

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 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 001-38161



Calyxt, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

2800 Mount Ridge Road
Roseville, MN
(Address of principal executive offices)

27-1967997
(I.R.S. Employer
Identification No.)

55113-1127
(Zip Code)

(651) 683-2807
(Registrant's telephone number, including area code)

N/A
(Former name, former address and former fiscal year, if changed since last report)

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 Stock (0.0001 par value)	CLXT	The NASDAQ Global 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, a 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 checked="" type="checkbox"/> |
| Non-accelerated filer | <input type="checkbox"/> | Smaller reporting company | <input 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 5, 2020, there were 37,065,044 shares of common stock, \$0.0001 par value per share, outstanding.

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Terms

When we use the terms “we,” “us,” the “Company,” or “our” in this report, unless the context otherwise requires, we are referring to Calyxt, Inc. When we use the term “Collectis,” we are referring to Collectis S.A., our majority stockholder. Collectis is a clinical-stage biotechnological company, employing its core proprietary technologies to develop best-in-class products in the field of immune-oncology.

We own the names and trademarks for Calyxt® and Calyno®; we also own or license other trademarks, trade names and service marks of Calyxt appearing in this Quarterly Report on Form 10-Q. The name and trademark Collectis® and TALEN®, and other trademarks, trade names and service marks of Collectis appearing in this Quarterly Report are the property of Collectis. This Quarterly Report also contains additional trade names, trademarks and service marks belonging to other companies. We do not intend our use or display of other parties’ trademarks, trade names or service marks to imply, and such use or display should not be construed to imply, a relationship with, or endorsement or sponsorship of us by, these other parties.

Cautionary Note Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q contains “forward-looking statements” within the meaning of the federal securities laws, including Section 27A of the Securities Act of 1933, as amended (the Securities Act), and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). We may also make forward-looking statements in other reports filed with the Securities and Exchange Commission, in materials delivered to stockholders and in press releases. In addition, our representatives may from time to time make oral forward-looking statements.

We have made these forward-looking statements in reliance on the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. In some cases, you can identify these statements by forward-looking words such as “anticipates,” “believes,” “continue,” “estimates,” “expects,” “targets,” “intends,” “may,” “might,” “plans,” “potential,” “predicts,” “projects,” “should,” or “will,” the negative of these terms and other similar terminology. Forward-looking statements in this report include statements about the potential impact of the COVID-19 pandemic on our business and operating results; our future financial performance; product pipeline and development; our business model and strategies for commercialization and sales of commercial products; regulatory progression; potential collaborations, partnerships and licensing arrangements and their contribution to our financial results, cash usage, and growth strategies; and anticipated trends in our business. These and other forward-looking statements are predictions and projections about future events and trends based on our current expectations, objectives and intentions and premised on current assumptions. Our actual results, level of activity, performance, or achievements could be materially different than those expressed, implied, or anticipated by forward-looking statements due to a variety of factors, including, but not limited to: the severity and duration of the evolving COVID-19 pandemic and the resulting impact on macro-economic conditions; the impact of increased competition; disruptions at our key facilities; changes in customer preferences and market acceptance of our products; competition for collaboration partners and licensees and the successful execution of collaborations and licensing agreements; the impact of adverse events during development, including unsuccessful field trials or developments trials or disruptions in seed production; the impact of improper handling of our product candidates by unaffiliated third parties during development, such as the improper aerial spraying of our high fiber wheat product candidate; failures by third-party contractors; inaccurate demand forecasting; the effectiveness of commercialization efforts by commercial partners or licensees; our ability to make grain sales on terms acceptable to us; the timing of our grain sales; our ability to collect accounts receivable; disruptions to supply chains, including transportation and storage functions; commodity price conditions; the impact of changes or increases in oversight and regulation; disputes or challenges regarding intellectual property; proliferation and continuous evolution of new technologies; management changes; dislocations in the capital markets; and other important factors discussed under the caption entitled “Risk Factors” in our filings with the Securities and Exchange Commission (SEC), including our Annual Report on Form 10-K for the year ended December 31, 2019, which was filed with the SEC on March 5, 2020, (our Annual Report) and our subsequent reports on Forms 10-Q (including under the caption entitled “Risk Factors” in Part II, Item 1A of this Quarterly Report) and 8-K.

Any forward-looking statement made by us are based only on information currently available to us when, and speaks only as of the date, such statement is made. Except as required by securities and other applicable laws, we do not assume any obligation to publicly provide revisions or updates to any forward-looking statements, whether as a result of new information, future developments or otherwise, should circumstances change.

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Market Data

Unless otherwise indicated, information contained in this Quarterly Report concerning our industry and the markets in which we operate is based on information from various sources, including independent industry publications. In presenting this information, we have also made assumptions based on such data and other similar sources, and on our knowledge of, and our experience to date in, the potential markets for our product. The industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of factors, including those described in the section entitled “Risk Factors” in our Annual Report and other subsequent reports on Forms 10-Q and 8-K filed with the SEC. These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by us.

Website Disclosure

We use our website (www.calyxt.com), our corporate Twitter account (@Calyxt_Inc) and our corporate LinkedIn account (<https://www.linkedin.com/company/calyxt-inc>) as routine channels of distribution of company information, including press releases, analyst presentations, and supplemental financial information, as a means of disclosing material non-public information and for complying with our disclosure obligations under Regulation FD. Accordingly, investors should monitor our website and our corporate Twitter and LinkedIn accounts in addition to following press releases, filings with the SEC and public conference calls and webcasts.

Additionally, we provide notifications of announcements as part of our website. Investors and others can receive notifications of new press releases posted on our website by signing up for email alerts.

None of the information provided on our website, in our press releases or public conference calls and webcasts or through social media is incorporated into, or deemed to be a part of, this Quarterly Report or in any other report or document we file with the SEC, and any references to our website or our corporate Twitter and LinkedIn accounts are intended to be inactive textual references only.

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

CALYXT, INC.
CONSOLIDATED BALANCE SHEETS
(In Thousands, Except Par Value and Share Amounts)

	September 30, 2020 (unaudited)	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	\$ 7,170	\$ 58,610
Short-term investments	20,802	—
Restricted cash	393	388
Accounts receivable	2,432	1,122
Due from related parties	2	—
Inventory	5,953	2,594
Prepaid expenses and other current assets	1,515	808
Total current assets	38,267	63,522
Non-current restricted cash	1,041	1,040
Land, buildings, and equipment	22,823	23,212
Other non-current assets	347	324
Total assets	\$ 62,478	\$ 88,098
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	\$ 1,163	\$ 1,077
Accrued expenses	4,261	2,544
Accrued compensation	1,609	2,181
Due to related parties	481	977
Current portion of financing lease obligations	361	356
Other current liabilities	44	61
Total current liabilities	7,919	7,196
Financing lease obligations	18,022	18,244
Long-term debt	1,518	—
Other non-current liabilities	123	150
Total liabilities	27,582	25,590
Stockholders' equity:		
Common stock, \$0.0001 par value; 275,000,000 shares authorized; 33,343,313 shares issued and 33,243,161 shares outstanding as of September 30, 2020, and 33,033,689 shares issued and 32,951,329 shares outstanding as of December 31, 2019	3	3
Additional paid-in capital	189,437	185,588
Common stock in treasury, at cost; 100,152 shares as of September 30, 2020, and 82,360 shares as of December 31, 2019	(1,043)	(1,043)
Accumulated deficit	(153,498)	(122,057)
Accumulated other comprehensive income (loss)	(3)	17
Total stockholders' equity	34,896	62,508
Total liabilities and stockholders' equity	\$ 62,478	\$ 88,098

See accompanying notes to these consolidated financial statements.

CALYXT, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited and in Thousands Except Shares and Per Share Amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Revenue	\$ 5,241	\$ 2,967	\$ 9,925	\$ 3,533
Cost of goods sold	7,060	3,528	16,265	3,865
Gross margin	(1,819)	(561)	(6,340)	(332)
Operating expenses:				
Research and development	2,204	3,579	7,816	8,536
Selling and supply chain	439	1,314	3,368	3,421
General and administrative	4,185	4,934	12,713	14,302
Management fees	68	305	172	1,117
Restructuring costs	436	—	436	—
Total operating expenses	7,332	10,132	24,505	27,376
Loss from operations	(9,151)	(10,693)	(30,845)	(27,708)
Interest, net	(324)	32	(568)	296
Foreign currency transaction loss	(1)	(8)	(28)	(35)
Loss before income taxes	(9,476)	(10,669)	(31,441)	(27,447)
Income taxes	—	—	—	—
Net loss	\$ (9,476)	\$ (10,669)	\$ (31,441)	\$ (27,447)
Basic and diluted net loss per share	\$ (0.29)	\$ (0.32)	\$ (0.95)	\$ (0.84)
Weighted average shares outstanding - basic and diluted	33,200,289	32,866,467	33,076,376	32,759,194

See accompanying notes to these consolidated financial statements.

CALYXT, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited and in Thousands Except Shares Outstanding)

Three months ended September 30, 2020	Shares Outstanding	Common Stock	Additional Paid-In Capital	Shares in Treasury	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
Balance at June 30, 2020	33,040,520	\$ 3	\$ 188,656	\$ (1,043)	\$ (144,022)	\$ (41)	\$ 43,553
Net loss	—	—	—	—	(9,476)	—	(9,476)
Stock based compensation	202,641	—	570	—	—	—	570
Issuance of common stock	—	—	211	—	—	—	211
Shares withheld for net share settlement	—	—	—	—	—	—	—
Other comprehensive income	—	—	—	—	—	38	38
Balance at September 30, 2020	33,243,161	\$ 3	\$ 189,437	\$ (1,043)	\$ (153,498)	\$ (3)	\$ 34,896
Three months ended September 30, 2019							
Balance at June 30, 2019	32,859,700	\$ 3	\$ 180,237	\$ (789)	\$ (99,223)	\$ (38)	\$ 80,190
Net loss	—	—	—	—	(10,669)	—	(10,669)
Stock based compensation	7,713	—	2,705	—	—	—	2,705
Issuance of common stock	—	—	6	—	—	—	6
Shares withheld for net share settlement	—	—	—	(86)	—	—	(86)
Other comprehensive (loss)	—	—	—	—	—	(17)	(17)
Balance at September 30, 2019	32,867,413	\$ 3	\$ 182,948	\$ (875)	\$ (109,892)	\$ (55)	\$ 72,129
Nine months ended September 30, 2020							
Balance at December 31, 2019	32,951,329	\$ 3	\$ 185,588	\$ (1,043)	\$ (122,057)	\$ 17	\$ 62,508
Net loss	—	—	—	—	(31,441)	—	(31,441)
Stock based compensation	309,624	—	3,638	—	—	—	3,638
Issuance of common stock	—	—	211	—	—	—	211
Shares withheld for net share settlement	(17,792)	—	—	—	—	—	—
Other comprehensive loss	—	—	—	—	—	(20)	(20)
Balance at September 30, 2020	33,243,161	\$ 3	\$ 189,437	\$ (1,043)	\$ (153,498)	\$ (3)	\$ 34,896
Nine months ended September 30, 2019							
Balance at December 31, 2018	32,648,893	\$ 3	\$ 176,069	\$ (230)	\$ (82,445)	\$ —	\$ 93,397
Net loss	—	—	—	—	(27,447)	—	(27,447)
Stock based compensation	261,883	—	6,565	—	—	—	6,565
Issuance of common stock	—	—	314	—	—	—	314
Shares withheld for net share settlement	(43,363)	—	—	(645)	—	—	(645)
Other comprehensive loss	—	—	—	—	—	(55)	(55)
Balance at September 30, 2019	32,867,413	\$ 3	\$ 182,948	\$ (875)	\$ (109,892)	\$ (55)	\$ 72,129

See accompanying notes to these consolidated financial statements.

CALYXT, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited and in Thousands)

	Nine Months Ended September 30,	
	2020	2019
Operating activities		
Net loss	\$ (31,441)	\$ (27,447)
Adjustments to reconcile net loss to net cash used by operating activities:		
Depreciation and amortization	1,372	1,051
Stock-based compensation	3,638	6,565
Changes in operating assets and liabilities:		
Accounts receivable	(1,310)	(1,304)
Due to/from related parties	(498)	(1,223)
Inventory	(3,359)	(2,371)
Prepaid expenses and other current assets	(707)	192
Accounts payable	86	127
Accrued expenses	1,717	(49)
Accrued compensation	(572)	478
Other current liabilities	(64)	(743)
Other non-current assets	140	36
Net cash used by operating activities	(30,998)	(24,688)
Investing activities		
Purchases of land, buildings, and equipment	(1,146)	(2,538)
Short-term investments	(20,802)	—
Net cash used by investing activities	(21,948)	(2,538)
Financing activities		
Proceeds from Payroll Protection Program loan	1,518	—
Repayments of financing lease obligations	(217)	(195)
Proceeds from the exercise of stock options	211	314
Costs incurred related to shares withheld for net share settlement	—	(645)
Proceeds from the sale and leaseback of land, buildings, and equipment	—	414
Net cash provided (used) by financing activities	1,512	(112)
Net decrease in cash, cash equivalents and restricted cash	(51,434)	(27,338)
Cash, cash equivalents and restricted cash - beginning of period	60,038	95,288
Cash, cash equivalents and restricted cash – end of period	\$ 8,604	\$ 67,950

See accompanying notes to these consolidated financial statements.

CALYXT, INC.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. BASIS OF PRESENTATION & SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Our unaudited consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States (U.S. GAAP or GAAP) for interim financial information and with the rules and regulations of the Securities and Exchange Commission (SEC) applicable to interim financial statements. In our opinion, the accompanying consolidated financial statements reflect all adjustments necessary for a fair presentation of our statements of financial position, results of operations and cash flows for the periods presented but they do not include all of the information and footnotes required by U.S. GAAP for complete financial statements. Except as otherwise disclosed herein, these adjustments consist of normal recurring items. Operating results for interim periods are not necessarily indicative of results that may be expected for the fiscal year as a whole or any other interim period.

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses, and the related disclosures at the date of the consolidated financial statements and during the reporting period. Actual results could materially differ from these estimates.

Certain prior year amounts have been reclassified to conform to the current year presentation.

For further information, refer to the audited consolidated financial statements and notes thereto included in our Annual Report on Form 10-K for the year ended December 31, 2019, filed with the SEC on March 5, 2020. The accompanying Balance Sheet as of December 31, 2019, was derived from the audited consolidated financial statements. This Quarterly Report on Form 10-Q should be read in conjunction with our consolidated financial statements and notes included in the Annual Report on Form 10-K for the year ended December 31, 2019.

Short-term investments

We consider investments with more than ninety days to maturity at issuance to be short-term investments. These short-term investments are considered trading securities and are carried at fair value with any unrealized gains and losses recorded in current earnings as a component of interest, net.

Revenue Recognition

In certain instances, we may sell grain to a processor with a commitment to repurchase any soybean meal resulting from their grain crushing activity with a single net cash settlement occurring between the parties. In those instances, we recognize revenue from the sale of grain in the amount of the final net cash settlement with the processor. We also recognize revenue on our sale of the meal to our customers in accordance with our previously disclosed revenue recognition accounting policies. Costs are ascribed to grain and meal sold pursuant to the agreement with the processor.

2. FINANCIAL INSTRUMENTS MEASURED AT FAIR VALUE, HEDGING ACTIVITIES, AND CONCENTRATIONS OF CREDIT RISK

Financial Instruments Measured at Fair Value and Financial Statement Presentation

Financial instruments including cash and cash equivalents, restricted cash, due from related parties, accounts payable, due to related parties and all other current liabilities have carrying values that approximate fair value. We measure short-term investments and commodity derivative contracts at fair value on a recurring basis. The accounting guidance establishes a three-tier hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value as of the measurement date as follows:

Level 1: Fair values are based on unadjusted quoted prices in active trading markets for identical assets and liabilities.

Level 2: Fair values are based on observable quoted prices other than those in Level 1, such as quoted prices for similar assets or liabilities in active markets or quoted prices for identical assets or liabilities in inactive markets.

Level 3: Fair values are based on at least one significant unobservable input for the asset or liability.

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Fair Value Measurements and Financial Statement Presentation

The fair values of our financial instruments measured at fair value and their respective levels in the fair value hierarchy as of September 30, 2020, and December 31, 2019, were as follows:

In Thousands	September 30, 2020				September 30, 2020			
	Fair Values of Assets				Fair Values of Liabilities			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Other items reported at fair value:								
Short-term investments	\$ 20,802	\$ —	\$ —	\$ 20,802	\$ —	\$ —	\$ —	\$ —
Commodity derivative contracts	132	—	—	132	—	—	—	—
Total	\$ 20,934	\$ —	\$ —	\$ 20,934	\$ —	\$ —	\$ —	\$ —

In Thousands	December 31, 2019				December 31, 2019			
	Fair Values of Assets				Fair Values of Liabilities			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Other items reported at fair value:								
Commodity derivative contracts	\$ 62	\$ —	\$ —	\$ 62	\$ —	\$ —	\$ —	\$ —
Total	\$ 62	\$ —	\$ —	\$ 62	\$ —	\$ —	\$ —	\$ —

The non-current portion of our financing lease obligations are also considered a financial instrument, which we measure at fair value for disclosure purposes. It is a Level 2 liability and had a fair value of \$15.2 million as of September 30, 2020, and a fair value of \$15.7 million as of December 31, 2019.

