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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☑ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2021;

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	27-1967997
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
2800 Mount Ridge Road Roseville, MN	55113-1127
(Address of principal executive offices)	(Zip Code)

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

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

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☑

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☑

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 (check one):

Large Accelerated Filer	☐	Accelerated Filer	☐	Non-accelerated Filer	☑	Smaller Reporting Company	☐
Emerging Growth Company	☑						

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

☐

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

Aggregate market value of the common stock held by non-affiliates of the registrant: As of June 30, 2021, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of shares of common stock held by non-affiliates of the registrant was $52,658,096 based upon the closing sale price of the registrant's common stock of $4.02 on such date.

The number of outstanding shares of the registrant's common stock on March 3, 2022 was 42,718,930 shares.

DOCUMENTS INCORPORATED BY REFERENCE

The information required by Part III of this Annual Report on Form 10-K, to the extent not set forth herein, is incorporated herein by reference from the registrant's definitive proxy statement relating to the registrant's Annual Meeting of Stockholders to be held in 2022, which definitive proxy statement shall be filed with the Securities and Exchange Commission not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

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Terms

When the terms the “Company” or “its” are used in this report, unless the context otherwise requires, those terms are being used to refer to Calyxt, Inc. When the term “Cellectis,” is used, it is being used to refer to Cellectis S.A., the Company's majority stockholder. Cellectis is a clinical-stage biotechnology company employing its core proprietary technologies to develop best-in-class products in the field of immuno-oncology.

The Company owns the names PlantSpring and BioFactory. The Company also owns the trademarks Calyxt® and Calyno® and owns or licenses other trademarks, trade names, and service marks appearing in this Annual Report on Form 10-K. The names and trademarks Cellectis® and TALEN®, along with any other trademarks, trade names, and service marks of Cellectis appearing in this report are the property of Cellectis. This report also contains additional trade names, trademarks, and service marks belonging to other companies. The Company does not intend its 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 these other parties.

Cautionary Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K 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). The Company may also make forward-looking statements in other reports filed with the Securities and Exchange Commission (SEC), in materials delivered to stockholders, and in press releases. In addition, the Company's representatives may from time-to-time make oral forward-looking statements.

The Company has made these forward-looking statements in reliance on the safe harbor provisions of the U.S. 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,” “intends,” “may,” “might,” “plans,” “predicts,” “projects,” “should,” “targets,” “will,” or the negative of these terms and other similar terminology. Forward-looking statements in this report include statements about the Company's future financial performance, including its cash runway; its product pipeline and development; its business model and strategies for the development, commercialization and sales of commercial products; commercial demand for its synthetic biology solutions; the development and deployment of its PlantSpring technology platform; its ability to deploy and leverage its artificial intelligence and machine learning (AIML) capabilities; the ability to scale production capability for its BioFactory production system; potential development agreements, partnerships, customer relationships, and licensing arrangements and their contribution to its financial results, cash usage, and growth strategies; the potential impact of the COVID-19 pandemic on its business and operating results; and anticipated trends in its business. These and other forward-looking statements are predictions and projections about future events and trends based on the Company's current expectations, objectives, and intentions and are premised on current assumptions. The Company's 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 impact of increased competition, including competition from a broader array of synthetic biology companies; competition for customers, partners, and licensees and the successful execution of development and licensing agreements; disruptions at its key facilities, including disruptions impacting its BioFactory production system; flaws in AIML algorithms, insufficiency of data inputs required by such algorithms, and human error in interacting with AIML; changes in customer preferences and market acceptance of its products; changes in market consensus as to what attributes are required for a product to be considered “sustainable”; the impact of adverse events during development, including unsuccessful pilot production of plant-based chemistries or field trials; the impact of improper handling of its product candidates during development; failures by third-party contractors; inaccurate demand forecasting or milestone and royalty payment projections; the effectiveness of commercialization efforts by commercial partners or licensees; disruptions to supply chains, including raw material inputs for its BioFactory; 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; the severity and duration of the evolving COVID-19 pandemic and the resulting impact on macro-economic conditions; and other important factors discussed in Part I, Item 1A, “Risk Factors” of this Annual Report on Form 10-K, which should be considered an integral part of Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

Any forward-looking statements made by the Company in this Annual Report on Form 10-K are based only on currently available information and speak only as of the date of this report. Except as otherwise required by securities and other applicable laws, the Company does 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.

Market Data

Unless otherwise indicated, information contained in this Annual Report on Form 10-K concerning the Company's industry and the markets in which it operates is based on information from various sources, including independent industry publications. In presenting this information, the Company has also made assumptions based on such data and other similar sources, and on its knowledge of, and its experience to date in, the potential markets for its product. The industry in which the Company operates 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 this Annual Report on Form 10-K. These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by the Company.

Website Disclosure

The Company uses its website (www.calyxt.com), its corporate Twitter account (@Calyxt_Inc) and its 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 its disclosure obligations under Regulation FD. Accordingly, investors should monitor the Company's website and its corporate Twitter and LinkedIn accounts in addition to following press releases, filings with the SEC, and public conference calls and webcasts.

Additionally, the Company provides notifications of announcements as part of its website. Investors and others can receive notifications of new press releases posted on the Company's website by signing up for email alerts.

None of the information provided on the Company's website, in its press releases or public conference calls and webcasts, or through social media is incorporated into, or deemed to be a part of, this Annual Report on Form 10-K or in any other report or document it files with the SEC, and any references to its website or to its corporate Twitter and LinkedIn accounts are intended to be inactive textual references only.

JOBS Act

The Company qualifies as an “emerging growth company” as defined in the Jumpstart Our Business Startups (JOBS) Act of 2012 (the JOBS Act). As an emerging growth company, the Company may take advantage of certain reduced disclosure and other requirements that are otherwise applicable generally to public companies. Pursuant to these provisions:

- the Company is not required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002 (the Sarbanes-Oxley Act); and
- the Company has (i) reduced disclosure obligations regarding executive compensation in its periodic reports and proxy statements and (ii) exemptions from the requirements of holding a non-binding advisory vote on executive compensation, including golden parachute compensation.

The Company may take advantage of these provisions until such earlier time that it is no longer an emerging growth company.

The Company would cease to be an emerging growth company upon the earliest to occur of (1) the last day of the fiscal year in which it has more than $1.07 billion in annual revenue; (2) the date it qualifies as a “large accelerated filer,” with at least $700 million of public float (3) the issuance, in any three-year period, by the Company of more than $1.0 billion in non-convertible debt securities held by non-affiliates; and (4) the last day of the fiscal year ending after the fifth anniversary of its initial public offering, or December 31, 2022.

In addition, Section 107 of the JOBS Act also provides that an emerging growth company can use the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. This permits an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. The Company intends to take advantage of the exemptions discussed above. Accordingly, the information contained herein may be different than the information received from other public companies.

PART I

Item 1. Business.

