S., Brazil, Argentina and Paraguay - representing 80% of the global soybean market. Regulatory submissions are under consideration by China, Canada, Bolivia and Uruguay. Import approval by China is required for commercial launch and the expectation to obtain such approval in late 2020 is under review in light of the recent coronavirus.

Soybeans are the world's fourth largest crop, grown on more than 120 million hectares annually. Global population growth, combined with a growing middle class in countries like China and India, have resulted in increased demand for this important protein source. More than 50 million of the world's soybean hectares are grown in Argentina and Brazil, a region that has experienced significant drought conditions in recent years.

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 GoodWheat and 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 \$220.7 million as of September 30, 2020. We had net losses of \$14.6 million and \$22.6 million for the nine months ended September 30, 2020 and 2019, respectively. We expect to incur substantial costs and expenses before we obtain any revenues from the sale of seeds incorporating our traits. As a result, our losses in future periods could become even more significant, and we will need additional funding to support our operating activities.

Impact of Novel Coronavirus

We are closely monitoring how the spread of the novel coronavirus is affecting our business operations and our employees. Our targeted revenues have been adversely impacted as hemp growers have been slower to make decisions to purchase hemp seeds due to economic uncertainty and wheat consumer packaged goods companies have been heavily focused on production over R&D evaluation as demand for staples like pasta and flour have increased. We have developed preparedness plans to help protect the safety of our employees while safely continuing business operations. Due to the spread of the outbreak in California and elsewhere where we have corporate offices, we have temporarily limited access to our offices until further notice and implemented a mandatory remote work policy for employees during this period. As an agriculture company, our business is deemed essential and therefore is not subject to the various shelter-in-place orders mandated by the federal, state, and local governments. Therefore, our laboratory and field personnel have continued to report to their physical place of work while exercising additional safety measures, including but not limited to, increased sanitation and cleaning protocols, utilizing personal protective equipment (“PPE”), rotating shifts, and maintaining safe social distancing to the highest extent possible. At this time, there is significant uncertainty relating to the trajectory of the novel coronavirus outbreak and impact of related responses. The continued spread of the outbreak may further impact our business, results of operations, and financial condition.

Components of Our Statements of Operations Data

Revenues

We derive our revenues from product revenues, royalties, and contract research agreements. Given our acute focus on selling our GoodWheat and GoodHemp products, we do not intend to continue pursuing contract research agreements and government grant projects.

Product Revenues

Our product revenues to date have consisted primarily of sales of our SONOVA products, with initial GoodWheat seed sale revenues recognized in the fourth quarter of 2019. We recognize revenue from product sales when control of the product is transferred to third-party distributors and manufacturers, collectively “our customers,” which generally occurs upon shipment. Our revenues fluctuate depending on the timing of shipments of product to our customers.

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. Revenue generated from up-front license fees are 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 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. 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.

Royalty Revenues

Our royalty revenues consist of amounts earned from the sale of commercial products that incorporate our traits by third parties. Our royalty revenues consist of a minimum annual royalty, offset by amounts earned from the sale of products. We recognize the minimum annual royalty on a straight-line basis over the year, and we recognize royalty revenue resulting from the sale of products when the third parties transfer control of the product to their customers, which generally occurs upon shipment. Our royalty revenues can fluctuate depending on the timing of shipments of product by the third parties to their customers.

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 is 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 2020 and prior, we received payments from government entities in the form of government grants. Government grant revenue is 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.

Operating Expenses

Cost of Product Revenues

Cost of product revenues relates to the sale of our SONOVA and GoodWheat products and consists of in-licensing and royalty fees, any adjustments or write-downs to inventory or prepaid production costs, as well as the cost of raw materials, including internal and third-party services costs related to procuring, processing, formulating, packaging and shipping our 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. Our research and development expenses may fluctuate from period to period.

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 hemp seed and 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 on notes payable relating to the purchase of company vehicles, the revolving line of credit and the Paycheck Protection Loan.