The composition of our short-term investments as of September 30, 2020, and December 31, 2019 were as follows:

In Thousands	As of September 30,		As of December 31,	
	2020		2019	
Corporate debt securities	\$	17,803	\$	—
Commercial paper		2,999		—
Total	\$	20,802	\$	—

Commodity Price Risk

We enter into seed and grain production agreements (Forward Purchase Contracts) with settlement values based on commodity futures market prices. These Forward Purchase Contracts allow the counterparty to fix their sales prices at various times as defined in the contract. Because we intend to take physical delivery under the Forward Purchase Contracts, we have grain inventory we will need to sell. We intend to sell these inventories at then-current market prices. As a result, when the Forward Purchase Contract counterparty fixes their grain prices, we enter hedging arrangements by selling futures contracts which converts our exposure to these fixed prices to floating prices. We expect to maintain these hedging relationships until such grain inventory is sold to help stabilize our margins. We do not account for these economic hedges as accounting hedges. We expect any gains or losses from these hedging arrangements to be offset by gains or losses on the grain inventories when such grain inventories are sold. We have recognized \$1.1 million of commodity derivative losses from hedging contracts sold to convert our fixed price grain inventories and fixed price Forward Purchase Contracts to floating prices for the three and nine-month periods ended September 30, 2020. As of September 30, 2020, we held commodity contracts with a notional amount of \$5.1 million.

We previously designated all our commodity derivative contracts as cash flow hedges based on the nature of our business activities under the prior go-to-market strategy. As a result, all gains or losses associated with recording those commodity derivative contracts at fair value were recorded as a component of accumulated other comprehensive income (loss) (AOCI). We reclassify amounts from AOCI to cost of goods sold when we sell the underlying products to which those hedges relate. As of September 30, 2020, we expect the entire AOCI balance to be reclassified into earnings within the next three months.

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Certain amounts related to our hedging activities are as follows:

In thousands	Amount of Gain (Loss) Recognized in AOCI		Amount of Gain (Loss) Reclassified to Earnings	
	For the Nine Months Ended September 30,		For the Nine Months Ended September 30,	
	2020	2019	2020	2019
Cash flow hedges:				
Commodity derivative contracts	\$ 8	\$ —	\$ (28)	\$ —

Foreign Exchange Risk

Foreign currency fluctuations affect our foreign currency cash flows related primarily to payments to Collectis. Our principal foreign currency exposure is to the euro. We do not hedge these exposures, and we do not believe that the current level of foreign currency risk is significant to our operations.

Concentrations of Credit Risk

We invest our cash, cash equivalents and restricted cash in highly liquid securities and investment funds and until late December 2019, also held deposits at a financial institution that exceeded insured limits. In the first quarter of 2020, we diversified this risk by shifting our investments to a diverse portfolio of short-dated, high investment-grade securities we classify as short-term investments that are recorded at fair value in our consolidated financial statements. We ensure the credit risk in this portfolio is in accordance with our internal policies and if necessary, make changes to investments to ensure credit risk is minimized. We have not experienced any counterparty credit losses.

3. RELATED-PARTY TRANSACTIONS

We have several agreements that govern our relationship with Collectis, some of which require us to make payments to Collectis. Pursuant to our management services agreement with Collectis, we incurred management fee expenses of \$0.1 million for the three months ended September 30, 2020, and \$0.3 million for the same period in 2019. We incurred management fee expenses of \$0.2 million for nine months ended September 30, 2020, and \$1.1 million for the same period in 2019.

Collectis has also guaranteed the lease agreement for our headquarters. Collectis' guarantee of our obligations under the lease will terminate at the end of the second consecutive calendar year in which our tangible net worth exceeds \$300 million.

TALEN® is our primary gene-editing technology, and it is the foundation of our technology platform. TALEN® technology was invented by researchers at the University of Minnesota and Iowa State University and exclusively licensed to Collectis. We obtained an exclusive license for the TALEN® technology for commercial use in plants from Collectis. We also license other technology from Collectis. We owe Collectis royalties on any revenue we generate from sales of products less certain amounts as defined in the license agreement, as well as a percentage of any sublicense revenues. We incurred nominal license and royalty fees for the three months ended September 30, 2020, and 2019. We incurred license and royalty fees of \$0.1 million for the nine months ended September 30, 2020, and nominal fees for the same period in 2019.

We have entered into various agreements with the University of Minnesota, pursuant to which we have been granted both exclusive and non-exclusive license agreements that carry annual license fees, milestone payments, royalties, and associated legal fees. These agreements primarily relate to gene-editing tools, enabling technologies and germplasm. We incurred nominal expenses pursuant to these agreements for the three and nine months ended September 30, 2020, and 2019.

4. NET LOSS PER SHARE

Basic and diluted net loss per share was calculated using the following:

In Thousands, Except Share Data and Per Share Amounts	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net loss	\$ (9,476)	\$ (10,669)	\$ (31,441)	\$ (27,447)
Weighted average shares outstanding - basic and diluted	\$ 33,200,289	\$ 32,866,467	\$ 33,076,376	\$ 32,759,194
Basic and diluted net loss per share	\$ (0.29)	\$ (0.32)	\$ (0.95)	\$ (0.84)

	As of September 30,	
	2020	2019
Anti-dilutive stock options, restricted stock units, and performance stock units	5,581,307	5,688,399

All outstanding stock options, restricted stock units, and performance stock units are excluded from the calculation since they are anti-dilutive.

We have not used the treasury method in determining the number of anti-dilutive stock options and restricted stock units in the table above.

5. STOCK-BASED COMPENSATION

We use broad-based stock plans to attract and retain highly qualified officers and employees and to help ensure that management's interests are aligned with those of our shareholders. We have also granted equity-based awards to directors, nonemployees, and certain employees of Collectis.

In December 2014, we adopted the Calyxt, Inc. Equity Incentive Plan (2014 Plan), which allowed for the grant of stock options, and in June 2017, we adopted the 2017 Omnibus Plan (2017 Plan), which allowed for the grant of stock options, performance shares and other types of equity awards.

As of September 30, 2020, 1,223,547 shares were registered and available for grant under effective registration statements, while 3,905,316 shares were available for grant in the form of stock options, restricted stock, restricted stock units, and performance stock units under the 2017 Plan. Stock-based awards currently outstanding also include awards granted under the 2014 Plan, under which no further awards can be granted.

Stock Options

The estimated fair values of stock options granted, and the assumptions used for the Black-Scholes option pricing model were as follows:

	Nine Months Ended September 30,	
	2020	2019
Estimated fair values of stock options granted	\$ 3.32	\$ 10.70
Assumptions:		
Risk-free interest rate	0.3%-1.7%	1.9%-2.5%
Expected volatility	77.4%-81.2%	77.9%-78.9%
Expected term (in years)	6.0-10.0	6.8-10.0

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We estimate the fair value of each option on the grant date or other measurement dates if applicable using a Black-Scholes option-pricing model, which requires us to make predictive assumptions regarding future stock price volatility, employee exercise behavior and dividend yield. The risk-free interest rate for periods during the expected term of the options is based on the United States Treasury zero-coupon yield curve in effect at the date of grant. We estimate our future stock price volatility using the historical volatility of comparable public companies over the expected term of the option. Our expected term represents the period that options granted are expected to be outstanding determined using the simplified method. We have not paid dividends on our common stock and we do not currently plan to pay any cash dividends in the foreseeable future.

Option strike prices are set at 100 percent or more of the closing share price on the date of grant, and generally vest over three to six years following the grant date. Options generally expire 10 years after the date of grant.

Information on stock option activity is as follows:

	Options Exercisable	Weighted- Average Exercise Price Per Share	Options Outstanding	Weighted- Average Exercise Price Per Share
Balance as of December 31, 2019	1,789,567	\$ 8.73	4,481,359	\$ 11.73
Granted			800,265	4.78
Exercised			(58,575)	3.60
Forfeited or expired			(568,907)	14.92
Balance as of September 30, 2020	2,216,755	\$ 9.94	4,654,142	\$ 10.34

Stock-based compensation expense related to stock option awards is as follows:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Stock-based compensation expense	\$ 187	\$ 1,885	\$ 2,439	\$ 4,162

As of September 30, 2020, options outstanding and exercisable had an aggregate intrinsic value of \$1.8 million and the weighted average remaining contractual term was 7.5 years.

Net cash proceeds from the exercise of stock options less shares used for minimum withholding taxes and the intrinsic value of options exercised were as follows:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net cash proceeds	\$ 211	\$ 6	\$ 211	\$ 314
Intrinsic value of options exercised	\$ 179	\$ 13	\$ 179	\$ 893

As of September 30, 2020, unrecognized compensation expense related to non-vested stock options was \$0.7 million. This expense will be recognized over 32 months on average.

Restricted Stock Units

Units settled in stock subject to a restricted period may be granted under the 2017 Plan. Restricted stock units generally vest and become unrestricted over five years after the date of grant.

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Information on restricted stock unit activity is as follows:

	Number of Restricted Stock Units Outstanding	Weighted- Average Grant Date Fair Value
Unvested balance at December 31, 2019	813,526	\$ 10.31
Granted	105,633	4.55
Vested	(242,002)	9.38
Forfeited	(61,659)	10.80
Unvested balance at September 30, 2020	615,498	\$ 9.83

The total grant-date fair value of restricted stock unit awards that vested is as follows:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Grant-date fair value	\$ 1,079	\$ 392	\$ 2,270	\$ 1,803

Stock-based compensation expense related to restricted stock units is as follows:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Stock-based compensation expense	\$ 269	\$ 706	\$ 865	\$ 2,289

As of September 30, 2020, unrecognized compensation expense related to restricted stock units was \$0.4 million. This expense will be recognized over 26 months on average.

We treat stock-based compensation awards granted to employees of Collectis as deemed dividends. We recorded deemed dividends as follows:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Deemed dividends from grants to Collectis employees	\$ 581	\$ 296	\$ 1,003	\$ 1,072

Performance Stock Units

In June 2019, we granted 311,667 performance stock units under the 2017 Plan to three executive officers. The performance stock units will vest at 50%, 100% or 120% of the shares under the award at the end of a three-year performance period based upon increases in the value of our common stock from the grant price of \$2.48. The performance stock units will be settled in restricted stock upon vesting, with restrictions on transfer lapsing on the second anniversary of the restricted stock issuance date.

Stock-based compensation expense related to performance stock units is as follows:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Stock-based compensation expense	\$ 114	\$ 114	\$ 334	\$ 114

As of September 30, 2020, unrecognized compensation expense related to performance stock units was \$0.6 million. This expense will be recognized over 45 months on average.

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6. INCOME TAXES

We provide for a valuation allowance when it is more likely than not that we will not realize a portion of the deferred tax assets. We have established a full valuation allowance for deferred tax assets due to the uncertainty that enough taxable income will be generated in the taxing jurisdiction to utilize the assets. Therefore, we have not reflected any benefit of such deferred tax assets in the accompanying consolidated financial statements.

As of September 30, 2020, there were no material changes to what we disclosed regarding tax uncertainties or penalties as of December 31, 2019.

7. LEASES, OTHER COMMITMENTS, AND CONTINGENCIES

Litigation and Claims

We are not currently a party to any material pending legal proceeding.

Leases

We lease our headquarters facility, office equipment, and other items. Our headquarters lease involved the sale of land and improvements to a third party who then constructed the facility. This lease is considered a financing lease.

We also have an equipment financing arrangement that is considered a financing lease. This arrangement has a term of four years for each draw. We were required to deposit cash into a restricted account in an amount equal to the future rent payments required by the lease. As of September 30, 2020, restricted cash totaled \$1.4 million. We have the option to request the return of excess collateral annually in December, and the amount we expect to receive is reflected as a current asset.

Rent expense from operating leases was as follows:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Rent expense from operating leases	\$ 24	\$ 22	\$ 71	\$ 91

Other Commitments

As of September 30, 2020, we have noncancelable commitments to purchase grain from farmers and seed from growers at dates throughout 2020 and 2021 aggregating \$30.8 million based on current commodity futures market prices, other payments to growers, and estimated yields per acre. This amount is not recorded in the consolidated financial statements because we have not taken delivery of the grain as of September 30, 2020. If growers do not plant our soybeans, we allow the grain production contracts to be cancelled. Therefore, we do not include commitments to purchase grain as noncancelable commitment until the corresponding seed is planted.

8. EMPLOYEE BENEFIT PLAN

We provide a 401(k) defined contribution plan for all regular full-time employees who have completed two months of service. We match employee contributions up to certain amounts and those matching contributions vest immediately.

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Employee benefit plan expenses	\$ 63	\$ 58	\$ 261	\$ 163

9. SUPPLEMENTAL INFORMATION

Certain balance sheet amounts are as follows:

In Thousands	As of September 30,		As of December 31,	
	2020		2019	
Accounts Receivable:				
Accounts receivable	\$	1,074	\$	1,247
Receivables from growers		1,358		—
Allowance for doubtful accounts		—		(125)
Total	\$	2,432	\$	1,122

We carry receivables related to amounts we are owed by growers from their purchases of seed. These amounts reduce the cost of the grain we ultimately purchase from the grower and are repaid either on current terms or on an extended payment basis. If a grower has elected extended payment terms they will pay a higher price per unit and grant us the right to deduct the amount we are owed from the payment we make upon the purchase of their grain. As of September 30, 2020, \$1.2 million of the receivable from growers were on extended payment terms. As of December 31, 2019, this amount was zero.

In Thousands	As of September 30,		As of December 31,	
	2020		2019	
Inventory:				
Raw materials	\$	4,097	\$	2,211
Work-in-process		341		272
Finished goods		1,515		111
Total	\$	5,953	\$	2,594

Certain statements of operations amounts are as follows:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Stock compensation expense:				
Research and development	\$	(84)	\$	461
Selling and supply chain		(372)		263
General and administrative		1,026		1,981
Total	\$	570	\$	2,705

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Interest, net:				
Interest expense	\$	(369)	\$	(374)
Interest income		45		406
Total	\$	(324)	\$	32

Certain statements of cash flows amounts are as follows:

In Thousands	As of September 30,	
	2020	2019
Cash, cash equivalents, restricted cash, and short-term investments:		
Cash and cash equivalents	\$	7,170
Restricted cash		1,434
Total cash, cash equivalents, and restricted cash		8,604
Short-term investments		20,802
Total cash, cash equivalents, restricted cash, and short-term investments	\$	29,406

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In Thousands	Nine Months Ended September 30,	
	2020	2019
Supplemental cash flow information:		
Interest paid	\$ 1,097	\$ 1,108

10. SEGMENT INFORMATION

We operate in a single reportable segment, agricultural products. Our current commercial focus is North America. Our major product categories are high oleic soybean grain, oil, and meal.

11. LONG-TERM DEBT

Our long-term debt is comprised of a \$1.5 million promissory note pursuant to the Paycheck Protection Program (the Paycheck Protection Program loan) established by the Coronavirus Aid, Relief, and Economic Security Act (the CARES Act) implemented by the U.S. Small Business Administration (SBA). We received the funds under the Paycheck Protection Program loan on April 19, 2020. The Paycheck Protection Program loan matures in April 2022 and bears interest at a per annum rate of 1.00%. The Paycheck Protection Program loan may be prepaid at any time prior to maturity with no prepayment penalties.

The Paycheck Protection Program loan contains customary events of default relating to, among other things, payment defaults and breaches of representations and warranties. Subject to certain conditions, the Paycheck Protection Program loan and accrued interest may be forgiven in whole or in part by applying for forgiveness pursuant to the CARES Act and the Paycheck Protection Program. In order to be eligible for forgiveness, the proceeds of the Paycheck Protection Program loan must be applied to certain eligible expenses, including payroll costs, interest on certain mortgage obligations, rent payments on certain leases, and certain qualified utility payments, with not more than 40% of the amount applied to non-payroll costs.

We have applied the proceeds from the Paycheck Protection Program loan toward qualifying expenses and on October 21, 2020, applied for forgiveness of the full principal amount and all accrued interest. No assurance can be given that we will be granted forgiveness of the Paycheck Protection Program loan in whole or in part.

12. RESTRUCTURING COSTS

On August 4, 2020, we approved the advancement of our soybean products to a streamlined go-to-market strategy. The impact of the advancement included staffing adjustments related to soybean processing and product sales, as well as the gradual exit of all supply chain contractual commitments that are not associated with the ongoing soybean seed go-to-market strategy. In the three months ended September 30, 2020, we recorded \$0.4 million of cash charges for severance and other related payments, and we also recorded a \$0.9 million recapture benefit of non-cash stock compensation expense from the forfeiture or modification of unvested stock awards. We expect to record up to \$0.3 million of severance and other related payments through the second quarter of 2021. We have not incurred any other material costs from the disposal of any assets or contractual terminations as of September 30, 2020. We expect to incur an additional \$0.6 million of transitional expenses as we wind down the prior go-to-market strategy. Contracted grain purchases, subsequent sales of grain, and the wind down of other contractual obligations on-track to be completed in late 2021.

The following table presents the restructuring and severance cost liabilities as of September 30, 2020:

In Thousands	As of September 30,	
	2020	
Balance at June 30, 2020	\$	—
Charged to expense		436
Cash payments		(175)
Balance as of September 30, 2020	\$	261

The September 30, 2020, liability balance of \$0.3 million as well as up to an additional \$0.3 million of severance and other related expenses yet to be recorded are expected to be paid through the second quarter of fiscal 2021.

13. SUBSEQUENT EVENT

On October 20, 2020, we completed a \$15.0 million equity financing transaction through an SEC-registered, direct offering of our common stock pursuant to our existing Form S-3 shelf registration statement filed with the SEC on August 13, 2019. The net proceeds of the offering were \$14.0 million, after deducting placement and agent fees and estimated offering expenses.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read together with our consolidated financial statements and related notes, which are included elsewhere in this Quarterly Report on Form 10-Q.

EXECUTIVE OVERVIEW

We are a technology company focused on delivering plant-based innovations and solutions with substantial disruption potential across multiple industries. Our streamlined business model comprises three go-to-market strategies. Specific deal structure and the amount and timing of cash flows and revenues will vary depending upon several factors, including cost to develop, size of the opportunity, and the stage at which a partner or licensee enters the development process. Summaries of potential revenues and cash flows of our go-to-market strategies are as follows:

- **Seed Sale Arrangements:** Through purchase agreements for the direct sale of seed, with such sales expected to generate revenue for Calyxt.
- **Trait and Product Licensing Arrangements:** Through licensing agreements with downstream partners with respect to Calyxt-developed traits or products for negotiated upfront and milestone payments and potential royalties upon commercial sale of products.
- **TALEN® Licensing Arrangements:** Through licensing agreements with third parties with respect to our technology for negotiated upfront and annual fees and potential royalties upon commercial sale of products.