Company Overview

Calyxt, Inc. was founded in 2010 and incorporated in Delaware. Calyxt is a plant-based synthetic biology company that leverages its proprietary PlantSpring™ technology platform to engineer plant metabolism to produce innovative, high-value plant-based chemistries for use in customers' materials and products. As plant-based solutions, the Company's synthetic biology products can be used in helping customers meet their sustainability targets and financial goals. The Company is focused on developing these synthetic biology solutions for customers in large and differentiated end markets, including the cosmeceutical, nutraceutical, and pharmaceutical industries, which are the Company's initial target markets.

The Company will produce its plant-based chemistries in its proprietary BioFactory™ production system. This strategic initiative was announced in October 2021. In the context of the Company's PlantSpring technology platform and BioFactory production system, the term "sustainable", as used in this Annual Report, refers to the plant-based chemistry production methods that use plant biomass as a raw material and are therefore renewable and do not completely use up or destroy natural resources.

The Company also out-licenses elements of the PlantSpring technology platform, has historically developed seed-trait product candidates for the traditional agriculture market, and may selectively develop products for customers in traditional agriculture. For example, in the third quarter of 2021, the Company announced it had entered into a research collaboration with a global food ingredient manufacturer based in Asia to develop an improved soybean capable of producing oil that would serve as a commercial alternative to palm oil.

The Company was previously focused on the development of traits for traditional agriculture that it planned to commercialize using either a vertically integrated or licensing business model. The Company's first commercial product, a high oleic soybean, was launched in this manner in the first quarter of 2019. In August 2020, the Company announced it was winding down the vertically integrated soybean product line. The wind-down of this product line was completed in late 2021 with the final sales of soybean grain to a large soybean processor. The Company's second product, an improved digestibility alfalfa, was developed with and licensed to S&W Seed Company (S&W). S&W is pursuing regulatory clearance for their product candidate and is targeting commercialization in 2022 at which time the Company expects to begin to receive royalty payments. The Company intends to use this licensing strategy for other historically developed, traditional agriculture seed-trait product candidates.

The Company has historically operated in a single segment primarily within the United States and its assets are located within the United States.

Prior to its initial public offering (IPO) on July 25, 2017, the Company was a wholly owned subsidiary of Cellectis S.A. (Cellectis). As of December 31, 2021, Cellectis owned 61.8 percent of the Company's issued and outstanding common stock. Cellectis has certain contractual rights as well as rights pursuant to the Company's certificate of incorporation and bylaws, in each case, for so long as it maintains threshold beneficial ownership levels in the Company's shares.

The PlantSpring Technology Platform, AIML Capabilities, and Calyxt's Development Process

The PlantSpring technology platform is founded on the Company's more than a decade of experience engineering plant metabolism and incorporates its scientific knowledge, its proprietary systems, tools and technologies, and an expanding set of artificial intelligence and machine learning (AIML) capabilities. Through the PlantSpring platform, the Company seeks to unleash the natural capabilities of plants—the original biological systems—and make available commercial innovations that produce unique plant-based chemistries from plant species, including rare or undomesticated species, in a manner that the Company believes is more robust and sustainable than other methods of production.

Plants naturally produce many chemistries that may be valuable inputs for end products. Of the approximately 170,000 known and classified compounds derived from plants, bacteria, and fungi, approximately 78 percent are derived from plants. Moreover, some estimates suggest that there may be up to one million additional chemical compounds yet to be discovered.

However, the yield of plant-based chemistries that occurs naturally may be insufficient for commercialization using traditional production methods, the plant that produces the chemistry may be scarce in nature or difficult to harvest, or there may be a socioeconomic concern with the harvest of the plant producing the chemistry. Additionally, the quality or quantity of a natural plant chemistry may be

inconsistent, varying considerably over each variety, harvest, or field, and can be impacted by different contaminants in the soil where grown.

In PlantSpring, the Company identifies metabolic pathways to produce plant-based chemistries, designs strategies to reprogram host cells, engineers plant cell metabolism to optimally produce targeted compounds, and produces those targeted compounds at laboratory scale.

The Company has implemented AIML capabilities for the identification of targets for editing specific genetic pathways and continues to develop AIML capabilities across the PlantSpring platform, which will enable learning and adaptation of knowledge gained from past activity and are expected to be combined with predictive analytics to rapidly prototype and provide feedback, accelerate the time to complete the development cycle and help mitigate the risk associated with commercial scale-up. The Company expects to leverage its deep scientific experience and vast amounts of data that it has accumulated over its history, including a large proprietary database of genomic information across numerous plant species, in its future AIML development efforts.

The Company uses an efficient development process to deliver innovation through PlantSpring platform, leveraging its extensive knowledge of plants and their metabolism when developing a plant-based chemistry. The Company's synthetic biology product development process is comprised of three primary stages: Design, Engineer, and Verify, and activities within each stage are as follows:

- Design – identify metabolic pathways to produce the target compound and the genes controlling these pathways, develop strategies for the optimized expression of the target genes, and design the technical approach to achieve the production of the targeted compound. A metabolic pathway is a linked series of chemical reactions occurring within a cell. The reactants, products, and intermediates of an enzymatic reaction are known as metabolites, which are modified by a sequence of chemical reactions catalyzed by enzymes.
- Engineer – direct changes in the plant cells using one or more genetic transformation and plant tissue culture techniques, and enhancements of genes in that plant species.
- Verify – use a combination of analytical tools to verify the compound produced against the customer's specifications. The analytical tools used include natural product chemistry, metabolomics, genomics, gene expression tools, and other analytics.

The Company has used this development process to successfully produce proof-of-concept compounds at laboratory scale—ovalbumin, a plant-based protein, and betanin, a red colorant typically derived from beets.

The development process also uses an iterative learning mechanism through which accumulated knowledge is leveraged. As the Company expands and develops its AIML capabilities, it intends to utilize them throughout the PlantSpring development cycle. The typical timeline to complete the Design-Engineer-Verify process is currently estimated at twelve months, at which point the verified chemistry would advance to pilot production. The Company is in the process of implementing AIML more broadly to assist in the identification of pathways and targets, and in scaling production beyond the laboratory. The Company has a near term focus of expanding current AIML capabilities in the Design and Engineer phases of development and expanding AIML capabilities toward optimizing pilot production, reducing production variables, and designing critical steps in the scale-up process. With the expansion and further deployment of its AIML capabilities and systematic learning as additional compounds move through the development process, the Company expects this development cycle time may be accelerated. Additional development time is required to achieve commercial scale for compounds to be produced in the BioFactory production system, as discussed below.

As the Company incorporates AIML techniques further into its development process it has the aim of accelerating development cycles and reducing development costs, improving and influencing its rapid prototyping capabilities, and discovering new pathways or new plant-derived compounds for future commercialization efforts. As a result, the Company believes it will be able to develop compounds in plants for customers at faster speeds than its competitors in the synthetic biology industry.