Other Income, Net

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

Change in the Estimated Fair Value of Common Stock Warrant Liabilities

Change in the estimated fair value of common stock warrant liabilities is comprised of the fair value remeasurement of the liabilities associated with the March 2018 Private Placement and the June 2018, June 2019 and September 2019 Offerings.

Loss on Extinguishment of Warrant Liability

Loss on extinguishment of Warrant Liability is comprised of the difference between the reacquisition price and the carrying amount of the June 2018 Warrants associated with the May 2020 Warrant Exercise Transaction, and the March 2018 Warrants associated with the July 2020 Warrant Exercise Transaction.

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, 2020 and December 31, 2019. 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, 2020 and 2019

	<u>Three Months Ended September 30,</u>		<u>\$ Change</u>	<u>% Change</u>
	<u>2020</u>	<u>2019</u>		
	(In thousands except percentage)			
Revenues:				
Product	\$ 245	\$ 216	\$ 29	13%
License	10	17	(7)	(41)%
Royalty	16	—	16	100%
Contract research and government grants	43	159	(116)	(73)%
Total revenues	314	392	(78)	(20)%
Operating expenses:				
Cost of product revenues	1,841	177	1,664	940%
Research and development	1,762	1,931	(169)	(9)%
Selling, general and administrative	4,292	4,477	(185)	(4)%
Total operating expenses	7,895	6,585	1,310	20%
Loss from operations	(7,581)	(6,193)	(1,388)	(22)%
Interest expense	(23)	(3)	(20)	667%
Other income, net	—	119	(119)	(100)%
Change in fair value of common stock warrant liabilities	1,130	(7,777)	8,907	115%
Loss on extinguishment of warrant liability	(682)	—	(682)	(100)%
Offering costs	—	(336)	336	100%
Net loss before income taxes	(7,156)	(14,190)	7,034	50%
Income tax benefit	(9)	3	(12)	(400)%
Net loss	(7,165)	(14,187)	7,022	49%
Net loss attributable to non-controlling interest	(774)	—	(774)	(100)%
Net loss attributable to common stockholders	<u>\$ (6,391)</u>	<u>\$ (14,187)</u>	<u>\$ 7,796</u>	<u>55%</u>

Revenues

Product revenues accounted for 78% and 55% of our total revenues in the three months ended September 30, 2020 and 2019, respectively. The \$29,000, or 13%, increase in product revenues for the three months ended September 30, 2020 compared to the same period in 2019 was primarily driven by sales of GoodWheat and additional volume of SONOVA pet food orders.

License revenues accounted for 3% and 4% of our total revenues in the three months ended September 30, 2020 and 2019, respectively.

Royalty revenues accounted for 5% and 0% of our total revenues in the three months ended September 30, 2020 and 2019, respectively. The \$16,000 of royalty revenues for the three months ended September 30, 2020 represents the proportionate share of minimum annual royalty fees. There were no such revenues for the three months ended September 30, 2019.

Contract research and government grant revenues accounted for 14% and 41% of our total revenues for the three months ended September 30, 2020 and 2019, respectively. Our contract research and government grant revenues decreased by \$116,000, or 73%, in the three months ended September 30, 2020 compared to the same period in 2019. The decrease was driven by the completion of agreements and grants during 2020. Given our acute focus on selling our GoodWheat and GoodHemp products, we do not intend to continue pursuing contract research agreements and government grant projects.

Cost of Product Revenues

Cost of product revenues increased by \$1,664,000, or 940%, in the three months ended September 30, 2020 compared to the same period in 2019. The increase is due to the write-down of \$1,300,000 for the Archipelago inventory due to regulatory changes and \$176,000 for the developmental hemp seed varieties, which did not meet regulatory and quality specifications during the three months ended September 30, 2020, respectively.

Research and Development

Research and development expenses decreased by \$169,000, or 9%, in the three months ended September 30, 2020 compared to the same period in 2019. The decrease was primarily driven by a lower amount of expenses related to Verdeca offset by higher employee-related expenses as we expanded our research teams during 2020, as well as additional external hemp-related costs.