For TALEN® licensing and trait and product development and licensing arrangements, we expect that our customers will primarily be seed companies, biotechnology companies, germplasm providers, large agricultural processors, others in the relevant crop's supply chain, and growers, who would, in each case, utilize our technology for their own trait development in specified crops. For seed sale arrangements, we expect that our customers will be large agricultural processing companies, including millers and crushers, or others in the relevant crop's supply chain, with developed agronomy infrastructure and commercialization expertise. Across each of these go-to-market strategies, we will seek to develop relationships with strategic customers where our product candidates are most likely to benefit from the counterparty's deep agronomy, product management, and commercialization expertise. Placing our products and traits with such strategic customers will reduce our expenses and downstream risk exposure, while allowing us to pursue diversified growth across multiple revenue streams.

We believe that our streamlined business model with differentiated go-to-market strategies provides a capital-efficient, lower-cost, and highly scalable approach. Our strategy is based on focusing on our core strengths in research and development, gene-editing, and trait development. We will continue to focus on advancing our gene-editing technologies toward developing high value innovations and plant-based solutions with substantial disruption potential, while leveraging our partners and licensees to manage commercialization and the associated costs and risks. We believe that focusing our efforts on our gene-editing technology and trait development expertise, while contracting with commercialization partners or licensees for downstream execution strikes a balance where we are best positioned for cost-efficient paths to market.

Having established a proof of concept with our high oleic soybean product, we intend to refocus our commercial efforts with respect to this product on the sale of seed for customers' own soybean processing businesses. We also restructured our personnel to support the execution of our streamlined business model, including staffing adjustments related to soybean processing and product sales. With respect to grain from the 2020 crop that we have already contracted to purchase from growers, we intend to pursue sales of the grain to large processing companies. We have sold nearly all of the grain from the 2019 crop to a large processor. For these transactions our arrangement with the processor required us to purchase and market the soybean meal resulting from the grain the processor purchased. In these types of arrangements, we record the net settlement with the processor for grain sold by us and meal purchased by us as revenue, and then recognize revenue upon the sale of the meal. Cost of goods sold are determined based on our total costs for the grain purchased and the purchase price to us for the meal.

We are currently exploring product opportunities in alfalfa, canola, hemp, oats, peanuts, peas, potato, pulses, soybeans, wheat, and other crops for potential applications across a variety of industries, including food, pharmaceutical, energy, and agriculture. Applying our streamlined business model with differentiated go-to-market strategies, we are well positioned to nimbly develop plant-based input solutions for specific downstream issues, including consumer preferences, sustainability, cost, quality, and regulatory compliance. As of the date of this report, we have eight projects at Phase I or later in our development process across alfalfa, hemp, oats, soybeans, and wheat, and are exploring improved protein profile and flavor in pulse crops, with several options under consideration.

Our current product development pipeline is as follows:

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CROP	TRAIT	TARGET COMMERCIAL PLANTING YEAR	TARGET GO-TO-MARKET STRATEGY
Alfalfa	Improved Digestibility	2021	Trait
Wheat	High Fiber	2022	Seed
Soybean	High Oleic, Low Linolenic (HOLL)	2023	Seed
Hemp	Marketable Yield ²	2023	Seed and Trait
Hemp	Low THC for Food, Fiber, & Therapeutics ²	2024	Seed and Trait
Oat	Cold Tolerant ²	2026	Seed and Trait
Soybean	Improved HOLL	2026	Seed
Soybean	High Saturated Fat ²	2026	Seed and Trait
Pulse	Improved Protein Profile and Flavor	2027	Trait

¹ The agronomic and functional quality of our product candidates and the timing of development are subject to a variety of factors and risks, which are described in our filings with the Securities and Exchange Commission.

² These projects were advanced from Discovery to Phase I of our development process during the third quarter of 2020.

We are also actively negotiating agreements with potential partners with respect to specific opportunities for which development activity would only commence upon reaching a commercial agreement. These projects are not included in the preceding table.

As previously reported, during the first quarter of 2020, we were notified that a significant portion of our high fiber wheat plants were lost in field trials due to improper aerial chemical applications by unaffiliated third parties. As a result of the crop destruction, the number of cultivars was reduced, which represents a significant reduction in the genetic potential of the wheat germplasm that carries the high fiber trait. The harvested wheat, which is currently undergoing validation testing, may prove to be of lesser agronomic and functional quality than initially anticipated, and launch size and regulatory timelines may be adversely affected. We are pursuing available avenues of recourse against the unaffiliated third parties involved in the initial crop loss as well as the adverse impact upon the surviving germplasm lines.

We are an early-stage company and have incurred net losses since our inception. As of September 30, 2020, we had an accumulated deficit of \$153.5 million. Our net losses were \$31.4 million for the nine months ended September 30, 2020.

We expect to continue to incur significant expenses and operating losses for the next several years. Those expenses and losses may fluctuate significantly from quarter-to-quarter and year-to-year. We expect that our expenses will be driven by:

- continuing to advance the R&D of our current and future products;
- conducting additional breeding and field trials of our current and future products;
- seeking regulatory and marketing approvals for our products;
- acquiring or in-licensing other products, technologies, germplasm, or other biological material;
- maintaining, protecting, expanding, and defending our intellectual property portfolio;
- making royalty and other payments under any in-license agreements;
- seeking to attract and retain new and existing skilled personnel;
- identifying strategic partners and licensees and negotiating agreements under the applicable go-to-market strategy;
- restructuring our infrastructure to support the execution of our streamlined business model;
- short-term soybean product commercialization expenses as we advance the product to a seed sale go-to-market strategy;
- addressing the impacts of the ongoing novel coronavirus (COVID-19) pandemic, including implementing our expense reduction efforts and seeking to bolster our liquidity position considering changing business needs and uncertain macro-economic conditions; and
- experiencing any delays or encountering issues with any of the above, including due to COVID-19 and its impacts.

OUR RELATIONSHIP WITH COLLECTIS AND COMPARABILITY OF OUR RESULTS

We are a majority-owned subsidiary of Collectis. As of September 30, 2020, Collectis owned 68.3% of our issued and outstanding common stock. Following completion of the registered direct offering of our common stock on October 20, 2020, Collectis owned 64.7% of our issued and outstanding common stock.

Our historical financial information reflects expense allocations for certain support functions that were provided on a centralized basis pursuant to a management services agreement. As a result, such historical financial information may not reflect the financial condition, results of operations or cash flows we would have achieved as a stand-alone company and not a subsidiary of Collectis during such historical periods. Effective with the end of the third quarter of 2019 we have internalized nearly all the services Collectis previously provided. Collectis has also guaranteed the lease of our headquarters facility.

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Collectis has certain contractual rights as well as rights pursuant to our certificate of incorporation and bylaws, in each case, as long as it maintains threshold beneficial ownership levels in our shares.

We hold an exclusive license from Collectis that broadly covers the use of engineered nucleases for plant gene editing. This intellectual property covers methods to edit plant genes using “chimeric restriction endonucleases,” which include TALEN®, CRISPR/Cas9, zinc finger nucleases, and some types of meganucleases.

FINANCIAL OPERATIONS OVERVIEW

Revenue

For the three and nine months ended September 30, 2020, we recognized revenue from the sales of high oleic soybean grain, oil, and meal as well as sales of our first hemp product. We do not currently recognize revenue from seed transactions because of the grower’s commitment to sell their crop to us. We benefit from the cash upon payment and defer the net profit on the seed to inventory and recognize that benefit when the grower delivers grain to us.

Cost of Goods Sold and Inventory

Prior to 2019, our cost of goods sold represented immaterial costs associated with our out-licensing activities. Costs we incurred associated with the purchasing, storing, transporting and processing grain, net of proceeds of seed sales (Grain Costs), were expensed as R&D. Beginning during the first quarter of 2019, we began to capitalize all Grain Costs into inventory. This affects the year-over-year comparability of cost of goods sold, gross margins, and R&D expenses. For the three months ended September 30, 2019, the impact of Grain Costs expensed as R&D in 2018 totaled \$2.8 million, and for the nine months ended September 30, 2019, the impact of Grain Costs expensed as R&D in 2018 totaled \$3.3 million.

Cost of goods sold also includes crush and refining losses that are expensed as incurred since they do not add to the value of the finished products. All other grain and qualifying risk management costs, net of the benefit from our seed activity, are capitalized to inventory and relieved to cost of goods sold as the high oleic soybean grain, oil, and meal is sold. Any valuation adjustments to inventory are recognized as incurred. Gains and losses resulting from commodity derivative contracts sold to convert our fixed price grain inventories and fixed price Forward Purchase Contracts to floating prices are recorded in current period cost of goods sold. Because we expect to sell grain at market prices, the economic effects of the hedges being recognized currently are expected to be fully offset when we sell the grain in a future period.

Research and Development Expense

Research and development (R&D) expenses consist of the costs of performing activities to discover and develop products and advance our intellectual property. We recognize R&D expenses as they are incurred.

Excluding the Grain Costs expensed as R&D mentioned above, our R&D expenses consist primarily of employee-related costs for our R&D personnel, fees for contractors who support product development and breeding activities, expenses for trait validation, purchasing material and supplies for our laboratories, licensing, facilities, regulatory, and other costs associated with owning and operating our own laboratories. R&D expenses also include costs to write and support the research for filing patents.

Selling and Supply Chain Expense

Selling and Supply Chain (S&SC) expenses consist primarily of employee-related expenses for marketing and selling our products, acreage acquisition, managing the supply chain and business development, as well as costs to market our products and an allocation of facility and information technology expenses.

General and Administrative Expense

General and administrative (G&A) expenses consist primarily of employee-related expenses for our executive, legal, intellectual property, information technology, finance, and human resources functions. Other G&A expenses include facility and information technology expenses not otherwise allocated to R&D or S&SC expenses, professional fees for auditing, tax and legal services, expenses associated with maintaining patents, consulting costs and other costs of our information systems.

Interest, net

Interest, net is comprised of interest income resulting from investments of cash and cash equivalents and short-term investments, any unrealized gains and losses on short-term investments, and interest expense on our financing lease obligations. It is also driven by balances, yields, and timing of financing activities.

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Anticipated Changes Between Revenues and Costs

As we execute upon our streamlined business model with differentiated go-to-market strategies, we expect the composition of our revenues and costs to evolve. Future cash and revenue-generating opportunities are expected to primarily arise from seed sales, product development activities, and licensing arrangements. Under licensing arrangements, revenues are expected to be royalty payments upon the commercial sale of products.

Because our strategy is based on focusing on our core strengths in research and development, gene-editing, and trait development, we expect R&D expenses to be the primary area of increase in our expenses. At the same time, because our streamlined business model relies on third parties assuming responsibility for agronomy infrastructure, product management, and commercialization, we expect that S&SC expense will decline substantially as the new models are fully implemented.

Due to changes in our cash balance and the current interest rate environment, we expect interest, net to decrease in the balance of 2020 as compared to the same period in 2019.

Recent Developments – COVID-19 Update

As previously reported, our operations in Minnesota are classified as critical sector work under the State of Minnesota's COVID-19 executive orders. Accordingly, most of our laboratory workers have continued to work onsite at our headquarters throughout the pandemic, and our R&D programs and seed distribution activities have not experienced material delays. In accordance with our COVID-19 Preparedness Plan, Minnesota executive order requirements, and CDC guidelines, we have implemented health and safety measures for the protection of our onsite workers and have maintained remote work arrangements for our non-laboratory personnel.

During the third quarter, supply chain disruptions did not have a material impact on our operations. However, a resurgence of the COVID-19 pandemic (as is currently occurring in some states), governmental response measures, and resulting disruptions could rapidly offset such improvements. Moreover, the effects of the COVID-19 pandemic on the financial markets remain substantial and broader economic uncertainties persist, which may make obtaining capital challenging and have exacerbated the risk that such capital, if available, may not be available on terms acceptable to us. There continues to be significant uncertainty relating to the COVID-19 pandemic and its impact, and many factors could affect our results and operations, including, but not limited to, those discussed under the caption "Risk Factors" in the reports we file with the SEC.

RESULTS OF OPERATIONS FOR THE THREE MONTHS ENDED SEPTEMBER 30, 2020 COMPARED TO THE THREE MONTHS ENDED SEPTEMBER 30, 2019

A summary of our results of operations for the three months ended September 30, 2020, and 2019 follows:

	Three Months Ended September 30,			
	2020	2019	\$ Change	% Change
Revenue	\$ 5,241	\$ 2,967	\$ 2,274	77%
Cost of goods sold	7,060	3,528	3,532	100%
Gross margin	(1,819)	(561)	(1,258)	224%
Research and development expense	2,204	3,579	(1,375)	(38)%
Selling and supply chain expense	439	1,314	(875)	(67)%
General and administrative expense	4,185	4,934	(749)	(15)%
Management fees and royalties	68	305	(237)	(78)%
Restructuring costs	436	—	436	—
Interest, net	(324)	32	(356)	(1113)%
Other income and expense	(1)	(8)	7	(88)%
Net loss	\$ (9,476)	\$ (10,669)	\$ 1,193	(11)%
Net loss per share	\$ (0.29)	\$ (0.32)	\$ 0.03	(9)%
Adjusted EBITDA	\$ (7,070)	\$ (8,887)	\$ 1,817	(20)%

Revenue

Revenue increased by \$2.3 million, or 77 percent, from the third quarter of 2019 to \$5.2 million in the third quarter of 2020. The revenue growth was driven by 15 basis points of volume and 64 basis points of pricing, both partially offset by 2 basis points of unfavorable product mix as we sold more meal in 2020 as a percent of total revenue than the prior period. Most oil revenue in 2020 was from a single customer purchasing our oil to be used as a plant-based alternative to synthetic fluids, and we expect to fulfill their remaining orders in the fourth quarter of 2020.

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Cost of Goods Sold

Cost of goods sold increased by \$3.5 million from the third quarter of 2019 to \$7.1 million in the third quarter of 2020. The increase in cost of goods sold reflects the higher volume of product sold, the impact of lower costs associated with products sold in 2019 because \$2.8 million of Grain Costs were previously expensed as R&D, \$1.1 million of commodity derivative losses from hedging contracts sold to convert our fixed price grain inventories and fixed price Forward Purchase Contracts from fixed to floating prices, consistent with how we expect to sell the grain, and a \$0.2 million increase in the net realizable value adjustment to period-end inventories. These increases were partially offset by lower product costs and the benefits resulting from the advancement of our soybean product line go-to-market strategy.

Gross Margin

Gross margin was a negative \$1.8 million, or a negative 35 percent, in the third quarter of 2020, a decrease of \$1.2 million, or a negative 16 percent, from the third quarter of 2019. The decline in gross margin in the third quarter of 2020 reflects the impact of lower costs associated with products sold in 2019 because \$2.8 million of Grain Costs were previously expensed as R&D, \$1.1 million of commodity derivative losses from hedging contracts sold to convert our fixed price grain inventories and fixed price Forward Purchase Contracts from fixed to floating prices, consistent with how we expect to sell the grain, and a \$0.2 million increase in the net realizable value adjustment to period-end inventories. These increases were partially offset by lower product costs and the benefits resulting from the advancement of our soybean product line go-to-market strategy.

Gross margin, as adjusted, was negative \$1.3 million, or negative 24 percent, in the third quarter of 2020, as compared to negative \$2.5 million, or negative 86 percent, in the third quarter of 2019. The improvement was driven by higher selling prices, lower product costs, and the benefits resulting from the advancement of our soybean product line go-to-market strategy.

See below under the heading “Use of Non-GAAP Financial Information” for a discussion of gross margin, as adjusted, and a reconciliation of gross margin, the most comparable GAAP measure, to gross margin, as adjusted.

Research and Development Expense

R&D expenses decreased by \$1.4 million to \$2.2 million, driven by a decrease in stock compensation expense of \$0.5 million from the recapture of non-cash stock compensation expense from the forfeiture and modification of unvested stock awards. The same period in 2019 also included \$0.5 million of expense to write off R&D tax credits that were no longer realizable.

Selling and Supply Chain Expense

S&SC expenses decreased by \$0.9 million to \$0.4 million, driven by a decrease in stock compensation expense of \$0.6 million from the recapture of non-cash stock compensation expense from the forfeiture of unvested stock awards, partially offset by higher year-over-year compensation expenses.

General and Administrative Expense

G&A expenses decreased by \$0.7 million to \$4.2 million, driven by a decrease in stock compensation expense of \$1.0 million and lower personnel costs of \$0.5 million, partially offset by an increase in insurance costs.

Management Fees

Management fees decreased by \$0.2 million as we previously internalized certain services provided by Collectis, including investor relations, information technology, human resources, legal, and communications.

Restructuring Costs

Restructuring costs include the impact of severance and other expenses resulting from the action we initiated in August 2020 to advance our soybean product line go-to-market strategy.

Interest, net

Interest, net decreased by \$0.4 million, driven by lower yields and lower cash balances.

Net Loss

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Net loss was \$9.5 million in the third quarter of 2020, an improvement of \$1.2 million from the third quarter of 2019. The improvement was driven by a reduction in non-cash stock compensation expenses of \$2.1 million, partially offset by a decline in gross margins of \$1.2 million, and \$0.4 million of restructuring costs. The same period in 2019 also included \$0.5 million of expense to write off R&D tax credits that were no longer realizable.

Adjusted net loss was \$9.3 million in the third quarter of 2020, an improvement of \$2.6 million from the third quarter of 2019, driven by the benefits resulting from the advancement of our soybean product line go-to-market strategy.

See below under the heading "Use of Non-GAAP Financial Information" for a discussion of adjusted net loss and a reconciliation of net loss, the most comparable GAAP measure, to adjusted net loss.