Commercialization Strategies

The Company intends to commercialize its PlantSpring technology platform using three strategies: (i) the development and sale of high-value synthetic biology products from the Company's proprietary BioFactory production system, (ii) the licensing of elements of the PlantSpring technology platform and historically developed, traditional agriculture seed-trait product candidates, and (iii) selective product development for customers in traditional agriculture. The Company's current focus is on development of synthetic biology products for its customers using its BioFactory production system.

The BioFactory Production System

The BioFactory is a bioreactor-based production system that is designed to be capable of continuous production of plant-based chemistries. The bioreactor can be of any size depending upon factors including yield and titer necessary to reach the required commercial scale. For production, multicellular Plant Cell Matrix™(PCM™) structures are placed inside the bioreactor, and growth media bathes the PCM structures to provide them with nutrition, which differentiates the Company's process from other methods that require complete submersion of cells in growth media. A PCM structure is a living system of various cell types, which is designed to emulate the intercellular metabolism of an entire plant, that grows over time and produces and stores, or excretes, the target chemistries. The growth media is the feedstock of the BioFactory production system and contains the essential inputs to support growth of the PCM structures and necessary chemistry production. The growth media is expected to be reused throughout the production cycle, which may run for an extended time period. To scale production in the BioFactory productions system, the Company expects to move the PCM structures from its current bioreactor into larger capacity bioreactors or groups of bioreactors.

The Company began running lab-scale bioreactors in early 2021. The Company's first pilot-scale bioreactor became operational in December 2021 and is scalable up to 200 liters. The pilot stage of development takes a compound developed with the PlantSpring platform through to commercial production. Depending on the compound to be produced, there may be a range of vessel sizes between the initial pilot facility and the commercial production facility. The Company's current plan is to engage third parties, referred to as infrastructure partners, for at-scale commercial production. Infrastructure partners are likely to be companies with processing assets that can be converted from current production to the Company's bioreactor-based approach. If an infrastructure partner is used for production, the Company expects to pay a fee for that production. Because of the expected modular nature of the BioFactory production system and the types of high value compounds the Company expects to develop for customers, it is also possible that commercial production could also occur in a customer's in-house facility. The Company expects to expand the scope of its pilot facilities based on customer demand, and the scope of production could extend, subject to regulatory and other considerations, outside the United States.

The Company believes the typical development time from initiation of the pilot stage of development through to commercialization is 24 months with the customer addressing formulation and regulatory matters. Some industries, such as pharmaceuticals, are expected to have a longer path to regulatory clearance. In combination with the Design-Engineer-Verify stages of the development process, the timeline to achieve commercial availability is currently estimated at approximately 36 months, subject to potential regulatory extensions for certain industries. As the Company broadens, develops and deploys its AIML capabilities across the development process, the Company anticipates that this timeline can be accelerated for future development efforts.

In parallel with developing additional AIML capabilities across the PlantSpring platform, the Company is developing its AIML capabilities to increase the efficiency and productivity of the BioFactory system. Synthesizing plant-based chemistry in the BioFactory system at scale involves optimizing a large number of parameters. AIML approaches to planning, designing, executing, and analyzing BioFactory production runs are expected to enable the Company to tune the operation of the BioFactory system through prediction and refinement of the optimal operating points for each targeted compound. The enormous amount of data produced by the BioFactory system will be augmented with synthetic experiments generated from the Company's process models that are expected to enable it to explore and model many more combinations of control settings than can be achieved in the absence of AIML.

Based on the customer demand-driven approach to product development that the Company is expecting to employ, it anticipates that the compounds it produces in the BioFactory system will be primarily replacements or enhancements of plant-based chemistries that are hard to source, either because they are scarce in nature or difficult to harvest, or where there may be a socioeconomic concern with the harvest of the plant producing the chemistry. The Company may also selectively explore the development of high-value and novel plant-based chemistries without a partner and may opt to bring these to market using its own resources.

The Company also believes the BioFactory system has the potential to be a highly sustainable synthetic biology production system because of its production methodology, which relies upon a limited quantity of media and nutrients in a continuous flow system that operates for long periods of time, potentially more than one year, in an operating cycle. The BioFactory system involves fewer of the sustainability challenges associated with other traditional plant-based indoor and outdoor production systems, including excess heating, cooling, fertilizer and pesticide uses, and because the BioFactory does not use fermentation, there is no off-gassing, the media can be recycled, and only depleted components are replaced resulting in lower waste levels. This production method is expected to align well with customers' goals of replacing existing compounds that may be scarce in nature, have an unstable supply chain, cannot be produced through fermentation or other similar methods, or are currently produced in a non-sustainable process, with high-value, sustainable, plant-based synthetic biology compounds.

As a result, the Company believes that in combination its PlantSpring technology platform and its BioFactory production system are capable of unlocking the power of plants to produce high value and complex plant-based chemistries that are finite, that are difficult to source sustainably, and that may not be able to be produced through other production systems, or that cannot be produced as efficiently in single cell plant culture systems.

The Company's go-to-market strategy for BioFactory-produced compounds is expected to be customer demand-driven. The strategy encompasses customer needs, the Company's development and production capabilities, and seeks to drive financial returns throughout the product's lifecycle. The Company has developed a set of criteria it employs to evaluate customer-driven opportunities and ensure focus for its development efforts. Those criteria include the nature of the customers' need, the capabilities of the BioFactory system, the estimated size of the customers' demand for targeted compound, the customers' anticipated speed of adoption, and potential financial returns.

The Company currently targets having two to four plant-based chemistries in its development process by the end of 2022.

From a financial standpoint, the Company anticipates that its customers may fund the development of their compounds, and once at-scale production is achieved, the customers are expected to purchase their compounds from the Company pursuant to supply agreements. The Company also anticipates that customers will be responsible for any regulatory activities associated with development of their commissioned compounds.

Technology Licensing & Product Development for Agriculture

In addition to the core demand-driven synthetic biology solutions to be executed through the PlantSpring platform and the BioFactory system, the Company maintains the capability to implement broad technology licensing arrangements and to selectively develop agricultural products. The Company may pursue commercial opportunities for the licensing of elements of the PlantSpring technology platform as well as historically developed, traditional agriculture seed-trait product candidates.

With respect to licensing opportunities for select elements of the PlantSpring technology platform, the opportunities span the Company's intellectual property portfolio built for more than a decade as a leading plant-based biotechnology company, including multiple gene editing platforms, plant breeding, and other capabilities. The Company's PlantSpring technology platform has been utilized to drive industry-leading modernization of the hemp species, including improved characteristics for protein and oil production and use in advanced materials. Hemp can also contribute to enhancing a wide variety of materials, including strengthening plastics, reducing petroleum-based content, and providing greater strength and longevity compared to other plant-based fabrics like linen or cotton. The Company has successfully transformed the hemp genome and also has produced "pollen-proof" (seedless) hemp with its triploid breeding technology. Combined, the Company's hemp advancements offer significant potential advantages in innovation, crop management, and harvest yield.