Selling, General, and Administrative

Selling, general, and administrative expenses decreased by \$185,000, or 4%, in the three months ended September 30, 2020 compared to the same period in 2019. The decrease was primarily driven by lower employee-related expenses, including stock compensation and bonuses, and lower travel and legal expenses.

Other Income, Net

There was no other income, net for the three months ended September 30, 2020, a decrease of \$119,000, or 100%, in income when compared to the same period in 2019. The decrease was primarily related to the lower investment balance during the three months ended September 30, 2020.

Change in the Estimated Fair Value of Common Stock Warrant Liabilities

Change in the estimated fair value of \$1,100,000 for the three months ended September 30, 2020 includes the fair value remeasurement of the March 2018 Warrants pursuant to the March 2018 Purchase Agreement, June 2019 Offering Warrants, and the September 2019 Offering Warrants. The estimated fair value of the June 2019 Offering Warrants, and the September 2019 Offering Warrants decreased due to the decrease in the Company's stock price from June 30, 2020 to the September 30, 2020 remeasurement date. The change in the estimated fair value of the portion of the March 2018 Warrants associated with the July 2020 Warrant Exercise Transaction from June 30, 2020 to the transaction dated of July 8, 2020 is included, as well.

Change in the estimated fair value of \$7,800,000 for the three months ended September 30, 2019 includes the fair value remeasurement of the warrants issued with the March 2018 Purchase Agreement, the June 2019 Offering, and the June 2019 Offering. The estimated fair value of the March 2018 Warrants increased due to the increase in the Company's stock price from June 30, 2019 to the September 30, 2019 remeasurement date.

Loss on Extinguishment of Warrant Liability

Loss on extinguishment of warrant liability of \$682,000 for the three months ended September 30, 2020 is comprised of the difference between the reacquisition price and the carrying amount of the portion of the March 2018 Warrants associated with the July 2020 Warrant Exercise Transaction. There was no such activity for the three months ended September 30, 2019.

Income Tax Expense

Income tax expense for the three months ended September 30, 2020 of \$9,000 slightly increased when compared to the benefit of \$3,000 recorded for the three months ended September 30, 2019.

Results of Operations

Comparison of the Nine Months Ended September 30, 2020 and 2019

	Nine Months Ended September 30,		\$ Change	% Change
	2020	2019		
	(In thousands except percentage)			
Revenues:				
Product	\$ 630	\$ 485	\$ 145	30%
License	110	17	93	547%
Royalty	58	—	58	100%
Contract research and government grants	106	251	(145)	(58)%
Total revenues	904	753	151	20%
Operating expenses:				
Cost of product revenues	3,463	324	3,139	969%
Research and development	5,999	5,387	612	11%
Selling, general and administrative	11,689	10,434	1,255	12%
Total operating expenses	21,151	16,145	5,006	31%
Loss from operations	(20,247)	(15,392)	(4,855)	(32)%
Interest expense	(32)	(3)	(29)	(967)%
Other income, net	83	339	(256)	(76)%
Change in fair value of common stock warrant liabilities	6,212	(6,790)	13,002	191%
Loss on extinguishment of warrant liability	(635)	—	(635)	(100)%
Offering costs	—	(702)	702	100%
Net loss before income taxes	(14,619)	(22,548)	7,929	(35)%
Income tax provision	(15)	(14)	(1)	(7)%
Net loss	(14,634)	(22,562)	7,928	(35)%
Net loss attributable to non-controlling interest	(1,081)	—	(1,081)	(100)%
Net loss attributable to common stockholders	\$ (13,553)	\$ (22,562)	\$ 9,009	(40)%

Revenues

Product revenues accounted for 70% and 64% of our total revenues in the nine months ended September 30, 2020 and 2019, respectively. The \$145,000, or 30%, increase in product revenues for the nine months ended September 30, 2020 compared to the same period in 2019 was primarily driven by sales of GoodWheat and additional volume of SONOVA pet food orders.