Net Loss Per Share

Net loss per share was \$0.29 in the third quarter of 2020, an improvement of \$0.03 per share from the third quarter of 2019, driven by the change in net loss.

Adjusted net loss per share was \$0.28 in the third quarter of 2020, an improvement of \$0.08 per share from the third quarter of 2019, driven by the change in adjusted net loss.

See below under the heading "Use of Non-GAAP Financial Information" for a discussion of adjusted net loss per share and a reconciliation of net loss per share, the most comparable GAAP measure, to adjusted net loss per share.

Adjusted Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA)

Adjusted EBITDA loss was \$7.1 million in the third quarter of 2020, an improvement of \$1.8 million from the third quarter of 2019.

See below under the heading "Use of Non-GAAP Financial Information" for a discussion of adjusted EBITDA and a reconciliation of net loss, the most comparable GAAP measure, to adjusted EBITDA.

RESULTS OF OPERATIONS FOR THE NINE MONTHS ENDED SEPTEMBER 30, 2020 COMPARED TO THE NINE MONTHS ENDED SEPTEMBER 30, 2019

A summary of our results of operations for the nine months ended September 30, 2020, and 2019 follows:

	Nine Months Ended September 30,			
	2020	2019	\$ Change	% Change
Revenue	\$ 9,925	\$ 3,533	\$ 6,392	181 %
Cost of goods sold	16,265	3,865	12,400	321 %
Gross margin	(6,340)	(332)	(6,008)	1810 %
Research and development expense	7,816	8,536	(720)	(8)%
Selling and supply chain expense	3,368	3,421	(53)	(2)%
General and administrative expense	12,713	14,302	(1,589)	(11)%
Management fees and royalties	172	1,117	(945)	(85)%
Restructuring costs	436	—	436	—
Interest, net	(568)	296	(864)	(292)%
Other income and expense	(28)	(35)	7	(20)%
Net loss	\$ (31,441)	\$ (27,447)	\$ (3,994)	15 %
Net loss per share	\$ (0.95)	\$ (0.84)	\$ (0.11)	13 %
Adjusted EBITDA	\$ (21,827)	\$ (21,182)	\$ (645)	3 %

Revenue

Revenue increased by \$6.4 million, or 181 percent, from the first nine months of 2019 to \$9.9 million in the first nine months of 2020. The revenue growth was driven by 132 basis points of volume, 47 basis points of pricing, and 2 basis points of favorable product mix as we sold more oil in 2020 as a percentage of total revenue than in 2019. Most oil revenue in 2020 was from a single customer purchasing our oil to be used as a plant-based alternative to synthetic fluids, and we expect to fulfill their remaining orders in the fourth quarter of 2020.

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Cost of Goods Sold

Cost of goods sold increased by \$12.4 million from the first nine months of 2019 to \$16.3 million in the first nine months of 2020. The increase in cost of goods sold reflects the higher volume of product sold, \$4.4 million of net realizable value adjustments to period-end inventories including write-downs of excess seed produced for 2020 plantings, the impact of lower costs associated with products sold in 2019 because \$3.3 million of Grain Costs were previously expensed as R&D, and \$1.1 million of commodity derivative losses from hedging contracts sold to convert our fixed price grain inventory and fixed price Forward Purchase Contracts from fixed to floating prices, consistent with how we expect to sell the grain. These increases were partially offset by lower product costs and the benefits resulting from the advancement of our soybean product line go-to-market strategy.

Gross Margin

Gross margin was a negative \$6.3 million, or a negative 64 percent, in the first nine months of 2020, an increase of \$6.0 million from the first nine months of 2019, driven by a \$4.4 million net realizable value adjustment to period-end inventories including write-downs of excess seed produced for 2020 plantings, the impact of lower costs associated with products sold in 2019 because \$3.3 million of Grain Costs were previously expensed as R&D, and \$1.1 million of commodity derivative losses from hedging contracts sold to convert our fixed price grain inventory and fixed price Forward Purchase Contracts from fixed to floating prices, consistent with how we expect to sell the grain. These increases were partially offset by higher selling prices, lower product costs, and benefits from the advancement of our soybean product line go-to-market strategy.

Gross margin, as adjusted, was a negative \$3.2 million, or negative 33 percent, in the first nine months of 2020 compared to negative \$2.8 million, or negative 81 percent, in the same period in 2019. The improvement, on a percentage basis, was driven by higher selling prices, lower product costs, and savings from the advancement of our soybean product line go-to-market strategy.

See below under the heading “Use of Non-GAAP Financial Information” for a discussion of gross margin, as adjusted, and a reconciliation of gross margin, the most comparable GAAP measure, to gross margin, as adjusted.

Research and Development Expense

R&D expenses decreased by \$0.7 million to \$7.8 million driven by lower non-cash stock compensation expense of \$0.5 million primarily from a recapture of non-cash stock compensation expense from the forfeiture and modification of unvested stock awards. The same period in 2019 also included \$0.4 million of expense to write off research and development tax credits that were no longer realizable.

Selling and Supply Chain Expense

S&SC expenses decreased by \$0.1 million to \$3.4 million, driven by a decrease in non-cash stock compensation expense of \$1.0 million primarily from a recapture of non-cash stock compensation expense from the forfeiture of unvested stock awards and lower marketing and travel expenses, partially offset by additional personnel costs.

General and Administrative Expense

G&A expenses decreased by \$1.6 million to \$12.7 million, driven by a decrease in non-cash stock compensation of \$1.4 million as a result of fewer awards issued and lower award values, and lower personnel costs of \$1.4 million, partially offset by an increase in insurance costs.

Management Fees

Management fees decreased by \$0.9 million as we previously internalized certain services provided by Collectis, including investor relations, information technology, human resources, legal, and communications.

Restructuring Costs

Restructuring costs include the impact of severance and other expenses resulting from the action we initiated in August 2020 to advance our soybean product line go-to-market strategy.

Interest, net

Interest, net decreased by \$0.9 million, driven by lower yields and lower cash balances.

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Net Loss

Net loss was \$31.4 million in the first nine months of 2020, an increase of \$4.0 million from the first nine months of 2019, driven by a \$6.0 million decrease in gross margin following the launch of our high oleic soybean products and the higher costs we experienced during the product's proof of concept period, a \$0.9 decrease in interest, net, and \$0.4 million of restructuring costs, offset by \$2.9 million of lower non-cash stock compensation expenses as a result of a recapture of non-cash stock compensation expense from the forfeiture and modification of unvested stock awards, as well as the impact from fewer awards issued and lower award values, and a \$0.6 million decrease in Section 16 officer transition expenses. The same period in 2019 also included \$0.4 million of expense to write off R&D tax credits that were no longer realizable.

Adjusted net loss was \$28.3 million in the first nine months of 2020, an improvement of \$0.2 million from the first nine months of 2019.

See below under the heading "Use of Non-GAAP Financial Information" for a discussion of adjusted net loss and a reconciliation of net loss, the most comparable GAAP measure, to adjusted net loss.

Net Loss Per Share

Net loss per share was \$0.95 in the first nine months of 2020, an increase of \$0.11 per share from the third quarter of 2019, driven by the change in net loss.

Adjusted net loss per share was \$0.86 in the first nine months of 2020, an improvement of \$0.01 per share from the third quarter of 2019, driven by the change in adjusted net loss.

See below under the heading "Use of Non-GAAP Financial Information" for a discussion of adjusted net loss per share and a reconciliation of net loss per share, the most comparable GAAP measure, to adjusted net loss per share.

Adjusted Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA)

Adjusted EBITDA loss was \$21.8 million for the first nine months of 2020, an increase of \$0.6 million from the first nine months of 2019.

See below under the heading "Use of Non-GAAP Financial Information" for a discussion of adjusted EBITDA and a reconciliation of such measure to net loss, the most comparable measure calculated under U.S. GAAP.

LIQUIDITY AND CAPITAL RESOURCES

Liquidity

As of September 30, 2020, we had a total of \$29.4 million of cash, cash equivalents, short-term investments, and restricted cash. Short-term investments consist of corporate debt securities and commercial paper with more than 90 days to maturity at issuance. All these amounts are convertible to cash within 90 days except for \$1.0 million of restricted cash associated with our financing leases. Current liabilities were \$7.9 million as of September 30, 2020. Accordingly, we have cash, cash equivalents and short-term investments sufficient to fund all short-term obligations as of that date.

We incurred losses from operations of \$30.8 million for the nine months ended September 30, 2020, and \$27.7 million for the nine months ended September 30, 2019. As of September 30, 2020, we had an accumulated deficit of \$153.5 million and expect to continue to incur losses in the future.

Cash Flows from Operating Activities

In Thousands	Nine Months Ended September 30,	
	2020	2019
Net loss	\$ (31,441)	\$ (27,447)
Depreciation and amortization	1,372	1,051
Stock-based compensation	3,638	6,565
Changes in operating assets and liabilities	(4,567)	(4,857)
Net cash used by operating activities	\$ (30,998)	\$ (24,688)

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Net cash used by operating activities increased by \$6.3 million, driven by the increase in our net loss of \$4.0 million and a decrease in non-cash stock compensation of \$3.0 million.

We expect cash used by operating activities in the fourth quarter of 2020 to be higher than in the first nine months of the year driven by an expected increase in working capital associated with grain we are required to purchase in the period.

Cash Flows from Investing Activities

In Thousands	Nine Months Ended September 30,	
	2020	2019
Purchases of land, buildings, and equipment	\$ (1,146)	\$ (2,538)
Short-term investments	(20,802)	—
Net cash used by investing activities	\$ (21,948)	\$ (2,538)

Net cash used by investing activities increased by \$19.4 million, driven by our purchases of short-term investments as part of our risk diversification strategy.

We expect net cash used for purchases of land, buildings, and equipment in the fourth quarter of 2020 to be comparable to the first nine months of the year, and cash used for purchases of short-term investments to stabilize following our capital raise in the fourth quarter.

Cash Flows from Financing Activities

In Thousands	Nine Months Ended September 30,	
	2020	2019
Proceeds from Paycheck Protection Program loan	\$ 1,518	\$ —
Repayments of financing lease obligations	(217)	(195)
Proceeds from the exercise of stock options	211	314
Costs incurred related to shares withheld for net share settlement	—	(645)
Proceeds from the sale and leaseback of land, buildings, and equipment	—	414
Net cash provided (used) by financing activities	\$ 1,512	\$ (112)

Net cash provided by financing activities increased by \$1.6 million, driven by the Paycheck Protection Program loan proceeds.

We expect net cash provided (used) by financing activities in the fourth quarter of 2020 to be comprised of \$14.0 million of net proceeds from our capital raise in October 2020, partially offset by repayments of financing lease obligations at the same rate as in prior quarters.

CAPITAL RESOURCES

Considering factors including our cash raised in October 2020, our anticipated cash burn rate, expense reduction efforts, advancement of our go-to-market soybean strategy, and cash receipts from our product development efforts with partners, we believe our cash, cash equivalents, short-term investments, and restricted cash as of September 30, 2020, will be enough to fund our operations for at least the next twelve months and into the second half of 2022.

For the nine months ended September 30, 2020, we generated \$9.9 million in revenues from product sales. We anticipate that we will continue to generate losses for the next several years before revenue is enough to support our operating capital requirements.

Until we can generate substantial cash flow, we expect to finance a portion of future cash needs through cash on hand, public or private equity or debt financings, government or other third-party funding, and commercialization activities, which may result in various types of revenue streams from future licensees, including upfront and milestone payments, annual license fees, or royalties.

Our financing needs are subject to change depending on, among other things, the success of our product development efforts, the effective execution of our streamlined business model, our revenue, and our efforts to effectively manage expenses. The effects of the COVID-19 pandemic on the financial markets and broader economic uncertainties may make obtaining capital through equity or debt financings more challenging and have exacerbated the risk that such capital, if available, may not be available on terms acceptable to us.

In response to current economic conditions, we have postponed non-essential capital expenditures and undertaken other efficiency efforts. In addition, the headcount reductions undertaken in connection with our business model advancement will contribute to our cost-saving initiatives. We will continue to review our operating expenses and to take actions that support efficient operations, financial flexibility, and optimized liquidity.

CONTRACTUAL OBLIGATIONS, COMMITMENTS AND CONTINGENCIES

As of September 30, 2020, there were no material changes in our commitments under contractual obligations as disclosed in our Annual Report, except that our Forward Purchase Contracts, which consist of commitments to purchase grain and seed, have decreased to \$30.8 million from \$50.9 million.

OFF BALANCE SHEET OBLIGATIONS

As of September 30, 2020, we do not have any off-balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

CRITICAL ACCOUNTING POLICIES

The preceding discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements and the related disclosures, which have been prepared in accordance with U.S. GAAP. The preparation of these consolidated financial statements requires us to make estimates, assumptions, and judgments that affect the reported amounts in our consolidated financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values 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 believe the policies discussed in Note 1, Basis of Presentation and Summary of Significant Accounting Policies, are the most critical to an understanding of our financial condition and results of operations because they require us to make estimates, assumptions and judgments about matters that are inherently uncertain.

As of September 30, 2020, there have been no significant changes to our critical accounting policies disclosure reported in “Critical Accounting Estimates” in our Annual Report.

RECENTLY ISSUED ACCOUNTING PRONOUNCEMENTS

Effective January 1, 2019, we adopted new accounting requirements for share-based payment transactions for acquiring goods and services from nonemployees. The adoption did not have an impact on our consolidated financial statements as each of the share-based payment awards granted to nonemployees had a measurement date upon grant, and thus no cumulative adjustment to retained earnings was required.

In the first quarter of 2019, we adopted new accounting requirements for recognition of revenue from contracts with customers. We adopted these requirements using the cumulative effect approach. The adoption did not have an impact on our consolidated financial statements.

In the first quarter of 2019, we adopted new hedge accounting requirements that better aligned our risk management activities and financial reporting. The adoption did not have a material impact on our consolidated financial statements.

In February 2016, the FASB issued new accounting requirements for accounting, presentation, and classification of leases. This will result in most leases being capitalized as a right of use asset with a related liability on our balance sheets. The requirements of the new standard are effective for annual reporting periods beginning after December 15, 2021, and interim periods within those annual periods, which for us is the first quarter of 2022 because we are an emerging growth company. We are in the process of analyzing the impact of this standard on our results of operations and financial position.

In June 2016, the FASB issued new accounting requirements on how to account for credit losses on most financial assets and certain other instruments. This will require the estimation of lifetime expected credit losses and corresponding recognition of allowance for losses on trade and other receivables, loans, and other instruments held at amortized cost. The ASU requires certain recurring disclosures and is effective for annual periods, and interim periods within those annual periods, beginning on or after December 15, 2023. We are in the process of analyzing the impact of this standard on our results of operations.

USE OF NON-GAAP FINANCIAL INFORMATION

To supplement our audited financial results prepared in accordance with GAAP, we have prepared certain non-GAAP measures that include or exclude special items. These non-GAAP measures are not meant to be considered in isolation or as a substitute for financial information presented in accordance with GAAP and should be viewed as supplemental and in addition to our financial information presented in accordance with GAAP. Investors are cautioned that there are material limitations associated with the use of non-GAAP financial measures. In addition, other companies may report similarly titled measures, but calculate them differently, which reduces their usefulness as a comparative measure. Management utilizes these non-GAAP metrics as performance measures in evaluating and making operational decisions regarding our business.

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We present gross margin, as adjusted, a non-GAAP measure that includes the effects of Grain Costs expensed as R&D in a prior period, excludes the effects of commodity derivatives entered into to hedge the change in value of fixed price grain inventories and fixed price Forward Purchase Contracts as the expected impact from these contracts will be fully offset when the underlying grain is sold, and excludes the impact of any net realizable value adjustments to inventories occurring in the period, which would otherwise have been recorded as an adjustment to value in a prior period or would have been recorded in a future period as the underlying products are sold.

We provide in the table below a reconciliation of gross margin, as adjusted, to gross margin, which is the most directly comparable GAAP financial measure. We provide gross margin, as adjusted because we believe that this non-GAAP financial metric provides investors with useful supplemental information at this stage of commercialization as the amounts being adjusted affect the period to period comparability of our gross margins and financial performance.

The table below presents a reconciliation of gross margin to gross margin, as adjusted:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Gross margin (GAAP measure)	\$ (1,819)	\$ (561)	\$ (6,340)	\$ (332)
Gross margin percentage	(35)%	(19)%	(64)%	(9)%
Adjustments:				
Grain costs expensed as R&D	—	(2,814)	—	(3,349)
Mark to market loss	1,107	—	1,107	—
Net realizable value adjustment to inventories	(555)	832	2,000	832
Gross margin, as adjusted	\$ (1,267)	\$ (2,543)	\$ (3,233)	\$ (2,849)
Gross margin percentage, as adjusted	(24)%	(86)%	(33)%	(81)%

We present adjusted net loss, a non-GAAP measure, and define it as net loss including the effects of Grain Costs expensed as R&D in a prior period, and excluding the effects of commodity derivatives entered into to hedge the change in value of fixed price grain inventories and fixed price Forward Purchase Contracts as the expected impact from these contracts will be fully offset when the underlying grain is sold, any net realizable value adjustments to inventories occurring in the period, which would otherwise have been recorded as an adjustment to value in a prior period or would have been recorded in a future period as the underlying products are sold, Section 16 officer transition expenses, R&D payroll tax credits that are no longer realizable, restructuring costs, and the recapture of non-cash stock compensation expense from the forfeiture and modification of unvested stock awards associated with staffing adjustments made as part of the advancement of our soybean business model.

We provide in the table below a reconciliation of adjusted net loss to net loss, which is the most directly comparable GAAP financial measure. We provide adjusted net loss because we believe that this non-GAAP financial metric provides investors with useful supplemental information at this stage of commercialization as the amounts being adjusted affect the period to period comparability of our net losses and financial performance.