Additional technology-licensing activity may also continue in connection with the licensing of historically developed, traditional agriculture seed-trait product candidates, including soybeans with improved fatty-acid profiles; an improved digestibility alfalfa, which has been licensed for commercialization to S&W; wheat with a higher fiber content than traditionally bred varieties, and its second generation soybean product, which has an improved fatty acid profile compared to commodity soybeans and the Company's initial soybean product launched in 2019. Among the Company's other development successes are a soybean with improved flavor to help enable wider adoption for plant-based protein applications and controlling the production of storage sugars in potatoes to improve fry quality and reduce acrylamide. While the Company will pursue licensing opportunities for these product candidates, it expects there will be limited investment in further development until licensee customers are identified.

The Company may also continue to opportunistically develop seed-trait product candidates for customers focused on traditional outdoor agriculture market. For example, in the third quarter of 2021, the Company announced that it had entered into a research collaboration with a global food ingredient manufacturer based in Asia to develop an improved soybean capable of producing an oil that would serve as a commercial alternative to palm oil.

To manage prioritization of resources and to drive returns on its investment, the Company has developed a set of criteria by which all agricultural seed trait licensing and seed trait development opportunities are evaluated, which include the size of the overall opportunity, the nature of the product to be developed, and the amount of cash it expects to receive both up front and over time.

Research and Development

The Company's proprietary technologies and intellectual property portfolio are focused on the PlantSpring technology platform, the BioFactory production system, TALEN, and other adjacent technologies, data analytics, plant breeding, systems, and work processes.

The Company's Research and Development (R&D) team has technical expertise in AIML, biochemistry, bioinformatics, chemistry, genetics and genetic engineering, molecular biology, plant physiology, tissue culture techniques, and other related fields. The Company's R&D activities are conducted principally at its Minnesota facility. The Company's current R&D cash usage consists of the following:

- Continued investments in the development, enhancement and deployment of the Company's AIML capabilities;

- Expenses to continue to enhance the capabilities of its PlantSpring technology platform and BioFactory system, including chemistry, natural product chemistry isolation and purification, and capital assets for advanced analytics systems; and
- Various expenses and capital expenditures to expand its BioFactory production system from lab through various pilot vessel sizes.

The Company has made, and will continue to make, substantial investments in R&D. For more information on R&D expenses, see the Company's consolidated financial statements and related financial statement schedules on page F-1.

Market and Industry Overview

Calyxt believes that it has a unique opportunity to revolutionize how the world uses plants. The Company's focus is on innovating in the space where customers' needs to consume finite resources and their enhanced focus on the sustainability of the planet intersect. The global economy today faces numerous sustainability challenges, as evidenced by metrics such as carbon pollution, water scarcity, and soil erosion. To address their sustainability goals, many companies must produce products differently, and plant–based chemistries represent a differentiated and a more sustainable alternative to many products and materials in use today. More than 20 percent of the world's 2,000 largest public companies have committed to carbon-neutrality, supporting a shift to plant-based solutions.

The synthetic biology industry has expanded significantly over the past several years. New companies are being formed, investment capital is being deployed, and the number of public exits for once-private synthetic biology companies have accelerated. Companies within this group are pursuing novel methods of production to replace current approaches to the production of various compounds or products. Examples of such compounds include plant-based proteins, colorants, advanced materials, pharma-grade products (such as vaccine adjuvants and antibiotics), and many others. The Company believes it is the only company in the synthetic biology industry exclusively using plants as its core innovation species, with most competitors focused on single-cell organisms including yeast, bacteria (such as *e coli*), and algae.

Target addressable markets for the BioFactory are expected to be valuable and diverse because plant-based synthetic biology can be used to produce compounds and products relatively quickly and cost-effectively, and with many desirable sustainability features. The Company believes that potential end markets for plant-based sustainable solutions are vast. In the near term, the Company intends to focus its customer activation and development efforts in a narrower market segmentation where it believes its current BioFactory capability gives it the best opportunity to capture a share of the addressable market. These end markets include the cosmeceutical, nutraceutical, and pharmaceutical industries. These end markets contain attractive potential customers, as many significant market participants are taking action to achieve corporate sustainability targets and to reduce their carbon footprints.

The Company also maintains the capability to implement broad technology licensing arrangements and to develop agricultural product candidates. Under the technology licensing and product candidate development for agriculture strategies, the Company expects that its potential customers will primarily be seed companies, biotechnology companies, germplasm providers, large agricultural processors, and others in the relevant plant species' supply chain. The Company will also continue to opportunistically develop seed traits for customers focused on traditional agriculture.

Intellectual Property

Intellectual property protection is key to the Company. As of December 31, 2021, the Company's patent estate is composed of patents and patent applications owned by the Company and in-licensed from other parties. Most of the in-licensed patents and patent applications are licensed from Cellectis or the University of Minnesota. The license from Cellectis includes technologies invented at Cellectis, technologies invented by the Company when it was a wholly owned subsidiary of Cellectis, and technologies licensed to Cellectis from third parties. The Company also has access to additional patents and patent applications through in-licensing agreements with other research institutions and universities.

The Company's patent portfolio is categorized into three major platforms: PlantSpring, BioFactory and other products, and Licensing. Some patents and patent applications are applicable to multiple platforms, and as such are included in multiple categories.

The PlantSpring platform elements of the Company's patent portfolio is intellectual property used with its PlantSpring platform and includes gene-editing technologies and hemp breeding technologies. This portion of the Company's patent portfolio includes nearly 150 patents and patent applications worldwide.

The BioFactory and products platform elements of the Company's patent portfolio includes outputs from its BioFactory, gene edited crops, and its Plant Cell Matrix, or PCM technology. This portion of the Company's patent portfolio includes approximately 40 patents and patent applications worldwide.

The technologies available for licensing within the Company's patent portfolio includes in-licensed technology and Calyxt-originated IP, and includes gene-editing technologies (*e.g.*, TALEN®), gene-edited traits for agriculture, and hemp breeding technologies. This portion of the Company's patent portfolio includes approximately 550 patents and patent applications worldwide.

The Company is actively involved in the prosecution and protection of its technology. The Company's global patent portfolio includes approximately 68 patent families comprised of 413 patents and 125 patent applications. Of those patents, 39 have been issued in the United States, with the remaining issued in key geographies outside the United States, primarily Europe, Japan, and China. This number also includes European patents validated in individual European countries. Of those patent applications, approximately 30 are pending in the United States, with the remaining pending as international applications or country-specific applications in key geographies outside the United States.