License revenues accounted for 12% and 2% of our total revenues in the nine months ended September 30, 2020 and 2019, respectively. The \$93,000, or 547%, increase in license revenues for the nine months ended September 30, 2020 compared to the same period in 2019 was driven by the achievement of certain milestones during the nine months ended September 30, 2020.

Royalty revenues accounted for 6% and 0% of our total revenues in the nine months ended September 30, 2020 and 2019, respectively. The \$58,000 of royalty revenues for the nine months ended September 30, 2020 represents the proportionate share of minimum annual royalty fees. There were no such revenues for the nine months ended September 30, 2019.

Contract research and government grant revenues accounted for 12% and 33% of our total revenues for the nine months ended September 30, 2020 and 2019, respectively. Our contract research and government grant revenues decreased by \$145,000, or 58%, in the nine months ended September 30, 2020 compared to the same period in 2019. The decrease was driven by the completion of agreements and grants during 2020. Given our acute focus on selling our GoodWheat and GoodHemp products, we do not intend to continue pursuing contract research agreements and government grant projects.

Cost of Product Revenues

Cost of product revenues increased by \$3,139,000, or 969%, in the nine months ended September 30, 2020 compared to the same period in 2019. The increase is mainly due to the write-down of \$1,300,000 for the Archipelago inventory due to regulatory changes and of \$1,600,000 for the developmental hemp seed varieties, which did not meet regulatory and quality during the nine months ended September 30, 2020, respectively.

Research and Development

Research and development expenses increased by \$612,000, or 11%, in the nine months ended September 30, 2020 compared to the same period in 2019. The increase was primarily driven by higher employee-related expenses as we expanded our research teams during 2020, as well as external hemp-related costs. The increase was partially offset by the reduction in GoodWheat field research costs as our commercial efforts progress, as well as reduced subcontracting expenses associated with government grants.

Selling, General, and Administrative

Selling, general, and administrative expenses increased by \$1,255,000, or 12%, in the nine months ended September 30, 2020 compared to the same period in 2019. The increase was primarily driven by higher consulting fees and consultants' stock compensation expense, and higher employee-related expenses.

Other Income, Net

Other income, net, of \$83,000 for the nine months ended September 30, 2020 was a decrease of \$256,000, or 76%, in income when compared to the same period in 2019. The decrease was primarily related to the lower investment balance in 2020.

Change in the Estimated Fair Value of Common Stock Warrant Liabilities

Change in the estimated fair value of \$6,200,000 for the nine months ended September 30, 2020 includes the fair value remeasurement of the March 2018 Warrants pursuant to the March 2018 Purchase Agreement, June 2019 Offering Warrants, and the September 2019 Offering Warrants. The estimated fair value of the portion of the unexercised March 2018 Warrants, June 2019 Offering Warrants, and the September 2019 Offering Warrants decreased due to the decrease in the Company's stock price from December 31, 2019 to the September 30, 2020 remeasurement date. The change in the estimated fair value of the portion of the March 2018 Warrants associated with the July 2020 Warrant Exercise Transaction from December 31, 2019 to the transaction date of July 8, 2020 is also included, as well as the change in the estimated fair value of the June 2018 Offering Warrants from December 31, 2019 to the transaction dated as of May 18, 2020.

Change in the estimated fair value of \$6,800,000 for the nine months ended September 30, 2019 includes the fair value remeasurement of the March 2018 Warrants issued with the March 2018 Purchase Agreement and the June 2018 and June 2019 Offerings. The estimated fair value of the March 2018 Warrants, the June 2018 Offering Warrants, and the June 2019 Offering Warrants increased due to the increase in the Company's stock price.