The table below presents a reconciliation of net loss to adjusted loss:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net loss (GAAP measure)	\$ (9,476)	\$ (10,669)	\$ (31,441)	\$ (27,447)
Non-GAAP adjustments:				
Grain Costs expensed as R&D	—	(2,814)	—	(3,349)
Mark to market loss	1,107	—	1,107	—
Net realizable value adjustment to inventories	(555)	832	2,000	832
Section 16 officer transition expenses	56	193	493	1,052
Research and development payroll tax credit	—	536	—	410
Restructuring costs	436	—	436	—
Recapture of non-cash stock compensation	(906)	—	(906)	—
Adjusted net loss	(9,338)	(11,922)	(28,311)	(28,502)

We present adjusted net loss per share, a non-GAAP measure, and define it as net loss per share including the effects of Grain Costs expensed as R&D in a prior period, and excluding the effects of commodity derivatives entered into to hedge the change in value of fixed price grain inventories and fixed price Forward Purchase Contracts as the expected impact from these contracts will be fully offset when the underlying grain is sold, any net realizable value adjustments to inventories occurring in the period, which would otherwise

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have been recorded as an adjustment to value in a prior period or would have been recorded in a future period as the underlying products are sold, Section 16 officer transition expenses, R&D payroll tax credits that are no longer realizable, restructuring costs, and the recapture of non-cash stock compensation expense from the forfeiture and modification of unvested stock awards associated with staffing adjustments made as part of the advancement of our soybean business model.

We provide in the table below a reconciliation of adjusted net loss per share to net loss per share, which is the most directly comparable GAAP financial measure. We provide adjusted net loss per share because we believe that this non-GAAP financial metric provides investors with useful supplemental information at this stage of commercialization as the amounts being adjusted affect the period to period comparability of our net losses per share and financial performance.

The table below presents a reconciliation of net loss per share to adjusted net loss per share:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net loss per share (GAAP measure)	\$ (0.29)	\$ (0.32)	\$ (0.95)	\$ (0.84)
Non-GAAP adjustments:				
Grain Costs expensed as R&D	—	(0.09)	—	(0.10)
Mark to market loss	0.03	—	0.03	—
Net realizable value adjustment to inventories	(0.01)	0.03	0.06	0.03
Section 16 officer transition expenses	0.01	0.01	0.02	0.03
Research and development payroll tax credit	—	0.01	—	0.01
Restructuring costs	0.01	—	0.01	—
Recapture of non-cash stock compensation	(0.03)	—	(0.03)	—
Adjusted net loss per share	(0.28)	(0.36)	(0.86)	(0.87)

We present adjusted EBITDA, a non-GAAP measure, and define it as net loss excluding interest, net, income tax expense, depreciation and amortization expenses, stock-based compensation expenses, the effects of commodity derivatives entered into to hedge the change in value of fixed price grain inventories and fixed price Forward Purchase Contracts as the expected impact from these contracts will be fully offset when the underlying grain is sold, any net realizable value adjustments to inventories occurring in the period, which would otherwise have been recorded as an adjustment to value in a prior period or would have been recorded in a future period as the underlying products are sold, Section 16 officer transition expenses, R&D payroll tax credits that are no longer realizable, and restructuring costs; and including the effects of Grain Costs expensed as R&D in a prior period.

We provide in the table below a reconciliation of adjusted EBITDA to net loss, which is the most directly comparable GAAP financial measure. Because adjusted EBITDA excludes non-cash items and discrete or infrequently occurring items, we believe that adjusted EBITDA provides investors with useful supplemental information about the operational performance of our business and facilitates comparison of our financial results between periods where certain items may vary significantly independent of our business performance.

The table below presents a reconciliation of net loss to adjusted EBITDA:

In Thousands	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net loss (GAAP measure)	\$ (9,476)	\$ (10,669)	\$ (31,441)	\$ (27,447)
Non-GAAP adjustments:				
Interest, net	324	(32)	568	(296)
Income tax expense	—	—	—	—
Depreciation and amortization	468	362	1,372	1,051
Stock-based compensation expenses	570	2,705	3,638	6,565
Grain Costs expensed as R&D	—	(2,814)	—	(3,349)
Mark to market loss	1,107	—	1,107	—
Net realizable value adjustment to inventories	(555)	832	2,000	832
Section 16 officer transition expenses	56	193	493	1,052
Research and development payroll tax credit	—	536	—	410
Restructuring costs	436	—	436	—
Adjusted EBITDA	\$ (7,070)	\$ (8,887)	\$ (21,827)	\$ (21,182)

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Our primary exposure to market risk is commodity price sensitivity. Following our decision to advance our soybean go-to-market strategy in the third quarter of 2020, our exposure to changes in commodity prices changed significantly. We are now primarily susceptible to changes in commodity market prices that could impact the selling price for our grain inventories, which are carried at our historical cost. Prior to our purchase, we also have market exposure associated with our fixed price Forward Purchase Contracts. In the normal course of business, we manage our exposure to changes in market prices by entering commodity hedges to convert fixed price grain inventories and fixed price Forward Purchase Contracts to floating market prices. By executing these hedging strategies, we can closely match the expected economic terms of the grain sale with the market. In a rising market these positions will result in losses, and in a falling market these positions will result in gains once any losses, if any, are recaptured. At sale the gains or losses on the commodity derivatives will be realized and be fully offset by gains or losses on the grain inventories. Based on our positions as of September 30, 2020, a 10 percent increase in commodity futures market prices would have a \$1.6 million decrease in our financial condition, and a 10 percent decrease in commodity futures market prices would have a \$1.6 million increase in our financial condition.

Outside of the market risk related to commodity price risk sensitivity, there have been no material changes in information that would have been provided in the context of Item 3 from the end of the preceding year until September 30, 2020. However, we do provide risk management discussion in various places in this Quarterly Report on Form 10-Q, primarily in Note 2. Financial Instruments, Fair Value, Hedging Activities, and Concentrations of Credit Risk.

Item 4. Controls and Procedures

Management's Evaluation of Disclosure Controls and Procedures

Based on an evaluation under the supervision and with the participation of our management, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, were effective as of September 30, 2020.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the three months ended September 30, 2020, that have materially affected, or that are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

We are not a party to any material pending legal proceeding as of September 30, 2020. From time to time, we may be involved in legal proceedings arising in the ordinary course of business.

Item 1A. Risk Factors

There have been no material changes in risk factors in the period covered by this report. See the discussion of risk factors in Part I, Item 1A “Risk Factors” of our Annual Report on Form 10-K for the year ended December 31, 2019, and in Part II, Item 1A “Risk Factors” of our Quarterly Report on Form 10-Q for the six months ended June 30, 2020.

[Table of Contents](#)**Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.**

In the nine months ended September 30, 2020, the Company repurchased shares of stock as follows in connection with the payment of taxes upon vesting of restricted stock previously issued to employees:

Issuer Purchases of Equity Securities

Period	Total number of shares purchased	Average price paid per share	Total number of shares purchased as part of publicly announced programs	Approximate dollar value of shares that may yet be purchased under the programs
January 1, 2020 – January 31, 2020	17,752	\$ 7.01	—	\$ —
February 1, 2020 – February 29, 2020	—	\$ —	—	\$ —
March 1, 2020 – March 31, 2020	—	\$ —	—	\$ —
April 1, 2020 – April 30, 2020	—	\$ —	—	\$ —
May 1, 2020 – May 31, 2020	—	\$ —	—	\$ —
June 1, 2020 – June 30, 2020	—	\$ —	—	\$ —
July 1, 2020 – July 31, 2020	—	\$ —	—	\$ —
August 1, 2020 – August 31, 2020	—	\$ —	—	\$ —
September 1, 2020 – September 30, 2020	—	\$ —	—	\$ —
Total	17,752	\$ 7.01	—	\$ —

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Item 6. Exhibits

- (a) Index of Exhibits

Exhibit Number	Description
3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q filed on September 1, 2017)
3.2	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 of the Company's Quarterly Report on Form 10-Q filed with the SEC on May 7, 2018)
10.1*	Form of Securities Purchase Agreement, dated as of October 16, 2020, by and among Calyxt, Inc. and the Purchasers party thereto
31.1*	Certification of the Chief Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) of the Exchange Act
31.2*	Certification of the Chief Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) of the Exchange Act
32*	Certification of the Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS*	Inline XBRL Instance Document
101.SCH*	Inline XBRL Taxonomy Extension Schema Document
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104*	The cover page for the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, has been formatted in Inline XBRL

*Filed herewith

SIGNATURE

Pursuant to the requirements of the Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on November 5, 2020.

CALYXT, INC.

By: /s/ James A. Blome
Name: James A. Blome
Title: Chief Executive Officer
(Principal Executive Officer)

By: /s/ William F. Koschak
Name: William F. Koschak
Title: Chief Financial Officer
(Principal Financial and Accounting Officer)

SECURITIES PURCHASE AGREEMENT

This Securities Purchase Agreement (this “Agreement”) is dated as of October 16, 2020, between Calyxt, Inc., a Delaware corporation (the “Company”), and each purchaser identified on the signature pages hereto (each, including its successors and assigns, a “Purchaser” and collectively the “Purchasers”).

WHEREAS, subject to the terms and conditions set forth in this Agreement and pursuant to the Registration Statement under the Securities Act of 1933, as amended (the “Securities Act”), the Company desires to issue and sell to each Purchaser, and each Purchaser, severally and not jointly, desires to purchase from the Company, shares of Common Stock, as more fully described in this Agreement.

NOW, THEREFORE, IN CONSIDERATION of the mutual covenants contained in this Agreement, and for other good and valuable consideration the receipt and adequacy of which are hereby acknowledged, the Company and each Purchaser agree as follows:

ARTICLE I.
DEFINITIONS

1.1 Definitions. In addition to the terms defined elsewhere in this Agreement, for all purposes of this Agreement, the following terms have the meanings set forth in this Section 1.1:

“Acquiring Person” shall have the meaning ascribed to such term in Section 4.3.

“Action” shall have the meaning ascribed to such term in Section 3.1(j).

“Affiliate” means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person, as such terms are used in and construed under Rule 405 under the Securities Act.

“Applicable Laws” shall have the meaning ascribed to such term in Section 3.1(hh).

“Board of Directors” means the board of directors of the Company.

“Business Day” means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

“Closing” means the closing of the purchase and sale of the Shares pursuant to Section 2.1.

“Closing Date” means the Trading Day on which all of the Transaction Documents have been executed and delivered by the applicable parties thereto, and all conditions precedent to (i) the Purchasers’ obligations to pay the Subscription Amount and (ii) the Company’s obligations to deliver the Shares, in each case, have been satisfied or waived, but in no event later than the second (2nd) Trading Day following the date hereof.

“Commission” means the United States Securities and Exchange Commission.

“Common Stock” means the common stock of the Company, par value \$0.0001 per share.

“Common Stock Equivalents” means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

“Company Counsel” means Jones Day, 250 Vesey Street, New York, New York 10281.

“Company Intellectual Property” shall have the meaning ascribed to such term in Section 3.1(p).

“Disclosure Time” means, (i) if this Agreement is signed on a day that is not a Trading Day or after 9:00 a.m. (New York City time) and before midnight (New York City time) on any Trading Day, 9:01 a.m. (New York City time) on the Trading Day immediately following the date hereof, and (ii) if this Agreement is signed between midnight (New York City time) and 9:00 a.m. (New York City time) on any Trading Day, no later than 9:01 a.m. (New York City time) on the date hereof, in each case, or such earlier time as may be agreed by the Placement Agent and the Company.

“Evaluation Date” shall have the meaning ascribed to such term in Section 3.1(s).

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“FCPA” means the Foreign Corrupt Practices Act of 1977, as amended.

“GAAP” shall have the meaning ascribed to such term in Section 3.1(h).

“Governmental Entity” means the U.S. Food and Drug Administration (“FDA”), the United States Department of Agriculture (“USDA”), the United States Department of Health and Human Services (“HHS”), or other comparable federal, state or local governmental and regulatory authorities having jurisdiction over the Company or any of its properties, products, product candidates, assets or operations.

“Governmental Licenses” means permits, licenses, franchises, exemptions, approvals, certifications, clearances, consents and other authorizations (issued by the appropriate Governmental Entities necessary to conduct the business now operated by it.

“Indebtedness” shall have the meaning ascribed to such term in Section 3.1(aa).

“Intellectual Property” shall have the meaning ascribed to such term in Section 3.1(p).

“Liens” means a lien, charge, pledge, security interest, encumbrance, right of first refusal, preemptive right or other restriction.

“Material Adverse Effect” shall have the meaning assigned to such term in Section 3.1(b).

“Material Permits” shall have the meaning ascribed to such term in Section 3.1(n).

“Per Share Purchase Price” equals \$4.00, subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions of the Common Stock that occur after the date of this Agreement and prior to the Closing Date.

“Person” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Placement Agent” means H.C. Wainwright & Co., LLC.

“Proceeding” means an action, claim, suit, investigation or proceeding (including, without limitation, a partial proceeding, such as a deposition), whether commenced or threatened.

“Prospectus” means the final base prospectus filed for the Registration Statement.

“Prospectus Supplement” means the supplement to the Prospectus complying with Rule 424(b) of the Securities Act that is filed with the Commission and delivered by the Company to each Purchaser at the Closing.

“Registration Statement” means the effective registration statement with Commission (File No. 333-233231), including all information, documents and exhibits filed with or incorporated by reference into such registration statement, which registers the sale of the Shares to the Purchasers.

“Required Approvals” shall have the meaning ascribed to such term in Section 3.1(e).

“Rule 144” means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Rule 424” means Rule 424 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Schedules” means the Schedules of the Company delivered concurrently herewith.

“SEC Reports” shall have the meaning ascribed to such term in Section 3.1(h).

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Shares” means the shares of Common Stock issued or issuable to each Purchaser pursuant to this Agreement.

“Short Sales” means all “short sales” as defined in Rule 200 of Regulation SHO under the Exchange Act (but shall not be deemed to include locating and/or borrowing shares of Common Stock).

“Subscription Amount” means, as to each Purchaser, the aggregate amount to be paid for Shares purchased hereunder as specified below such Purchaser’s name on the signature page of this Agreement and next to the heading “Subscription Amount,” in United States dollars and in immediately available funds.

“Subsidiary” means Ridge Road, LLC, and shall, where applicable, also include any direct or indirect subsidiary of the Company formed or acquired after the date hereof.

“Trading Day” means a day on which the Nasdaq Global Market is open for trading.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market or the New York Stock Exchange (or any successors to any of the foregoing).

“Transaction Documents” means this Agreement, all schedules hereto, and any other documents or agreements executed in connection with the transactions contemplated hereunder.

“Transfer Agent” means Broadridge Corporate Issuer Solutions, Inc., the current transfer agent of the Company, with a mailing address of Attn: Issuance Department, 51 Mercedes Way, Edgewood, NY 11717 and any successor transfer agent of the Company.

ARTICLE II.

PURCHASE AND SALE

2.1 Closing. On the Closing Date, upon the terms and subject to the conditions set forth herein, the Company agrees to sell, and the Purchasers, severally and not jointly, agree to purchase, up to an aggregate of \$15 million of Shares. Each Purchaser’s Subscription Amount as set forth on the signature page hereto executed by such Purchaser shall be made available for “Delivery Versus Payment” (“DVP”) settlement with the Company or its designees. The Company shall deliver to each Purchaser its respective Shares, and the Company and each Purchaser shall deliver the other items set forth in Section 2.2 deliverable at the Closing. Upon satisfaction of the covenants and conditions set forth in Sections 2.2 and 2.3, the Closing shall occur at the offices of the Placement Agent or such other location as the parties shall mutually agree. Unless otherwise directed by the Placement Agent, settlement of the Shares shall occur via DVP in accordance with

the DVP Mechanics. “DVP Mechanics” means that, on the Closing Date, the Company shall issue the Shares registered in the respective Purchasers’ names and addresses and released by the Transfer Agent directly to the account(s) at the Placement Agent identified by each Purchaser; upon receipt of such Shares, the Placement Agent shall promptly electronically deliver such Shares to the applicable Purchaser, and payment for such Shares shall be made by the Placement Agent (or its clearing firm) by wire transfer to the Company.

2.2 Deliveries.

(a) On or prior to the Closing Date, the Company shall deliver or cause to be delivered to each Purchaser the following:

- (i) this Agreement duly executed by the Company;
- (ii) a legal opinion of Company Counsel, addressed to the Purchasers, covering the matters set forth in Exhibit A hereto;
- (iii) the Company shall have provided the Placement Agent with the Company’s wire instructions, on Company letterhead and executed by the Chief Executive Officer or Chief Financial Officer;
- (iv) a copy of the irrevocable instructions to the Transfer Agent instructing the Transfer Agent to deliver to the account(s) at the Placement Agent identified by each Purchaser on an expedited basis via The Depository Trust Company Deposit or Withdrawal at Custodian system (“DWAC”) Shares equal to such Purchaser’s Subscription Amount divided by the Per Share Purchase Price, registered in the name of such Purchaser; and
- (v) the Prospectus and Prospectus Supplement (which may be delivered in accordance with Rule 172 under the Securities Act).

(b) On or prior to the Closing Date, each Purchaser shall deliver or cause to be delivered to the Company the following:

- (i) this Agreement duly executed by such Purchaser; and
- (ii) such Purchaser’s Subscription Amount, which shall be made available for DVP settlement with the Company or its designees.

2.3 Closing Conditions.

(a) The obligations of the Company hereunder in connection with the Closing are subject to the following conditions being met:

- (i) the accuracy in all material respects (or, to the extent that representations and warranties are qualified by materiality or Material Adverse Effect, in all respects) when made and on the Closing Date of the representations
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and warranties of the Purchasers contained herein (unless as of a specific date therein in which case they shall be accurate as of such date);

(ii) all obligations, covenants and agreements of each Purchaser required to be performed at or prior to the Closing Date (including, without limitation, delivery of the Subscription Amount) shall have been performed; and

(iii) the delivery by each Purchaser of the items set forth in Section 2.2(b) of this Agreement.