Individual patent terms extend for varying periods of time, depending upon the date of filing of the patent application, the date of patent issuance, and the legal term of patents in the countries in which they are obtained. The issued patents that the Company has licensed in will expire on dates ranging from 2022 to 2037. If patents are issued on the pending patent applications owned by the Company or that it has in-licensed, the resulting patents are projected to expire on dates ranging from 2022 to 2042. The Company does not believe that the expiration of any patents expected to occur during 2022 would have a material effect on the Company's business, including any impact on its future operations and financial position. For more information regarding the risks related to the Company's intellectual property, please see "Risk Factors—Risks Related to Intellectual Property."

License Agreement with Cellectis

Through its license agreement with Cellectis, the Company has access to intellectual property 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. The Company believes this umbrella intellectual property applies broadly across gene editing in plants and makes it a key player in the gene editing intellectual property space.

Under its license agreement with Cellectis, the Company has exclusive sublicense rights (subject to existing non-exclusive sublicenses to third parties) to intellectual property exclusively licensed to Cellectis from the University of Minnesota in the field of researching, developing, and commercializing agricultural and food products, including traits, seeds, and feed and food ingredients (excluding any application in connection with animals or animal cells). These patent applications cover the use of DNA replicons for gene editing.

The Company has also been granted a non-exclusive license to use the TALEN trademark in connection with its use of licensed products under the agreement. Any improvements it makes to the in-licensed intellectual property are owned by the Company and licensed back to Cellectis on an exclusive basis for any use outside of its exclusive agricultural field of use. The exclusivity of the Company's license agreement with Cellectis is subject to certain non-exclusive licenses Cellectis granted to third parties in the field of research.

In consideration for the license from Cellectis, the Company is required to pay to Cellectis, on a product-by-product and country-by-country basis, a royalty of three percent of net sales less certain items as defined, including costs for grain and seed of any products that are covered by the patents licensed from Cellectis. In addition, the Company is required to pay Cellectis 30 percent of revenue it receives for sublicensing its rights under the agreement to third parties. The Company's payment obligations to Cellectis will expire upon the expiration of the last-to-expire valid claim of the patents licensed to the Company by Cellectis.

Under the Company's license agreement with Cellectis, and as between the parties, Cellectis has the first right to control the prosecution, maintenance, defense and enforcement of the licensed intellectual property and the Company will have the right to step in and assume such control with respect to the patents owned by Cellectis and exclusively licensed to it under the agreement if Cellectis elects to not prosecute, maintain, defend, or enforce such patents. In certain circumstances, if Cellectis elects to abandon any patents owned by Cellectis and exclusively licensed to the Company under the agreement, it has the right to assume ownership of such patents. In addition, some of the intellectual property that is licensed to the Company by Cellectis consists of a sublicense of intellectual property originally licensed to Cellectis by the University of Minnesota. The Company's license from Cellectis is subject to the license agreement between the University of Minnesota and Cellectis and should its activities under such sublicense violate the license agreement between Cellectis and the University of Minnesota, the Company is responsible for any related damages that Cellectis may incur. In addition, the Company is required to reimburse Cellectis for any payments made by Cellectis to the University of Minnesota pursuant to the license agreement between the University of Minnesota and Cellectis to the extent that such payments are required to be made as a result of its applicable activities. Under the license agreement between Cellectis and the University of Minnesota, the University of Minnesota has the first right to control the prosecution and maintenance of the licensed intellectual property.

The Company's license agreement with Cellectis is perpetual. However, the agreement may be terminated at any time upon the mutual written agreement of both parties, either party's uncured material breach of the agreement, or upon certain bankruptcy and insolvency related events.

License Agreement between Cellectis and Regents of the University of Minnesota—TALEN

In January 2011, Cellectis entered into an exclusive license agreement with the University of Minnesota, which was amended in 2012, 2014 and 2015. Pursuant to the agreement, as amended, Cellectis and its affiliates were granted an exclusive, worldwide, royalty-bearing, sublicensable license, under certain patents and patent applications owned by the University of Minnesota, to make, use, sell, import, and otherwise dispose of products covered by the licensed patents, in all fields of use. These licensed patents relate to TALEN molecules and their use in gene editing.

Pursuant to the agreement, with respect to the agricultural field, Cellectis is required to pay to the University of Minnesota a yearly fee, as well as a commercialization fee for every seed variety containing new traits developed using the licensed technology. Cellectis is also required to pay the University of Minnesota milestone payments based on the net sales of licensed products in the agricultural field. Cellectis must also pay the University of Minnesota certain patent-related expenses for prosecuting and maintaining the licensed patents; and under the Company's license agreement with Cellectis, it is obligated to reimburse Cellectis for these prosecution costs.

The agreement will expire upon the expiration of the last to expire valid claim of the licensed patents. The University of Minnesota may terminate the agreement upon advance written notice in the event of the insolvency or bankruptcy of Cellectis, and immediately upon written notice if Cellectis challenges the validity or enforceability of any licensed patent in a court or other applicable authority. Cellectis and the University of Minnesota may terminate the agreement by written notice in the event of the other party's breach that has not been cured within a specified number of days after receiving notice of such breach.

Trademarks

As of December 31, 2021, the Company had 24 registered trademarks in the United States.

Government Regulation and Product Compliance

The Company's PlantSpring technology platform and its BioFactory production system operate in contained environments without the need for outdoor cropping systems. Any regulated materials used under this process, such as specific bacteria, are therefore subject to well-defined regulations in the United States.

The Company's development and production processes involve the use, generation, handling, storage, transportation and disposal of hazardous chemicals and regulated biological materials. The Company is subject to a variety of federal, state, and local laws, regulations and permit requirements governing the use, generation, manufacture, transportation, storage, handling and disposal of these materials in the United States. In the future, to the extent the Company may operate or sell its products outside the United States, the Company would be subject to corresponding international laws and regulations. These laws, regulations and permits can require expensive fees, exposure or pollution control equipment or operational changes to limit actual or potential impact of the Company's technology on the environment and violation of these laws could result in significant fines, civil sanctions, permit revocation or costs from environmental remediation. Future developments, including the commencement of or changes in the processes relating to commercial manufacturing of one or more of the Company's products, more stringent environmental regulation, policies and enforcement, the implementation of new laws and regulations or the discovery of unknown environmental conditions, may require expenditures that could have a material adverse effect on the Company's business, results of operations or financial condition.

Hemp, as defined in the 2018 Farm Bill as *Cannabis sativa* containing a delta-9 tetrahydrocannabinol (THC) concentration of not more than 0.3 percent on a dry weight basis, has been removed from the United States Federal Controlled Substances Act and is legally distinct from marijuana/cannabis, which is *Cannabis sativa* containing a THC concentration of more than 0.3 percent on a dry weight basis. Hemp is recognized as an agricultural crop by the United States federal government. Federal and state laws and regulations on hemp address production, monitoring, manufacturing, distribution, and laboratory testing to ensure that that the hemp has a THC concentration of not more than 0.3 percent on a dry weight basis. Federal laws and regulations also address the transportation or shipment of hemp or hemp products.