Loss on Extinguishment of Warrant Liability

Loss on extinguishment of warrant liability of \$635,000 for the nine months ended September 30, 2020 is comprised of the difference between the reacquisition price and the carrying amount of the March 2018 Warrants associated with the July 2020 Warrant Exercise Transaction. There was no such activity for the nine months ended September 30, 2019.

Income Tax Provision

Income tax provision for the nine months ended September 30, 2020 of \$15,000 was consistent with the provision of \$14,000 recorded for the nine months ended September 30, 2019.

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. Sales of commercial products that incorporate our seed traits will vary based on crop growing seasons and weather patterns within particular regions.

Liquidity, Capital Resources, and Going Concern

We have funded our operations primarily with the net proceeds from our initial public offering, private placements of equity securities and debt, as well as proceeds from the sale of our SONOVA and GoodWheat 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 completing development and commercializing our quality seed traits. This includes scaling harvest production of wheat, hemp and soy, as well as coordinating with our partners on their development programs. As of September 30, 2020, we had cash and cash equivalents of \$10.2 million. For the nine months ended September 30, 2020, the Company had net losses of \$14.6 million and net cash used in operations of \$23.5 million. For the twelve months ended December 31, 2019, the Company had net losses of \$28.9 million and net cash used in operations of \$17.2 million.

As is disclosed in Note 10, the Company obtained funding through two separate arrangements during the first half of 2018 and two offerings during June 2019 and September 2019. 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. On June 12, 2019, the Company entered into agreements with institutional investors through a registered direct offering in the amount of \$7.5 million exclusive of any related transaction fees. In August and September 2019, investors exercised warrants, generating cash proceeds totaling \$5.3 million. On September 5, 2019, the Company entered into agreements with institutional investors through a registered direct offering in the amount of \$10 million exclusive of any related transaction fees. In May and July 2020, the Company obtained funding through two separate warrant exercise transactions in the total amount of \$9.3 million, exclusive of any related transaction fees.

We believe that our existing cash and cash equivalents will not be sufficient to meet our anticipated cash requirements for at least the next 12 months which raises substantial doubt about the Company's ability to continue as a going concern. See Note 1 of the notes to the condensed consolidated financial statements for more information.

We may seek to raise additional funds through debt or equity financings, if necessary and available. We may also consider entering into additional partner arrangements. Our sale of additional equity would result in dilution to our stockholders and could have unfavorable terms. 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 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.

At this time, there is significant uncertainty relating to the trajectory of the novel coronavirus outbreak and impact of related responses. The continued spread of the outbreak could materially harm our business, results of operations, and financial condition. Due to this uncertainty and plans outside of management's control, we may not be able to achieve and implement such plans within one year after the date that the condensed consolidated financial statements are issued to address the substantial doubt that exists.

Cash Flows

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

	Nine Months Ended September 30,	
	2020	2019
Net cash (used in) provided by:		
Operating activities	\$ (23,467)	\$ (12,186)
Investing activities	14,428	(1,285)
Financing activities	12,824	22,014
Net increase in cash	\$ 3,785	\$ 8,543

Cash flows from operating activities

Cash used in operating activities for the nine months ended September 30, 2020 was \$23.5 million. Our net loss of \$14.6 million, adjustments in our working capital accounts of \$8.6 million, non-cash income from the change in fair value of common stock warrant liabilities of \$6.2 million, operating lease payments of \$629,000, amortization of investment premium of \$44,000 and gain on disposal of equipment of \$8,000, were partially offset by non-cash charges including \$3.1 million of write-downs of inventory and prepaid production costs, \$1.8 million of stock-based compensation, \$745,000 of lease amortization, \$635,000 of loss on extinguishment of warrant liability and \$395,000 of depreciation.

Cash used in operating activities for the nine months ended September 30, 2019 was \$12.2 million. Our net loss of \$22.6 million, operating lease payments of \$534,000 and amortization of investment premium of \$121,000 were partially offset by non-cash expense for the change in fair value of common stock warrant liabilities of \$6.8 million, \$1.9 million of stock-based compensation, adjustments in our working capital accounts of \$1.0 million, \$530,000 of lease amortization and \$133,000 of depreciation, as well as \$702,000 of offering costs that are also included in financing activities.