(b) The respective obligations of the Purchasers hereunder in connection with the Closing are subject to the following conditions being met:

(i) the accuracy in all material respects (or, to the extent that representations and warranties are qualified by materiality or Material Adverse Effect, in all respects) when made and on the Closing Date of the representations and warranties of the Company contained herein (unless as of a specific date therein in which case they shall be accurate as of such date);

(ii) all obligations, covenants and agreements of the Company required to be performed at or prior to the Closing Date shall have been performed;

(iii) the delivery by the Company of the items set forth in Section 2.2(a) of this Agreement;

(iv) there having been no Material Adverse Effect with respect to the Company since the date hereof; and

(v) from the date hereof to the Closing Date, trading in the Common Stock shall not have been suspended by the Commission or the Company's principal Trading Market, and, at any time prior to the Closing Date, trading in securities generally as reported by Bloomberg L.P. shall not have been suspended or limited, or minimum prices shall not have been established on securities whose trades are reported by such service, or on any Trading Market, nor shall a banking moratorium have been declared either by the United States or New York State authorities nor shall there have occurred any material outbreak or escalation of hostilities or other national or international calamity of such magnitude in its effect on, or any material adverse change in, any financial market which, in each case, in the reasonable judgment of such Purchaser, makes it impracticable or inadvisable to purchase the Shares at the Closing.

ARTICLE III. REPRESENTATIONS AND WARRANTIES

3.1 Representations and Warranties of the Company. Including as set forth in the Schedules, which Schedules shall be deemed a part hereof and shall supplement and qualify any representation or otherwise made herein to the extent of the supplemental information contained

in the corresponding section of the Schedules, the Company hereby makes the following representations and warranties to each Purchaser:

(a) Subsidiaries. Ridge Road, LLC is the only direct or indirect subsidiary of the Company. The Company owns, directly or indirectly, all of the membership interests of the Subsidiary free and clear of any Liens, and all of the issued and outstanding membership interests of the Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights to subscribe for or purchase securities.

(b) Organization and Qualification. Each of the Company and its Subsidiary is an entity duly incorporated or otherwise organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization, with the requisite power and authority to own and use its properties and assets and to carry on its business as currently conducted. Neither the Company nor the Subsidiary is in violation nor default of any of the provisions of its respective certificate or articles of incorporation, bylaws or other organizational or charter documents. Each of the Company and the Subsidiary is duly qualified to conduct business and is in good standing as a foreign corporation or other entity in each jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, would not reasonably be expected to result in: (i) a material adverse effect on the legality, validity or enforceability of any Transaction Document, (ii) a material adverse effect on the results of operations, assets, business, prospects or condition (financial or otherwise) of the Company and the Subsidiary, taken as a whole, or (iii) a material adverse effect on the Company's ability to perform in any material respect on a timely basis its obligations under any Transaction Document (any of clauses (i), (ii) or (iii), a "Material Adverse Effect") and no Proceeding has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such power and authority or qualification.

(c) Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the transactions contemplated by this Agreement and each of the other Transaction Documents and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of this Agreement and each of the other Transaction Documents by the Company and the consummation by it of the transactions contemplated hereby and thereby have been duly authorized by all necessary action on the part of the Company and no further action is required by the Company, the Board of Directors or the Company's stockholders in connection herewith or therewith other than in connection with the Required Approvals. This Agreement and each other Transaction Document to which it is a party has been (or upon delivery will have been) duly executed by the Company and, when delivered in accordance with the terms hereof and thereof, will constitute the valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law or public policy.

(d) No Conflicts. The execution, delivery and performance by the Company of this Agreement and the other Transaction Documents to which it is a party, the issuance and sale of the Shares and the consummation by it of the transactions contemplated hereby and thereby do not and will not (i) conflict with or violate any provision of the Company's or the Subsidiary's certificate or articles of incorporation, bylaws or other organizational or charter documents, or (ii) conflict with, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, result in the creation of any Lien upon any of the properties or assets of the Company or the Subsidiary, or give to others any rights of termination, amendment, anti-dilution or similar adjustments, acceleration or cancellation (with or without notice, lapse of time or both) of, any agreement, credit facility, debt or other instrument (evidencing a Company or Subsidiary debt or otherwise) or other understanding to which the Company or any Subsidiary is a party or by which any property or asset of the Company or any Subsidiary is bound or affected, or (iii) subject to the Required Approvals, conflict with or result in a violation of any law, rule, regulation, order, judgment, injunction, decree or other restriction of any court or governmental authority to which the Company or the Subsidiary is subject (including federal and state securities laws and regulations), or by which any property or asset of the Company or the Subsidiary is bound or affected; except in the case of each of clauses (ii) and (iii), such as would not reasonably be expected to result in a Material Adverse Effect.

(e) Filings, Consents and Approvals. The Company is not required to obtain any consent, waiver, authorization or order of, give any notice to, or make any filing or registration with, any court or other federal, state, local or other governmental authority or other Person in connection with the execution, delivery and performance by the Company of the Transaction Documents, other than: (i) the filings required pursuant to Section 4.2 of this Agreement, (ii) the filing with the Commission of the Prospectus Supplement, (iii) application(s) to each applicable Trading Market for the listing of the Shares for trading thereon in the time and manner required thereby, (iv) the approval of Collectis S.A., which approval shall have been obtained prior to the Closing Date, and (v) such filings as are required to be made under applicable U.S. federal and state securities laws (collectively, the "Required Approvals").

(f) Issuance of the Shares; Registration. The Shares are duly authorized and, when issued and paid for in accordance with the applicable Transaction Documents, will be duly and validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company. The Company has prepared and filed the Registration Statement in conformity with the requirements of the Securities Act, which became effective on September 27, 2019 (the "Effective Date"), including the Prospectus, and such amendments and supplements thereto as may have been required to the date of this Agreement. The Company was at the time of the filing of the Registration Statement eligible to use Form S-3. The Company is eligible to use Form S-3 under the Securities Act and, upon filing of its most recent annual report on Form 10-K, met the transaction requirements as set forth in General Instruction I.B.1 of Form S-3. The Registration Statement is effective under the Securities Act and no stop order preventing or suspending the effectiveness of the Registration Statement or suspending or preventing the use of the Prospectus has been issued by the Commission and no proceedings for that purpose have

been instituted or, to the knowledge of the Company, are threatened by the Commission. The Company, if required by the rules and regulations of the Commission, shall file the Prospectus Supplement with the Commission pursuant to Rule 424(b). At the time the Registration Statement and any amendments thereto became effective, at the date of this Agreement and at the Closing Date, the Registration Statement and any amendments thereto conformed and will conform in all material respects to the requirements of the Securities Act and did not and will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading; and the Prospectus and any amendments or supplements thereto, at the time the Prospectus or any amendment or supplement thereto was issued and at the Closing Date, conformed and will conform in all material respects to the requirements of the Securities Act and did not and will not contain an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(g) Capitalization. As of the dates indicated in Schedule 3.1(g), the capitalization of the Company is as set forth on Schedule 3.1(g). The Company has not issued any capital stock since its most recently filed periodic report under the Exchange Act, other than pursuant to the exercise or vesting of equity awards issued pursuant to the Company's 2017 Omnibus Incentive Plan (including any Sub-Plans for French Employees and Directors) or 2017 Stock Option Plan or Equity Incentive Plan (collectively, the "Equity Incentive Plans"), the issuance of shares of Common Stock to employees pursuant to the Company's employee stock purchase plans and pursuant to the conversion and/or exercise of Common Stock Equivalents outstanding as of the date of the most recently filed periodic report under the Exchange Act. No Person has any right of first refusal, preemptive right, right of participation, or any similar right to participate in the transactions contemplated by the Transaction Documents. Except as a result of the purchase and sale of the Shares and except for equity awards identified on Schedule 3.1(g), there are no other outstanding options, warrants, scrip rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities, rights or obligations convertible into or exercisable or exchangeable for, or giving any Person any right to subscribe for or acquire, any shares of Common Stock or the capital stock of any Subsidiary, or contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to issue additional shares of Common Stock or Common Stock Equivalents or capital stock of any Subsidiary. The issuance and sale of the Shares will not obligate the Company or any Subsidiary to issue shares of Common Stock or other securities to any Person (other than the Purchasers). There are no outstanding securities or instruments of the Company or any Subsidiary with any provision that adjusts the exercise, conversion, exchange or reset price of such security or instrument upon an issuance of securities by the Company or any Subsidiary. There are no outstanding securities or instruments of the Company or any Subsidiary that contain any redemption or similar provisions, and there are no contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to redeem a security of the Company or such Subsidiary. The Company does not have any stock appreciation rights or "phantom stock" plans or agreements or any similar plan or agreement. All of the outstanding shares of capital stock of the Company are duly authorized, validly issued, fully paid and nonassessable, have been issued in compliance with all applicable federal

and state securities laws, and none of such outstanding shares was issued in violation of any preemptive rights or similar rights to subscribe for or purchase securities. Other than the Required Approvals, no further approval or authorization of any stockholder, the Board of Directors or others is required for the issuance and sale of the Shares. Except as set forth on Schedule 3.1(g), there are no stockholders agreements, voting agreements or other similar agreements with respect to the Company's capital stock to which the Company is a party or, to the knowledge of the Company, between or among any of the Company's stockholders.

(h) SEC Reports; Financial Statements. The Company has filed all reports, schedules, forms, statements and other documents required to be filed by the Company under the Securities Act and the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof, for the two years preceding the date hereof (or such shorter period as the Company was required by law or regulation to file such material) (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, together with the Prospectus and the Prospectus Supplement, being collectively referred to herein as the "SEC Reports") on a timely basis or has received a valid extension of such time of filing and has filed any such SEC Reports prior to the expiration of any such extension. As of their respective dates, the SEC Reports complied in all material respects with the requirements of the Securities Act and the Exchange Act, as applicable, and none of the SEC Reports, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The Company has never been an issuer subject to Rule 144(i) under the Securities Act. The financial statements of the Company included in the SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements have been prepared in accordance with United States generally accepted accounting principles applied on a consistent basis during the periods involved ("GAAP"), except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated Subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments.

(i) Material Changes; Undisclosed Events, Liabilities or Developments. Since the date of the latest audited financial statements included within the SEC Reports, except as disclosed in the Company's subsequent SEC Reports filed prior to the date hereof, there has been no event, occurrence or development would reasonably be expected to result in a Material Adverse Effect. Since the date of the latest audited financial statements included within the SEC Reports, except as set forth on Schedule 3.1(i), (i) the Company has not incurred any liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company's financial statements pursuant to GAAP or disclosed in filings made with the Commission, (ii) the Company has not altered its method of accounting in any material respect, (iii) the Company has not declared or

made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock and (iv) the Company has not issued any equity securities to any officer, director or Affiliate, except pursuant to existing Company Equity Incentive Plans. The Company does not have pending before the Commission any request for confidential treatment of information. Except for the issuance of the Shares contemplated by this Agreement, no event, liability, fact, circumstance, occurrence or development has occurred or exists or is reasonably expected to occur or exist with respect to the Company or its Subsidiaries or their respective businesses, prospects, properties, operations, assets or financial condition that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made or deemed made that has not been publicly disclosed at least one (1) Trading Day prior to the date that this representation is made.

(j) Litigation. There is no action, suit, inquiry, notice of violation, proceeding or investigation pending or, to the knowledge of the Company, threatened against or affecting the Company, any Subsidiary or any of their respective properties before or by any court, arbitrator, governmental or administrative agency or regulatory authority (federal, state, county, local or foreign) (collectively, an "Action") which (i) adversely affects or challenges the legality, validity or enforceability of any of the Transaction Documents or the Shares or (ii) would, if there were an unfavorable decision, reasonably be expected to result in a Material Adverse Effect. Neither the Company nor any Subsidiary, nor any director or officer thereof, is or has been the subject of any Action involving a claim of violation of or liability under federal or state securities laws or a claim of breach of fiduciary duty. There has not been, and to the knowledge of the Company, there is not pending or contemplated, any investigation by the Commission involving the Company or any current or former director or officer of the Company. The Commission has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company or any Subsidiary under the Exchange Act or the Securities Act.

(k) Labor Relations. No labor dispute exists or, to the knowledge of the Company, is imminent with respect to any of the employees of the Company, which would reasonably be expected to result in a Material Adverse Effect. None of the Company's or its Subsidiaries' employees is a member of a union that relates to such employee's relationship with the Company or such Subsidiary, and neither the Company nor any of its Subsidiaries is a party to a collective bargaining agreement, and the Company and its Subsidiaries believe that their relationships with their employees are good. To the knowledge of the Company, no executive officer of the Company or any Subsidiary, is, or is now expected to be, in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement or non-competition agreement, or any other contract or agreement or any restrictive covenant in favor of any third party, and the continued employment of each such executive officer does not subject the Company or any of its Subsidiaries to any liability with respect to any of the foregoing matters. The Company and its Subsidiaries are in compliance with all U.S. federal, state, local and foreign laws and regulations relating to employment and employment practices, terms and conditions of employment and wages and hours, except where the failure to be

in compliance could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(l) Compliance. Neither the Company nor any Subsidiary: (i) is in default under or in violation of (and no event has occurred that has not been waived that, with notice or lapse of time or both, would result in a default by the Company or any Subsidiary under), nor has the Company or any Subsidiary received notice of a claim that it is in default under or that it is in violation of, any indenture, loan or credit agreement or any other agreement or instrument to which it is a party or by which it or any of its properties is bound (whether or not such default or violation has been waived), (ii) is in violation of any judgment, decree or order of any court, arbitrator or other governmental authority or (iii) is or has been in violation of any statute, rule, ordinance or regulation of any governmental authority, including without limitation all foreign, federal, state and local laws relating to taxes, environmental protection, occupational health and safety, product quality and safety and employment and labor matters, except in each case as would not reasonably be expected to result in a Material Adverse Effect.

(m) Environmental Laws. The Company and its Subsidiaries (i) are in compliance with all applicable federal, state, local and foreign laws relating to pollution or protection of human health or the environment (including ambient air, surface water, groundwater, land surface or subsurface strata), including laws relating to emissions, discharges, releases or threatened releases of chemicals, pollutants, contaminants, or toxic or hazardous substances or wastes (collectively, "Hazardous Materials") into the environment, or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials, as well as all authorizations, codes, decrees, demands, or demand letters, injunctions, judgments, licenses, notices or notice letters, orders, permits, plans or regulations, issued, entered, promulgated or approved thereunder ("Environmental Laws"); (ii) have received all permits licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses; and (iii) are in compliance with all terms and conditions of any such permit, license or approval, except in each clause (i), (ii) and (iii), insofar as such the failure to so comply would not reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect.

(n) Regulatory Permits. The Company and the Subsidiaries possess all certificates, authorizations and permits issued by the federal, state, local or foreign regulatory authorities of competent jurisdiction necessary to conduct their respective businesses as described in the SEC Reports, except where the failure to possess such permits would not reasonably be expected to result in a Material Adverse Effect ("Material Permits"), and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or modification of any Material Permit.

(o) Title to Assets. The Company and the Subsidiaries have good and marketable title in fee simple to all real property owned by them and good and marketable title in all personal property owned by them that is material to the business of the Company and the Subsidiaries, in each case free and clear of all Liens, except for (i) Liens as do not materially affect the value of such property and do not materially interfere with the use

made and proposed to be made of such property by the Company and the Subsidiaries, and (ii) Liens for the payment of federal, state or other taxes, for which appropriate reserves have been made therefor in accordance with GAAP and, the payment of which is neither delinquent nor subject to penalties. Any real property and facilities held under lease by the Company and the Subsidiaries are held by them under valid, subsisting and enforceable leases with which the Company and the Subsidiaries are in compliance, except where the failure to so comply would not reasonably be expected to have a Material Adverse Effect.

(p) Intellectual Property. Except as described in the SEC Reports, (A) the Company owns or otherwise possesses, holds or has obtained valid and enforceable licenses or other rights or believes that it can on commercially reasonable terms obtain such licenses or other rights under patent applications, patents, inventions, copyrights, know how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), trademarks (both registered and unregistered), service marks, trade names, software, domain names and other intellectual property, including registrations and applications for registration thereof (collectively, "Intellectual Property") used in or necessary to carry on the business now operated by the Company and as currently proposed to be operated by it as disclosed in the SEC Reports, except as such failure to own or obtain such licenses or other rights would not reasonably be expected to result in a Material Adverse Effect; (B) to the knowledge of the Company, none of the Intellectual Property described in the SEC Reports as owned by or licensed to the Company (collectively, the "Company Intellectual Property") has been adjudged invalid or unenforceable, in whole or in part; (C) there is no currently pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others challenging the validity, enforceability or scope of, or challenging the Company's ownership of or rights in or to, any Company Intellectual Property, and the Company is not aware of any facts or circumstances that would render any Company Intellectual Property invalid or unenforceable, or of inadequate scope to protect the interests of the Company in conducting its business, except in each case, as would not reasonably be expected to result in a Material Adverse Effect; (D) there is no currently pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by a third party alleging that the Company infringes, misappropriates, or otherwise violates, or would, upon commercialization of any product candidate described in the SEC Reports, infringe, misappropriate or otherwise violate, any Intellectual Property of third parties, and the Company has not received any notice alleging, or is otherwise aware of, any facts or circumstances that would give rise to such an action, proceeding or claim, except, in each case, where such infringement, misappropriation or other violation would not reasonably be expected to result in a Material Adverse Effect; and (E) to the knowledge of the Company, no material technology employed by the Company has been obtained or is being used by the Company in violation of any contractual or legal obligation binding on the Company or any of its officers, directors or employees, which violation relates to the breach of a confidentiality obligation, obligation to assign Intellectual Property to a previous employer or obligation otherwise not to use the Intellectual Property of a third party.