Consistent with the 2018 Farm Bill, the Minnesota Department of Agriculture (MDA) operates a Hemp Program under its United States Department of Agriculture (USDA) approved Minnesota state plan. This plan establishes that a commercial hemp production license is required for growing and processing of hemp in the State of Minnesota. The Company holds an MDA Hemp Program License and has implemented an internal hemp compliance system including procedures, quality control and internal audits. USDA and/or MDA may audit the Company at any time for compliance with license requirements.

Additionally, Calyxt has obtained USDA permits for specific regulated materials (e.g., bacteria) that are used as part of its PlantSpring technology platform and BioFactory production system. The Company has implemented the required compliance system in order to meet USDA permit conditions and ensure adequate documentation is in place. The USDA may audit the Company at any time for compliance with permit requirements.

The BioFactory production system has the capability of producing a diverse range of plant-derived compounds that may be used for applications in cosmeceuticals, nutraceuticals, pharmaceuticals, and more. As the Company delivers these valuable compounds to its customers, each customer will be responsible for determining for which applications the compounds are utilized and such customer-determined specific uses will determine applicable regulatory requirements. It is anticipated that because the Company's customers would incorporate the purchased compounds into their existing product development processes and areas of applications, the customers will be best positioned to apply their specific expertise in the field to establish regulatory compliance and determine any additional requirements.

The Company also expects to continue to license its technology and develop seed traits for agricultural customers based on their needs. This would include the use of gene editing in crops for outdoor use. Neither the Company, nor its commercial partners, currently deploy the Company's technology for use outside of the United States with the exception of the Company’s High Oleic Soybean product, which in addition to having clearance from the USDA and FDA, also has clearance from the Canadian Food Inspection Agency and Health Canada for use in Canada. In today’s global market, overall business development strategy for plant biology companies depends, in part, on the availability of regulatory clearance in strategic export markets, which enables broader flexibility for product expansion and is a key consideration in evaluating global trade opportunities. Regulatory predictability is critical in order to establish accurate product launch strategies. The costs of achieving clearance in foreign countries is often high, due to stricter regulatory environments than the United States, and there can be no assurance the Company will be granted clearance on favorable terms, if at all.

Under the Company’s partner-driven model, agricultural customers would likely be contractually responsible for obtaining the needed global regulatory clearance for agricultural products developed by the Company or using its licensed technology. Accordingly, outside of permitting expenses incurred in the ordinary course of business, the Company does not expect compliance with government regulations, including environmental regulations, to have a material effect on the Company’s capital expenditures, earnings, or competitive position.

Competition

The market for more sustainably produced products is highly competitive, and the Company faces significant direct and indirect competition in several aspects of its business. Competition in synthetic biology is largely from fermentation-based companies who generally pursue the development of compounds by combining a single cell organism like a microbe, bacteria, or yeast with another organism’s DNA to achieve a desired result. These compounds are then marketed by third parties or directly by the fermentation company. These organizations may have substantially larger budgets for R&D, product commercialization, and regulatory process management.

Through its technology licensing, the Company believes that it faces competition from large agricultural biotechnology, seed, and chemical companies, certain of which have been actively involved in new trait discovery, development, and commercialization. Many of the Company's competitors—particularly large chemical companies—have substantially larger budgets for R&D, product commercialization, and regulatory process management. Trait research and development companies as well as research universities and institutions are competitors that typically focus on a limited number of traits and do not generally have the product development, gene editing technologies, and regulatory infrastructure necessary to bring traits to market. They generally out-license trait technologies to large industry players with in-house development and regulatory capabilities at a relatively early stage of development.

The Company believes that it can compete favorably based on its expertise and the precision, specificity, cost effectiveness and development speed of its proprietary technologies. Nevertheless, certain of the Company’s competitors are more established in the synthetic biology industry and many of the Company's current or potential competitors, either alone or with their R&D or collaboration partners, have significantly greater financial resources and expertise in R&D, manufacturing, testing, and marketing approved products than the Company.

The Company's commercial opportunity could be reduced or eliminated if its competitors develop and commercialize products faster, with lower research costs than the Company.

Human Capital

As of December 31, 2021, the Company had 55 employees, 36 of whom were in R&D. The Company's multidisciplinary R&D team includes experts in AIML, biochemistry, bioinformatics, chemistry, genetics and genetic engineering, molecular biology, plant physiology, tissue culture techniques, and other related fields. None of the Company's employees are represented by a labor union or covered by a collective bargaining agreement. The Company considers its relationship with employees to be good.

The Company's employees are a critical asset. The Company believes that a critical component to its success depends on its ability to attract, develop, and retain key personnel. Recognizing the core importance of its personnel, the Company attracts and retains human capital by providing competitive wages and benefits, providing support to employees by promoting health and safety, providing training and development that builds technical and professional skills, and adhering to its code of conduct and business ethics and labor policy at all levels.

In accordance with the Company's COVID-19 Preparedness Plan, Minnesota executive order requirements, and guidelines promoted by the Centers for Disease Control and Prevention, the Company implemented health and safety measures for the protection of its onsite workers, maintained remote work arrangements for its non-laboratory personnel, and implemented, as necessary, appropriate self-quarantine precautions for potentially affected laboratory personnel. In addition, the Company supported employees impacted by COVID-19 related school and childcare restrictions by offering flexible work arrangements and generous paid leave for those sick with COVID-19. On May 28, 2021, nearly all Minnesota COVID-19 restrictions came to an end, including all capacity limits and distancing requirements - both indoors and outdoors. The Company's non-laboratory personnel returned to working onsite in July 2021. For additional information on the impact of the COVID-19 pandemic to the Company, please see “Risk Factors—Risks Related to the Business and Operations.”

The Company values and celebrates the diversity of its employee base and provides regular opportunities to learn about contributions of various ethnic and minority groups on the culture and achievements of the United States, including scientific advancements.

Human capital management strategies are developed collectively by senior management and are overseen by the Board of Directors. The Company is committed to efforts that ensure that the workplace is respectful, equitable, ethical, and fosters an inclusive work environment across its workforce. This commitment has been reinforced through required diversity and inclusion trainings for all employees.

Seasonality

The BioFactory production system is expected to be able to produce compounds year-round in a controlled environment bioreactor, limiting the impact of seasonality that exists with traditional agriculture.

The Company maintains the capability to implement broad arrangements for technology licensing and product development for agriculture. Technology licensing opportunities span the Company’s intellectual property portfolio built over more than a decade as a leading plant-based biology company, including multiple gene editing platforms, plant breeding, and other capabilities. The Company may be exposed to the impact of seasonality that exits with traditional agriculture depending on the arrangement.