Cash flows from investing activities

Cash provided by investing activities for the nine months ended September 30, 2020 consisted of \$18.3 million in proceeds from sales and maturities of investments and \$8,000 in proceeds from sales of equipment, which were partially offset by \$2.0 million in purchases of property and equipment, \$1.3 million in purchases of short-term investments and \$500,000 in acquisitions (for ISI acquisition, see Note 5 to the Condensed Consolidated Financial Statements).

Cash used in investing activities for the nine months ended September 30, 2019 consisted of \$18.5 million in purchases of short-term investments and \$878,000 in purchases of property and equipment, which were partially offset by \$18.1 million in proceeds from sales and maturities of investments.

Cash flows from financing activities

Cash provided by financing activities for the nine months ended September 30, 2020 consisted of proceeds from the issuance of common stock relating to the exercise of the June 2018 Warrants of \$6.8 million and the exercise of half of the March 2018 PIPE Warrants of \$2.6 million, proceeds from borrowings of \$3.1 million, capital contributions from the non-controlling interest in our joint venture of \$1.2 million, and proceeds from the purchase of ESPP shares of \$51,000, which were offset by payments of transactions costs related to the extinguishment of warrant liability of \$863,000 and principal payments on notes payable of \$26,000.

Cash provided by financing activities for the nine months ended September 30, 2019 consisted of proceeds from the issuance of stock and warrants relating to the June 2019 Offering of \$7.5 million and from the September 2019 Offering of \$10.0 million, proceeds from the exercise of some of the June 2019 warrants of \$5.3 million, capital contributions from the non-controlling interest in our joint venture of \$689,000 and proceeds from the purchase of ESPP shares of \$21,000. Partially offsetting these proceeds were payments of offering costs totaling \$776,000 and \$663,000 for the September 2019 and June 2019 Offerings, respectively, as well as \$24,000 in payments of offering costs for the June 2018 Offering.

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 condensed consolidated financial statements, which have been prepared in accordance with GAAP. The preparation of these condensed consolidated 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 condensed consolidated 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, grower accruals (an estimate of amounts payable to farmers who grow seed for the Company), determination of the provision for income taxes, stock-based compensation, fair value of certain equity instruments, and net realizable value of inventory. See Notes 4 and 10 for the estimates made in connection with the securities purchase agreements executed during 2018, 2019, and 2020.

As discussed in Note 2, in April 2020, the FASB issued a staff question-and-answer ("Q&A") document to respond to frequently asked questions about the accounting for lease concessions related to the effects of the COVID-19 pandemic. Under current GAAP, subsequent changes to lease payments that are not stipulated in the original lease contract are generally accounted for as lease modifications under Topic 842. The Q&A allows companies to make an accounting policy election to not evaluate lease concessions related to the effects of the COVID-19 pandemic as lease modifications. Entities that make this election then need to decide whether to

apply the lease modification guidance in ASC 842 to the concession or account for the concession as if it were contemplated as part of the existing contract. The Company has not entered into any lease modifications that provide concessions related to the effects of the COVID-19 pandemic, and therefore has not evaluated its option to make this accounting policy election.

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, 2020 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

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.

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, 2019, and the additional risk factor set forth below, 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.

Unfavorable global economic or political conditions could adversely affect our business, financial condition or results of operations.