(q) Insurance. The Company and the Subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are

prudent and customary in the businesses in which the Company and the Subsidiaries are engaged, including, but not limited to, directors and officers insurance coverage. Neither the Company nor any Subsidiary has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business without a significant increase in cost.

(r) Transactions With Affiliates and Employees. Except as set forth on Schedule 3.1(r), none of the executive officers or directors of the Company or any Subsidiary and, to the knowledge of the Company, none of the employees of the Company or any Subsidiary is presently a party to any transaction with the Company or any Subsidiary (other than for services as employees, officers and directors), including any contract, agreement or other arrangement providing for the furnishing of services to or by, providing for rental of real or personal property to or from, providing for the borrowing of money from or lending of money to or otherwise requiring payments to or from any executive officer, director or such employee or, to the knowledge of the Company, any entity in which any executive officer, director, or any such employee has a substantial interest or is an executive officer, director, trustee, stockholder, member or partner, in each case in excess of \$120,000 other than for (i) payment of salary, consulting fees or other compensatory fees for services rendered, (ii) reimbursement for expenses incurred on behalf of the Company and (iii) other employee benefits, including stock option agreements under any stock option plan of the Company.

(s) Sarbanes-Oxley; Internal Accounting Controls. The Company and the Subsidiaries are in compliance with any and all applicable requirements of the Sarbanes-Oxley Act of 2002 that are effective as of the date hereof, and any and all applicable rules and regulations promulgated by the Commission thereunder that are effective as of the date hereof and as of the Closing Date, except as would not reasonably be expected to result in a Material Adverse Effect. The Company and the Subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that: (i) transactions are executed in accordance with management's general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability, (iii) access to assets is permitted only in accordance with management's general or specific authorization, and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company and the Subsidiaries have established disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the Company and the Subsidiaries and designed such disclosure controls and procedures to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms. The Company's certifying officers have evaluated the effectiveness of the disclosure controls and procedures of the Company and the Subsidiaries as of the end of the period covered by the most recently filed periodic report under the Exchange Act (such date, the "Evaluation Date"). The Company presented in its most recently filed periodic report under the Exchange Act the conclusions of the certifying officers about the effectiveness of the disclosure controls and procedures based on their

evaluations as of the Evaluation Date. Since the Evaluation Date, there have been no changes in the internal control over financial reporting (as such term is defined in the Exchange Act) of the Company and its Subsidiaries that have materially affected, or is reasonably likely to materially affect, the internal control over financial reporting of the Company and its Subsidiaries.

(t) Certain Fees. Except as set forth in the Prospectus Supplement, no brokerage or finder's fees or commissions are or will be payable by the Company or any Subsidiary to any broker, financial advisor or consultant, finder, placement agent, investment banker, bank or other Person with respect to the transactions contemplated by the Transaction Documents. The Purchasers shall have no obligation with respect to any fees or with respect to any claims made by or on behalf of other Persons for fees of a type contemplated in this Section that may be due in connection with the transactions contemplated by the Transaction Documents.

(u) Investment Company. The Company is not required, and upon the issuance and sale of the Shares as herein contemplated and the application of the net proceeds therefrom will not be required, to register as an "investment company" under the Investment Company Act of 1940, as amended.

(v) Registration Rights. Except as described on Schedule 3.1(v), no Person has any right to cause the Company or any Subsidiary to effect the registration under the Securities Act of any securities of the Company or any Subsidiary.

(w) Listing and Maintenance Requirements. The Common Stock is registered pursuant to Section 12(b) or 12(g) of the Exchange Act, and the Company has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act nor has the Company received any notification that the Commission is contemplating terminating such registration. The Company has not, in the 12 months preceding the date hereof, received notice from any Trading Market on which the Common Stock is or has been listed or quoted to the effect that the Company is not in compliance with the listing or maintenance requirements of such Trading Market. The Company is, and has no reason to believe that it will not in the foreseeable future continue to be, in compliance with all such listing and maintenance requirements. The Common Stock is currently eligible for electronic transfer through the Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees to the Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.

(x) Application of Takeover Protections. The Company and the Board of Directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company's certificate of incorporation (or similar charter documents) or the laws of its state of incorporation that is or could become applicable to the Purchasers as a result of the Purchasers and the Company fulfilling their obligations or exercising their rights under the Transaction

Documents, including without limitation as a result of the Company's issuance of the Shares and the Purchasers' ownership of the Shares.

(y) Disclosure. Except with respect to the material terms and conditions of the transactions contemplated by the Transaction Documents, the Company confirms that neither it nor any other Person acting on its behalf has provided any of the Purchasers or their agents or counsel with any information that it believes constitutes or might constitute material, non-public information which is not otherwise disclosed in the SEC Reports or the Prospectus Supplement. The Company understands and confirms that the Purchasers will rely on the foregoing representation in effecting transactions in securities of the Company. The disclosure in the SEC Reports regarding the Company and its Subsidiaries, their respective businesses, including as highlighted in the Schedules to this Agreement, and the information regarding the transactions contemplated hereby is true and correct in all material respects and does not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in the light of the circumstances under which they were made, not misleading. The Company acknowledges and agrees that no Purchaser makes or has made any representations or warranties with respect to the transactions contemplated hereby other than those specifically set forth in Section 3.2 hereof.

(z) No Integrated Offering. Assuming the accuracy of the Purchasers' representations and warranties set forth in Section 3.2, neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Shares to be integrated with prior offerings by the Company for purposes of any applicable shareholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated.

(aa) Solvency. Based on the consolidated financial condition of the Company as of the Closing Date, after giving effect to the receipt by the Company of the proceeds from the sale of the Shares hereunder, (i) the fair saleable value of the Company's assets exceeds the amount that will be required to be paid on or in respect of the Company's existing debts and other liabilities (including known contingent liabilities) as they mature, (ii) the Company's assets do not constitute unreasonably small capital to carry on its business as now conducted and as proposed to be conducted including its capital needs taking into account the particular capital requirements of the business conducted by the Company, consolidated and projected capital requirements and capital availability thereof, and (iii) the current cash flow of the Company, together with the proceeds the Company would receive, were it to liquidate all of its assets, after taking into account all anticipated uses of the cash, would be sufficient to pay all amounts on or in respect of its liabilities when such amounts are required to be paid. The Company does not intend to incur debts beyond its ability to pay such debts as they mature (taking into account the timing and amounts of cash to be payable on or in respect of its debt). The Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year from the Closing Date. Schedule 3.1(aa) sets forth as of the date specified therein all

outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. For the purposes of this Agreement, “Indebtedness” means (x) any liabilities for borrowed money or amounts owed in excess of \$100,000 (other than trade accounts payable incurred in the ordinary course of business), (y) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company’s consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (z) the present value of any lease payments in excess of \$100,000 due under leases required to be capitalized in accordance with GAAP. Neither the Company nor any Subsidiary is in default with respect to any Indebtedness.

(bb) Tax Status. Except for matters that would not, individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect, the Company and its Subsidiaries each (i) has made or filed, or has requested valid extensions thereof, all United States federal, state and local income and all foreign income and franchise tax returns, reports and declarations required by any jurisdiction to which it is subject, (ii) has paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations and (iii) has set aside on its books provision reasonably adequate for the payment of all material taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company or of any Subsidiary know of no basis for any such claim.

(cc) Foreign Corrupt Practices. Neither the Company nor any Subsidiary, nor to the knowledge of the Company or any Subsidiary, any agent or other person acting on behalf of the Company or any Subsidiary, has (i) directly or indirectly, used any funds for unlawful contributions, gifts, entertainment or other unlawful expenses related to foreign or domestic political activity, (ii) made any unlawful payment to foreign or domestic government officials or employees or to any foreign or domestic political parties or campaigns from corporate funds, (iii) failed to disclose fully any contribution made by the Company or any Subsidiary (or made by any person acting on its behalf of which the Company is aware) which is in violation of law, or (iv) violated in any material respect any provision of FCPA.

(dd) Accountants. The Company’s independent registered public accounting firm is Ernst & Young LLP. To the knowledge and belief of the Company, such accounting firm is a registered public accounting firm as required by the Exchange Act.

(ee) Acknowledgment Regarding Purchasers’ Purchase of Shares. The Company acknowledges and agrees that each of the Purchasers is acting solely in the capacity of an arm’s length purchaser with respect to the Transaction Documents and the transactions contemplated thereby. The Company further acknowledges that no Purchaser is acting as a financial advisor to or fiduciary of the Company (or in any similar capacity) with respect to the Transaction Documents and the transactions contemplated thereby and any advice given to the Company by any Purchaser or any of their respective

representatives or agents in connection with the Transaction Documents and the transactions contemplated thereby is merely incidental to the Purchasers' purchase of the Shares. The Company further represents to each Purchaser that the Company's decision to enter into this Agreement and the other Transaction Documents has been based solely on the independent evaluation of the transactions contemplated hereby by the Company and its representatives.

(ff) Acknowledgment Regarding Purchaser's Trading Activity. Anything in this Agreement or elsewhere herein to the contrary notwithstanding (except for Sections 3.2(f) and 4.8 hereof), it is understood and acknowledged by the Company that: (i) none of the Purchasers has been asked by the Company to agree, nor has any Purchaser agreed, to desist from purchasing or selling, long and/or short, securities of the Company, or "derivative" securities based on securities issued by the Company or to hold the Shares for any specified term; (ii) past or future open market or other transactions by any Purchaser, specifically including, without limitation, Short Sales or "derivative" transactions, before or after the closing of this or future private placement transactions, may negatively impact the market price of the Company's publicly-traded securities; (iii) any Purchaser, and counter-parties in "derivative" transactions to which any such Purchaser is a party, directly or indirectly, presently may have a "short" position in the Common Stock, and (iv) each Purchaser shall not be deemed to have any affiliation with or control over any arm's length counterparty in any "derivative" transaction. The Company further understands and acknowledges that (y) one or more Purchasers may engage in hedging activities at various times during the period that the Shares are outstanding, and (z) such hedging activities (if any) could reduce the value of the existing stockholders' equity interests in the Company at and after the time that the hedging activities are being conducted. The Company acknowledges that such aforementioned hedging activities do not constitute a breach of any of the Transaction Documents.

(gg) Regulation M Compliance. The Company has not, and to its knowledge no one acting on its behalf has, (i) taken, directly or indirectly, any action designed to cause or to result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of any of the Shares, (ii) sold, bid for, purchased, or paid any compensation for soliciting purchases of, any of the Shares, or (iii) paid or agreed to pay to any Person any compensation for soliciting another to purchase any other securities of the Company, other than, in the case of clauses (ii) and (iii), compensation paid to the Company's placement agent in connection with the placement of the Shares.

(hh) Compliance with Regulatory Laws. The Company: (A) is and at all times has been in material compliance with all applicable statutes, rules or regulations of the Governmental Entities applicable to the ownership, testing, development, manufacture, packaging, processing, use, distribution, marketing, labeling, promotion, sale, offer for sale, storage, import, export or disposal of any product candidate under development, manufactured or distributed by the Company ("Applicable Laws"), including, without limitation, the Federal Food, Drug and Cosmetic Act (21 U.S.C. § 301 et seq.) and the Plant Protection Act (7 U.S.C. § 7701 et seq.); (B) has not received any correspondence or notice from any Governmental Entity or court of competent jurisdiction alleging or asserting material noncompliance with any Applicable Laws or any Governmental Licenses; (C)

possesses all material Governmental Licenses and such Governmental Licenses are valid and in full force and effect and the Company is not in material violation of any term of any such Governmental Licenses; (D) has not received notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any Governmental Entity or third party alleging that any product development activity is in material violation of any Applicable Laws or Governmental Licenses and has no knowledge that any Governmental Entity or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding; (E) has not received notice that any Governmental Entity has taken, is taking or intends to take action to suspend or revoke any material Governmental Licenses and has no knowledge that any Governmental Entity is considering such action; and (F) has filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Governmental Licenses and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were materially complete and correct on the date filed (or were corrected or supplemented by a subsequent submission).

(ii) Office of Foreign Assets Control. Neither the Company nor any Subsidiary nor, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company or any Subsidiary is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("OFAC").

(jj) Money Laundering. The operations of the Company and its Subsidiaries are and have been conducted at all times in compliance with applicable financial record-keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the "Money Laundering Laws"), and no Action or Proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any Subsidiary with respect to the Money Laundering Laws is pending or, to the knowledge of the Company or any Subsidiary, threatened.

3.2 Representations and Warranties of the Purchasers. Each Purchaser, for itself and for no other Purchaser, hereby represents and warrants as of the date hereof and as of the Closing Date to the Company as follows (unless as of a specific date therein, in which case they shall be accurate as of such date):

(a) Organization; Authority. Such Purchaser is an entity duly incorporated or formed, validly existing and in good standing under the laws of the jurisdiction of its incorporation or formation with full right, corporate, partnership, limited liability company or similar power and authority to enter into and to consummate the transactions contemplated by the Transaction Documents and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of the Transaction Documents and performance by such Purchaser of the transactions contemplated by the Transaction Documents have been duly authorized by all necessary corporate, partnership, limited liability company or similar action, as applicable, on the part of such Purchaser. Each Transaction Document to which it is a party has been duly executed by such Purchaser, and when delivered by such Purchaser in accordance with the terms hereof, will constitute the valid and legally binding obligation of

such Purchaser, enforceable against it in accordance with its terms, except: (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

(b) Understandings or Arrangements. Such Purchaser is acquiring the Shares as principal for its own account and has no direct or indirect arrangement or understandings with any other persons to distribute or regarding the distribution of such Shares (this representation and warranty not limiting such Purchaser's right to sell the Shares pursuant to the Registration Statement or otherwise in compliance with applicable federal and state securities laws). Such Purchaser is acquiring the Shares hereunder in the ordinary course of its business.

(c) Purchaser Status. At the time such Purchaser was offered the Shares, it was, and as of the date hereof it is, either: (i) an "accredited investor" as defined in Rule 501(a)(1), (a)(2), (a)(3), (a)(7) or (a)(8) under the Securities Act or (ii) a "qualified institutional buyer" as defined in Rule 144A(a) under the Securities Act.

(d) Experience of Such Purchaser. Such Purchaser, either alone or together with its representatives, has such knowledge, sophistication and experience in business and financial matters so as to be capable of evaluating the merits and risks of the prospective investment in the Shares, and has so evaluated the merits and risks of such investment. Such Purchaser is able to bear the economic risk of an investment in the Shares and, at the present time, is able to afford a complete loss of such investment.

(e) Access to Information. Such Purchaser acknowledges that it has had the opportunity to review the Transaction Documents (including all exhibits and schedules thereto) and the SEC Reports and has been afforded, (i) the opportunity to ask such questions as it has deemed necessary of, and to receive answers from, representatives of the Company concerning the terms and conditions of the offering of the Shares and the merits and risks of investing in the Shares; (ii) access to information about the Company and its financial condition, results of operations, business, properties, management and prospects sufficient to enable it to evaluate its investment; and (iii) the opportunity to obtain such additional information that the Company possesses or can acquire without unreasonable effort or expense that is necessary to make an informed investment decision with respect to the investment. Such Purchaser acknowledges and agrees that neither the Placement Agent nor any Affiliate of the Placement Agent has provided such Purchaser with any information or advice with respect to the Shares nor is such information or advice necessary or desired. Neither the Placement Agent nor any Affiliate has made or makes any representation as to the Company or the quality of the Shares and the Placement Agent and any Affiliate may have acquired non-public information with respect to the Company which such Purchaser agrees need not be provided to it. In connection with the issuance of the Shares to such Purchaser, neither the Placement Agent nor any of its Affiliates has acted as a financial advisor or fiduciary to such Purchaser.

(f) Certain Transactions and Confidentiality . Other than consummating the transactions contemplated hereunder, such Purchaser has not, nor has any Person acting on behalf of or pursuant to any understanding with such Purchaser, directly or indirectly executed any purchases or sales, including Short Sales, of the securities of the Company during the period commencing as of the time that such Purchaser first received information about the offering of the Shares (written or oral) from the Company, the Placement Agent or any other Person representing the Company and ending immediately prior to the execution hereof. Notwithstanding the foregoing, in the case of a Purchaser that is a multi-managed investment vehicle whereby separate portfolio managers manage separate portions of such Purchaser's assets and the portfolio managers have no direct knowledge of the investment decisions made by the portfolio managers managing other portions of such Purchaser's assets, the representation set forth above shall only apply with respect to the portion of assets managed by the portfolio manager that made the investment decision to purchase the Shares covered by this Agreement. Other than to other Persons party to this Agreement or to such Purchaser's representatives, including, without limitation, its officers, directors, partners, legal and other advisors, employees, agents and Affiliates, such Purchaser has maintained the confidentiality of all disclosures made to it in connection with this transaction (including the existence and terms of this transaction).

The Company acknowledges and agrees that the representations contained in this Section 3.2 shall not modify, amend or affect such Purchaser's right to rely on the Company's representations and warranties contained in this Agreement or any representations and warranties contained in any other Transaction Document or any other document or instrument executed and/or delivered in connection with this Agreement or the consummation of the transactions contemplated hereby. Notwithstanding the foregoing, for the avoidance of doubt, nothing contained herein shall constitute a representation or warranty, or preclude any actions, with respect to locating or borrowing shares in order to effect Short Sales or similar transactions in the future.

ARTICLE IV.

OTHER AGREEMENTS OF THE PARTIES

4.1 Integration. The Company shall not sell, offer for sale or solicit offers to buy or otherwise negotiate in respect of any security (as defined in Section 2 of the Securities Act) that would be integrated with the offer or sale of the Shares for purposes of the rules and regulations of any Trading Market such that it would require shareholder approval prior to the closing of such other transaction unless shareholder approval is obtained before the closing of such subsequent transaction.