Corporate Information

The Company incorporated in Delaware on January 8, 2010, and its majority stockholder is Cellectis S.A. (société *anonyme*). The Company's principal executive offices are located at 2800 Mount Ridge Road, Roseville, MN 55113, United States of America, and its telephone number is +1 (651) 683-2807. The Company also maintains a website at www.calyxt.com. The information contained in, or that can be accessed through, its website is not part of this report.

Available Information

The Company files or furnishes periodic reports and amendments thereto, including its Annual Reports on Form 10-K, its Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, proxy statements, and other information with the Securities and Exchange Commission (SEC). On the Company's website located at www.calyxt.com, investors can obtain, free of charge, this Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and all other filings with the SEC as soon as reasonably practicable after it electronically files or furnish such information with the SEC. Information contained on the Company's website is not incorporated into this Annual Report on Form 10-K. In addition, the SEC maintains a website that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC. The website can be accessed at www.sec.gov.

Item 1A. Risk Factors.

This section includes a discussion of what the Company believes to be the material factors that make an investment in the Company speculative or risky and that could affect its business, operating results, financial condition, and the trading price of the Company's common stock. The risks described below are not the only risks the Company faces. Additional risks and uncertainties not currently known to the Company, or that the Company currently deems to be immaterial, may occur or become material in the future. You should carefully consider these risk factors in connection with Part 2, Item 7, "Management's Discussion and Analysis of Financial Conditions and Results of Operations," the consolidated financials and the other information in this Annual Report.

Risks Related to the Business and its Operations

The Company's operational and financial success depends on its ability to successfully deliver synthetic biology solutions for an expanded group of end markets, which is subject to a variety of risks and uncertainties.

Since the Company's inception, it has deployed its technology platform toward delivering plant-based innovations and solutions, primarily to the agriculture end market. In October 2021, the Company announced a strategic initiative to focus it on engineering plant-based synthetic biology solutions across an expanded group of end markets, including its initial target end-markets—the cosmeceutical, nutraceutical, and pharmaceutical markets—as well as other potential end markets, including advanced materials and chemical industries, in addition to the agriculture end market. This expanded and diversified focus places significant demands on the Company's management, requires adaptations to its operational infrastructure, and necessitates incremental capital expenditures. If the Company fails to effectively and efficiently manage and implement the strategic initiative, its business, financial condition, and results of operations would be adversely impacted. The Company would face similar adverse impacts if it is unable to differentiate its offerings and capabilities from competitors in the synthetic biology industry, who may have a more established position in the synthetic biology industry, greater financial and operational resources, and other competitive advantages, or if the Company is otherwise not successful in marketing its offerings and capabilities to new target customers.

In addition, to the extent the Company faces technological and other challenges, including unanticipated costs or delays in the development of compounds intended to be produced using the BioFactory production system, challenges adapting its technology platform for specific customer-driven plant-based chemistry needs, or the inability to effectively or efficiently scale production, its business, financial condition and results of operations would be adversely impacted.

The AIML capabilities that the Company is developing for its PlantSpring platform remain in the early stages of development, and their implementation and effectiveness could be adversely affected by flawed algorithms, insufficient datasets, or errors resulting from human intervention. Further, the BioFactory production system and the Company's ability to produce plant-based chemistries remain relatively unproven and may not be successful at scale or at all.

The market, including customers and potential investors, may be skeptical of the viability and benefits of the Company's PlantSpring technology platform, its AIML capabilities, and its BioFactory production system because they are based on a novel approach and the adoption of complex and emerging technologies. There can be no assurance that the Company's technology will be understood, approved, or accepted by customers, regulators, and potential investors or that the Company will be able to sell its services and products profitably at competitive prices and with features sufficient to establish demand. If potential investors are skeptical of the Company's technology, its ability to raise capital and the value of its common stock may be adversely affected.

Moreover, because of the novelty and complexity of the PlantSpring platform and BioFactory production system, achieving broad commercial success may require that the Company overcomes potential customer skepticism regarding its capabilities, particularly in light of the historical challenges of scaling production in the field of synthetic biology. If the Company does not achieve the technical specifications required by its customers or successfully manage new product development processes, or if development work is not performed according to schedule, then its revenue growth from new pipeline products may be prevented or delayed, and its business and operating results may be harmed.

In order for novel products from the PlantSpring technology platform and its BioFactory production system to be successfully commercialized, it will be important for the Company to establish relationships not only with customers, but also with their suppliers in order to gain visibility into market trends, feature and specification demands, and manufacturing, regulatory, and distribution challenges. If the Company is unable to convince potential customers or their suppliers of the value of its synthetic biology products, it will not be successful in entering these markets and its business and results of operations will be adversely affected.

The Company has a limited operating history, which makes it difficult to evaluate its current business and prospects and may increase the risk of an investment in the Company.

The Company is an early-stage synthetic biology company with a limited operating history that to date has been focused primarily on R&D and its previous go-to-market strategies. The Company's limited operating history may make it difficult to evaluate its current business and prospects. The Company's operating results for periods prior to October 2021 reflect results under its prior go-to-market strategies, which involved different areas of focus, different cost structures, and different sources of revenues, which, in combination with its limited operating history, may make it difficult to evaluate its current business and prospects.

In implementing the Company's current strategic focus on the development of plant-based synthetic biology products, it will encounter risks and difficulties frequently experienced by companies in rapidly developing and changing emergent industries, including challenges in developing products, determining appropriate investments of its limited resources, capital raising, and gaining customers for its novel products and innovations.

Investment in plant-based synthetic biology product development is a highly speculative endeavor. It entails significant upfront R&D investment to scale the BioFactory production system to sufficient levels to support commercialization, and there is significant risk that the Company will not be able to scale the BioFactory to these levels, or at all.

To commercialize its products, the Company must be successful in using its PCMs to produce target molecules at commercial scale and at a commercially viable cost. If the Company cannot achieve commercial scale production levels or commercially viable production economics for enough products to support its business plan, including through establishing and maintaining sufficient commercial scale and volume, it will be unable to achieve a sustainable business. The Company's commercial scale production costs depend on many factors that could have a negative effect on its ability to sell products developed for customers at competitive prices, including its ability to establish and maintain sufficient commercial scale and volume to attract third party contract manufacturing, referred to as infrastructure partners. There can be no assurance that the Company will be able to engage infrastructure partners on acceptable terms, including reasonable costs per unit of production, or at all.

If the Company is unable to achieve these economies of scale and targeted unit commercial production, its revenues, profitability, and financial condition will be adversely affected.

The Company's ability to continue as a going concern will depend on its ability to obtain additional financing which may not be available on acceptable terms or at all. Failure to obtain this necessary capital when needed may force it to delay, limit or terminate its product development efforts or other operations.

As of December 31, 2021, the Company had $14.4 million of cash, cash equivalents, and restricted cash. The Company's restricted cash is associated with its equipment financing leases and was $0.6 million as of December 31, 2021, with $0.5 million scheduled to be returned in December 2022. Current liabilities were $4.9 million as of December 31, 2021, and the Company used $18.8 million of cash for operating activities for the year then ended.