Our results of operations could be adversely affected by general conditions in the global economy and in the global financial markets. A global financial crisis or a global or regional political disruption could cause extreme volatility in the capital and credit markets. For example, outbreaks of epidemic, pandemic, or contagious diseases, such as the recent COVID-19 outbreak, could disrupt our business. Business disruptions could include disruptions to the productivity of our employees working remotely and restrictions on their travel may hinder their ability to meet with potential customers and close transactions, as well as temporary closures of the facilities of suppliers or contract growers in our supply chain. While we’ve seen very recent signs of improvement, hemp growers have been slower to make decisions to purchase hemp seeds due to economic uncertainty and wheat consumer packaged goods companies have been heavily focused on production over R&D evaluation as demand for staples like pasta and flour have increased. Import approval by China is required for the successful commercial launch of our HB4® soybean, and it is uncertain whether the pandemic will cause delays in the approval process. If there are significant delays in China’s approval, our results of operations and financial condition could be materially adversely affected. In addition, the COVID-19 outbreak may result in a severe economic downturn and has already significantly affected the financial markets of many countries. A severe or prolonged economic downturn or political disruption could result in a variety of risks to our business, including our ability to raise capital when needed on acceptable terms, if at all. A weak or declining economy or political disruption could also strain our manufacturers or suppliers, possibly resulting in supply disruption, or cause our customers to delay making payments for our services. Any of the foregoing could harm our business and we cannot anticipate all of the ways in which the political or economic climate and financial market conditions could adversely impact our business.

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

During the three months ended September 30, 2020, we issued the securities described below without registration under the Securities Act. Unless otherwise indicated below, the securities were issued pursuant to the private placement exemption provided by Section 4(a)(2) of the Securities Act.

In July 2020, pursuant to the July 2020 Warrant Exercise Transaction, the Company amended the exercise price of 641,416 March 2018 Warrants to \$3.975 per share and issued a total of 641,416 shares of common stock upon exercise of those March 2018 Warrants at this new exercise price. As consideration for the exercise of these March 2018 Warrants, the Company issued warrants to purchase 641,416 shares of common stock at an exercise price of \$3.85 per share with an exercise period of five and one-half years from the date of issuance. The Company also issued placement agent warrants to purchase a total of 32,071 shares of common stock that have an exercise price per share equal to \$4.969 and a term of five and one-half years.

In August 2020, as consideration paid by the Company to acquire Industrial Seed Innovations (ISI), the Company issued 132,626 shares of the Company’s common stock to the former shareholders of ISI and agreed to issue up to a total of 265,252 additional shares of the Company’s common stock to these former shareholders if certain milestones are satisfied in 2021 and 2022.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

Not applicable.

ITEM 6. EXHIBITS

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

Exhibit Number	Exhibit Description
4.1(1)	Form on New Warrant issued on July 8, 2020
4.2(2)	Form of Placement Agent Warrant issued on July 8, 2020
10.1(3)	Form of Letter Agreement, dated as of July 6, 2020
31.1	Principal Executive Officer's Certifications Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Principal Financial Officer's Certifications Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1(4)	Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2(4)	Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
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) Incorporated by reference to Exhibit 4.1 filed with the Report on Form 8-K filed on July 8, 2020.
- (2) Incorporated by reference to Exhibit 4.2 filed with the Report on Form 8-K filed on July 8, 2020.
- (3) Incorporated by reference to Exhibit 10.1 filed with the Report on Form 8-K filed on July 8, 2020.
- (4) 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 13, 2020

By: /s/ MATTHEW T. PLAVAN
Matthew T. Plavan
President and Chief Executive Officer

November 13, 2020

By: /s/ PAMELA HALEY
Pamela Haley
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, 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, 2020;
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(s) 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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) 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;
 - (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 13, 2020

/s/ MATTHEW T. PLAVAN

Matthew T. Plavan
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, Pamela Haley, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Arcadia Biosciences, Inc. for the period ended September 30, 2020;
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(s) 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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) 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;
 - (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 13, 2020

/s/ PAMELA HALEY

Pamela Haley
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, 2020 (the "Report"), I, Matthew T. Plavan, 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 13, 2020

/s/ MATTHEW T. PLAVAN

Matthew T. Plavan
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, 2020 (the "Report"), I, Pamela Haley, 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 13, 2020

/s/ PAMELA HALEY

Pamela Haley
Chief Financial Officer
(Principal Financial Officer)