4.2 Securities Laws Disclosure; Publicity. The Company shall (a) by the Disclosure Time, issue a press release disclosing the material terms of the transactions contemplated hereby, and (b) file a Current Report on Form 8-K, including the material Transaction Documents as exhibits thereto, with the Commission within the time required by the Exchange Act. From and after the issuance of such press release, the Company represents to the Purchasers that it shall have publicly disclosed all material, non-public information delivered to any of the Purchasers by the Company or any of its Subsidiaries, or any of their respective officers, directors, employees or agents in connection with the transactions contemplated by the Transaction Documents. In addition, effective upon the issuance of such press release, the Company acknowledges and agrees

that any and all confidentiality or similar obligations under any agreement, whether written or oral, between the Company, any of its Subsidiaries or any of their respective officers, directors, agents, employees or Affiliates on the one hand, and any of the Purchasers or any of their Affiliates on the other hand, shall terminate. For a period of 30 days following the Closing Date, the Company and each Purchaser shall consult with each other in issuing any other press releases with respect to the transactions contemplated hereby (other than the press release contemplated by clause (a) of this Section 4.2 and any press release issued in respect of the Company's announcement of its financial results for the quarterly period ended September 30, 2020), and neither the Company nor any Purchaser shall issue any such press release nor otherwise make any such public statement without the prior consent of the Company, with respect to any press release of any Purchaser, or without the prior consent of each Purchaser, with respect to any press release of the Company, which consent shall not unreasonably be withheld or delayed, except if such disclosure is required by law, in which case the disclosing party shall promptly provide the other party with prior notice of such public statement or communication. The Company shall not publicly disclose the name of any Purchaser, or include the name of any Purchaser in any filing with the Commission or any regulatory agency or Trading Market, without the prior written consent of such Purchaser, except (a) as required by federal securities law in connection with the filing of final Transaction Documents with the Commission and (b) to the extent such disclosure is required by law or Trading Market regulations, in which case the Company shall provide the Purchasers with prior notice of such disclosure permitted under this clause (b).

4.3 Shareholder Rights Plan. No claim will be made or enforced by the Company or, with the consent of the Company, any other Person, that any Purchaser is an "Acquiring Person" under any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or similar anti-takeover plan or arrangement in effect or hereafter adopted by the Company, or that any Purchaser could be deemed to trigger the provisions of any such plan or arrangement, by virtue of receiving Shares under the Transaction Documents or under any other agreement between the Company and the Purchasers.

4.4 Non-Public Information. Except with respect to the material terms and conditions of the transactions contemplated by the Transaction Documents, which shall be disclosed pursuant to Section 4.2, the Company covenants and agrees that neither it, nor any other Person acting on its behalf, will provide any Purchaser or its agents or counsel with any information that constitutes, or the Company believes constitutes, material non-public information, unless prior thereto such Purchaser shall have consented to the receipt of such information and agreed with the Company to keep such information confidential. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company. To the extent that the Company delivers any material, non-public information to a Purchaser without such Purchaser's consent, the Company hereby covenants and agrees that such Purchaser shall not have any duty of confidentiality to the Company, any of its Subsidiaries, or any of their respective officers, directors, agents, employees or Affiliates, or a duty to the Company, any of its Subsidiaries or any of their respective officers, directors, agents, employees or Affiliates not to trade on the basis of, such material, non-public information, provided that the Purchaser shall remain subject to applicable law. To the extent that any notice provided pursuant to any Transaction Document constitutes, or contains, material, non-public information regarding the Company or any Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Company understands and confirms

that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company.

4.5 Use of Proceeds. The Company shall use the net proceeds from the sale of the Shares hereunder for working capital purposes and shall not use such proceeds: (a) for the satisfaction of any portion of the Company's debt (other than payment of trade payables in the ordinary course of the Company's business and prior practices), (b) for the redemption of any Common Stock or Common Stock Equivalents, (c) for the settlement of any outstanding litigation or (d) in violation of FCPA or OFAC regulations.

4.6 Listing of Common Stock. The Company hereby agrees to use commercially reasonable efforts to maintain the listing or quotation of the Common Stock on the Trading Market on which it is currently listed, and concurrently with the Closing, the Company shall apply to list or quote all of the Shares on such Trading Market and promptly secure the listing of all of the Shares on such Trading Market. The Company agrees to maintain the eligibility of the Common Stock for electronic transfer through the Depository Trust Company or another established clearing corporation, including, without limitation, by timely payment of fees to the Depository Trust Company or such other established clearing corporation in connection with such electronic transfer.

4.7 Equal Treatment of Purchasers. No consideration (including any modification of this Agreement) shall be offered or paid to any Person to amend or consent to a waiver or modification of any provision of this Agreement unless the same consideration is also offered to all of the parties to this Agreement. For clarification purposes, this provision constitutes a separate right granted to each Purchaser by the Company and negotiated separately by each Purchaser, and is intended for the Company to treat the Purchasers as a class and shall not in any way be construed as the Purchasers acting in concert or as a group with respect to the purchase, disposition or voting of Shares or otherwise.

4.8 Certain Transactions and Confidentiality. Each Purchaser, severally and not jointly with the other Purchasers, covenants that neither it nor any Affiliate acting on its behalf or pursuant to any understanding with it will execute any purchases or sales, including Short Sales of any of the Company's securities during the period commencing with the execution of this Agreement and ending at such time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.2. Each Purchaser, severally and not jointly with the other Purchasers, covenants that until such time as the transactions contemplated by this Agreement are publicly disclosed by the Company pursuant to the initial press release as described in Section 4.2, such Purchaser will maintain the confidentiality of the existence and terms of this transaction. Notwithstanding the foregoing, and notwithstanding anything contained in this Agreement to the contrary, the Company expressly acknowledges and agrees that (i) no Purchaser makes any representation, warranty or covenant hereby that it will not engage in effecting transactions in any securities of the Company after the time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.2, (ii) no Purchaser shall be restricted or prohibited from effecting any transactions in any securities of the Company in accordance with applicable securities laws from and after the time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.2 and (iii)

no Purchaser shall have any duty of confidentiality or duty to not trade in the securities of the Company to the Company or its Subsidiaries after the issuance of the initial press release as described in Section 4.2. Notwithstanding the foregoing, in the case of a Purchaser that is a multi-managed investment vehicle whereby separate portfolio managers manage separate portions of such Purchaser's assets and the portfolio managers have no direct knowledge of the investment decisions made by the portfolio managers managing other portions of such Purchaser's assets, the covenant set forth above shall only apply with respect to the portion of assets managed by the portfolio manager that made the investment decision to purchase the Shares covered by this Agreement.

4.9 Sales During Pre-Settlement Period. Notwithstanding anything herein to the contrary, if at any time on or after the time of execution of this Agreement by the Company and an applicable Purchaser, through, and including the time immediately prior to the Closing (the "Pre-Settlement Period"), such Purchaser sells to any Person all, or any portion, of any shares of Common Stock to be issued hereunder to such Purchaser at the Closing (collectively, the "Pre-Settlement Shares"), such Purchaser shall, automatically hereunder (without any additional required actions by such Purchaser or the Company), be deemed to be unconditionally bound to purchase, and the Company shall be deemed unconditionally bound to sell, such Pre-Settlement Shares to such Purchaser at the Closing; provided, that the Company shall not be required to deliver any Pre-Settlement Shares to such Purchaser prior to the Company's receipt of the purchase price of such Pre-Settlement Shares hereunder; and provided further that the Company hereby acknowledges and agrees that the forgoing shall not constitute a representation or covenant by such Purchaser as to whether or not during the Pre-Settlement Period such Purchaser shall sell any shares of Common Stock to any Person and that any such decision to sell any shares of Common Stock by such Purchaser shall solely be made at the time such Purchaser elects to effect any such sale, if any.

ARTICLE V. MISCELLANEOUS

5.1 Termination. This Agreement may be terminated by any Purchaser, as to such Purchaser's obligations hereunder only and without any effect whatsoever on the obligations between the Company and the other Purchasers, by written notice to the other parties, if the Closing has not been consummated on or before the fifth (5th) Trading Day following the date hereof; provided, however, that no such termination will affect the right of any party to sue for any breach by any other party (or parties).

5.2 Fees and Expenses. Except as expressly set forth in the Transaction Documents to the contrary, each party shall pay the fees and expenses of its own advisers, counsel, accountants and other experts, if any, and all other expenses incurred by such party incident to the negotiation, preparation, execution, delivery and performance of the Transaction Documents. The Company shall pay all Transfer Agent fees (including, without limitation, any fees required for same-day processing of any instruction letter delivered by the Company), stamp taxes and other taxes and duties levied in connection with the delivery of any Shares to the Purchasers.

5.3 Entire Agreement. The Transaction Documents, together with the exhibits and schedules thereto, the Prospectus and the Prospectus Supplement, contain the entire understanding

of the parties with respect to the subject matter hereof and thereof and supersede all prior agreements and understandings, oral or written, with respect to such matters, which the parties acknowledge have been merged into such documents, exhibits and schedules.

5.4 Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earliest of: (a) the time of transmission, if such notice or communication is delivered via facsimile at the facsimile number or email attachment at the email address as set forth on the signature pages attached hereto at or prior to 5:30 p.m. (New York City time) on a Trading Day, (b) the next Trading Day after the time of transmission, if such notice or communication is delivered via facsimile at the facsimile number or email attachment at the email address as set forth on the signature pages attached hereto on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (c) the second (2nd) Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service or (d) upon actual receipt by the party to whom such notice is required to be given. The address for such notices and communications shall be as set forth on the signature pages attached hereto. To the extent that any notice provided pursuant to any Transaction Document constitutes, or contains, material, non-public information regarding the Company or any Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K.

5.5 Amendments; Waivers. No provision of this Agreement may be waived, modified, supplemented or amended except in a written instrument signed, in the case of an amendment, by the Company and Purchasers of a majority in interest of the Shares purchased pursuant to this Agreement (based on the initial Subscription Amounts hereunder) or, in the case of a waiver, by the party against whom enforcement of any such waived provision is sought. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right. Any amendment effected in accordance with this Section 5.5 shall be binding upon each Purchaser and holder of Shares and the Company.

5.6 Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

5.7 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and permitted assigns. The Company may not assign this Agreement or any rights or obligations hereunder without the prior written consent of each Purchaser (other than by merger). Any Purchaser may assign any or all of its rights under this Agreement to any Person to whom such Purchaser assigns or transfers any Shares, provided that such transferee agrees in writing to be bound, with respect to the transferred Shares, by the provisions of the Transaction Documents that apply to the "Purchasers."

5.8 No Third-Party Beneficiaries. The Placement Agent shall be the third party beneficiary of the representations and warranties of the Company in Section 3.1 and the representations and warranties of the Purchasers in Section 3.2. This Agreement is intended for the benefit of the parties hereto and their respective successors and permitted assigns and is not for

the benefit of, nor may any provision hereof be enforced by, any other Person, except as otherwise set forth in Section 5.8.

5.9 Governing Law. All questions concerning the construction, validity, enforcement and interpretation of the Transaction Documents shall be governed by and construed and enforced in accordance with the internal laws of the State of New York. Each party agrees that all legal Proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Agreement and any other Transaction Documents (whether brought against a party hereto or its respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any Action or Proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such Action or Proceeding is improper or is an inconvenient venue for such Proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such Action or Proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If any party shall commence an Action or Proceeding to enforce any provisions of the Transaction Documents, then the prevailing party in such Action or Proceeding shall be reimbursed by the non-prevailing party for its reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such Action or Proceeding.

5.10 Survival. The representations and warranties contained herein shall survive the Closing and the delivery of the Shares.

5.11 Execution. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to each other party, it being understood that the parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or ".pdf" signature page were an original thereof.

5.12 Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their commercially reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed

the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

5.13 Rescission and Withdrawal Right. Notwithstanding anything to the contrary contained in (and without limiting any similar provisions of) any of the other Transaction Documents, whenever any Purchaser exercises a right, election, demand or option under a Transaction Document and the Company does not timely perform its related obligations within the periods therein provided, then such Purchaser may rescind or withdraw, in its sole discretion from time to time upon written notice to the Company, any relevant notice, demand or election in whole or in part without prejudice to its future actions and rights.

5.14 Replacement of Shares. If any certificate or instrument evidencing any Shares is mutilated, lost, stolen or destroyed, the Company shall issue or cause to be issued in exchange and substitution for and upon cancellation thereof (in the case of mutilation), or in lieu of and substitution therefor (in case of loss, theft or destruction), a new certificate or instrument, but only upon receipt of evidence reasonably satisfactory to the Company of such loss, theft or destruction and (in case of loss, theft or destruction) of customary indemnity satisfactory to the Company. The applicant for a new certificate or instrument under such circumstances shall also pay any reasonable third-party costs (including customary indemnity) associated with the issuance of such replacement Shares.

5.15 Remedies. In addition to being entitled to exercise all rights provided herein or granted by law, including recovery of damages, each of the Purchasers and the Company will be entitled to specific performance under the Transaction Documents. The parties agree that monetary damages may not be adequate compensation for any loss incurred by reason of any breach of obligations contained in the Transaction Documents and hereby agree to waive and not to assert in any Action for specific performance of any such obligation the defense that a remedy at law would be adequate.

5.16 Payment Set Aside. To the extent that the Company makes a payment or payments to any Purchaser pursuant to any Transaction Document or a Purchaser enforces or exercises its rights thereunder, and such payment or payments or the proceeds of such enforcement or exercise or any part thereof are subsequently invalidated, declared to be fraudulent or preferential, set aside, recovered from, disgorged by or are required to be refunded, repaid or otherwise restored to the Company, a trustee, receiver or any other Person under any law (including, without limitation, any bankruptcy law, state or federal law, common law or equitable cause of action), then to the extent of any such restoration the obligation or part thereof originally intended to be satisfied shall be revived and continued in full force and effect as if such payment had not been made or such enforcement or setoff had not occurred.

5.17 Independent Nature of Purchasers' Obligations and Rights. The obligations of each Purchaser under any Transaction Document are several and not joint with the obligations of any other Purchaser, and no Purchaser shall be responsible in any way for the performance or non-performance of the obligations of any other Purchaser under any Transaction Document. Nothing contained herein or in any other Transaction Document, and no action taken by any Purchaser pursuant hereto or thereto, shall be deemed to constitute the Purchasers as a partnership, an association, a joint venture or any other kind of entity, or create a presumption that the Purchasers

are in any way acting in concert or as a group with respect to such obligations or the transactions contemplated by the Transaction Documents. Each Purchaser shall be entitled to independently protect and enforce its rights including, without limitation, the rights arising out of this Agreement or out of the other Transaction Documents, and it shall not be necessary for any other Purchaser to be joined as an additional party in any Proceeding for such purpose. Each Purchaser has been represented by its own separate legal counsel in its review and negotiation of the Transaction Documents. For reasons of administrative convenience only, each Purchaser and its respective counsel have chosen to communicate with the Company through the legal counsel of the Placement Agent. The legal counsel of the Placement Agent does not represent any of the Purchasers and only represents the Placement Agent. The Company has elected to provide all Purchasers with the same terms and Transaction Documents for the convenience of the Company and not because it was required or requested to do so by any of the Purchasers. It is expressly understood and agreed that each provision contained in this Agreement and in each other Transaction Document is between the Company and a Purchaser, solely, and not between the Company and the Purchasers collectively and not between and among the Purchasers.

5.18 Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

5.19 Construction. The parties agree that each of them and/or their respective counsel have reviewed and had an opportunity to revise the Transaction Documents and, therefore, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of the Transaction Documents or any amendments thereto. In addition, each and every reference to share prices and shares of Common Stock in any Transaction Document shall be subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions of the Common Stock that occur after the date of this Agreement.

5.20 **WAIVER OF JURY TRIAL . IN ANY ACTION, SUIT, OR PROCEEDING IN ANY JURISDICTION BROUGHT BY ANY PARTY AGAINST ANY OTHER PARTY, THE PARTIES EACH KNOWINGLY AND INTENTIONALLY, TO THE GREATEST EXTENT PERMITTED BY APPLICABLE LAW, HEREBY ABSOLUTELY, UNCONDITIONALLY, IRREVOCABLY AND EXPRESSLY WAIVES FOREVER TRIAL BY JURY.**

(Signature Pages Follow)

IN WITNESS WHEREOF, the parties hereto have caused this Securities Purchase Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

CALYXT, INC.

Address for Notice:

By: _____
Name:
Title:

Fax:
E-mail:

With a copy to (which shall not constitute notice):

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK
SIGNATURE PAGE FOR PURCHASER FOLLOWS]

[PURCHASER SIGNATURE PAGES TO CLXT SECURITIES PURCHASE AGREEMENT]

IN WITNESS WHEREOF, the undersigned have caused this Securities Purchase Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

Name of Purchaser: _____
Signature of Authorized Signatory of Purchaser: _____
Name of Authorized Signatory: _____
Title of Authorized Signatory: _____
Email Address of Authorized Signatory: _____
Facsimile Number of Authorized Signatory: _____
Address for Notice to Purchaser: _____

Subscription Amount: \$ _____

Shares: _____

EIN Number: _____

[SIGNATURE PAGES CONTINUE]

**CERTIFICATION PURSUANT TO RULES 13a-14(a) AND 15d-14(a)
UNDER THE SECURITIES EXCHANGE ACT, AS AMENDED**

I, James A. Blome, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Calyxt, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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.

Date: November 5, 2020

/s/ James A. Blome

James A. Blome
Chief Executive Officer

**CERTIFICATION PURSUANT TO RULES 13a-14(a) AND 15d-14(a)
UNDER THE SECURITIES EXCHANGE ACT, AS AMENDED**

I, William F. Koschak, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Calyxt, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(t) and 15d-15(t)) 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.

Date: November 5, 2020

/s/ William F. Koschak

William F. Koschak
Chief 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 Quarterly Report of Calyxt, Inc. (the "Company") on Form 10-Q for the period ended September 30, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned hereby certifies, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to his knowledge:

- (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.

Date: November 5, 2020

/s/ James A. Blome
James A. Blome
Chief Executive Officer

/s/ William F. Koschak
William F. Koschak
Chief Financial Officer