On February 23, 2022 (the February 2022 Offering), the Company issued 3,880,000 shares of its common stock, pre-funded warrants to purchase up to 3,880,000 shares of its common stock, and common warrants to purchase up to 7,760,000 shares of its common stock. In the aggregate, the Company received net proceeds of $10.0 million, after deducting approximately $0.9 million of underwriting discounts and estimated other offering expenses.

The Company has incurred losses since its inception and anticipates that it will continue to generate losses for the next several years. Over the longer term and until the Company can generate cash flows sufficient to support its operating capital requirements, it expects to finance a portion of future cash needs through (i) cash on hand, (ii) commercialization activities, which may result in various types of revenue streams from (a) future product development agreements and technology licenses, including upfront and milestone payments, annual license fees, and royalties; and (b) product sales from its proprietary BioFactory production system; (iii) government or other third-party funding, which the Company expects to be more readily available if Cellectis were to own less than 50 percent of the Company's common stock, (iv) public or private equity or debt financings, or (v) a combination of the foregoing. However, additional capital may not be available on reasonable terms, if at all.

For example, based on the Company's public float, as of the date of the filing of this Annual Report, the Company is only permitted to utilize a "shelf" registration statement, including the registration statement under which the Company's Open Market Sale Agreement℠ with Jefferies LLC (the ATM Facility), is operated, subject to Instruction I.B.6 to Form S-3, which is referred to as the "baby shelf" rules. For so long as the Company's public float is less than $75,000,000, it may not sell more than the equivalent of one-third of its public float during any 12 consecutive months pursuant to the baby shelf rules. Although alternative public and private transaction

structures are expected to be available, these may require additional time and cost, may impose operational restrictions on the Company, and may not be available on attractive terms.

The Company's ability to continue as a going concern will depend on its ability to obtain additional public or private equity or debt financing, obtain government or private grants and other similar types of funding, attain further operating efficiencies, reduce or contain expenditures, and, ultimately, to generate revenue. The Company's cash, cash equivalents, and restricted cash as of December 31, 2021, considering its plan to continue to invest in the growth and scaling of its BioFactory production system and AIML capabilities and the $10.0 million of net proceeds from the February 2022 Offering, is sufficient to fund its operations into late 2022. The Company's management has concluded there is substantial doubt regarding its ability to continue as a going concern because it anticipates that it will need to raise additional capital to support this business plan for a period of 12 months or more from the date of this filing.

If the Company is unable to raise additional capital in a sufficient amount or on acceptable terms, management may be required to implement various cost reduction and other cash-focused measures to manage liquidity and the Company may have to significantly delay, scale back, or cease operations, in part or in full. If the Company raises additional funds through the issuance of additional debt or equity securities, it could result in dilution to its existing stockholders and increased fixed payment obligations, and these securities may have rights senior to those of the Company's shares of common stock. Any of these events could significantly harm the Company's business, financial condition, and prospects.

The Company faces significant competition and many of its competitors have substantially greater financial, technical, and other resources than Calyxt.

The market for products developed with synthetic biology is highly competitive, and the Company faces significant direct and indirect competition in several aspects of its business. See "Item 1. Business – Competition". Many of these competitors have substantially greater financial, technical, marketing, sales, distribution, and other resources than the Company. Many competitors engage in ongoing R&D, and technological developments by its competitors could render the Company's technology less competitive or obsolete, resulting in reduced revenues compared to expectations. As a result, the Company may be unable to compete successfully against its current or future competitors, which may result in reductions in revenue, reduced margins, and the inability to achieve market acceptance for its products. The Company expects to continue to face significant competition.

The synthetic biology industry is still emerging and is characterized by rapid and significant technological changes, frequent new product introductions and enhancements, and evolving industry demands and standards. The Company's future success will depend on its ability to sign and initiate commercial programs using its customer demand-driven approach to selecting compounds for development and scaling the production of those compounds in its BioFactory production system. Once commercial scale production occurs those customers will need to purchase the compound and integrate it into their business. The Company's development activity needs to occur on a timely and cost-effective basis, and it will need to continue to advance its technology. Additionally, the Company's customers may face significant competition or other risks that may adversely impact their business and results of operations.

The Company's ability to compete effectively and to achieve commercial success also depends, in part, on its ability to identify and attract customers who contract with it to develop products for use in their production and contracting with those same third parties for the commercialization of those products. The Company may not be successful in achieving these factors and any such failure may adversely affect its business, results of operations and financial condition. Due to the lead time involved in developing a product for a customer using the Company's platform, its potential customers will be required to make a number of assumptions and estimates regarding the commercial feasibility of the plant-based chemistry, including assumptions and estimates regarding the demand for those end-products and processes that will utilize the plant-based chemistry developed with the Company's technology, the existence or non-existence of products being simultaneously developed by competitors, potential market penetration and obsolescence, whether planned or unplanned. As a result, it is possible that the Company may reach an agreement with a customer who wishes to develop a product that has been displaced by the time of launch, addresses a market that no longer exists or is smaller than previously thought, that end-consumers do not like or otherwise is not competitive at the time of launch, in each case, after the incurrence of significant opportunity costs by the Company to develop such a product.

From time to time, third parties who may have competed in the agriculture end market once pursued by the Company may seek to license its technology. The Company has, in the past, entered such licensing arrangements and may enter such arrangements in the future. In certain circumstances, competitors who license the Company's technology could use those technologies to develop their own products that would compete with products commercialized by the Company's agriculturally focused collaboration partners, which may impact its future royalties.

The Company also anticipates increased competition in the future as new companies enter the market and new technologies become available. The Company's technology may be rendered obsolete or uneconomical by technological advances or entirely different

approaches developed by one or more of its competitors that are more effective or that enable them to develop and commercialize products more quickly or with lower expense than the Company is able to. At the same time, the expiration of patents covering existing technologies reduces the barriers to entry for competitors. If for any reason the Company's technology becomes obsolete or uneconomical relative to competitors' technologies, this would prevent or limit its ability to generate revenues from the commercialization of its products.

If the Company cannot enter into new customer partnerships and successfully execute on the underlying product development projects to bring a customer's plant-based chemistry to commercial scale production and ultimately sell them the product, its business will be adversely affected.

The Company's approach to product development is customer demand-driven and as a result, its success depends on the number, size, and scope of customer collaborations. The Company's ability to win new business depends on many factors, including its reputation in the market, the differentiation of its PlantSpring technology platform and BioFactory production system relative to alternatives, the pricing and efficiency of its offerings relative to alternatives, its financial stability, and its technical capabilities. If the Company fails to establish a position of strength in any of these factors, its ability to either sign new customer agreements may suffer and this could adversely affect its prospects.

The Company engages in conversations about collaborations with potential customers regularly. The Company may spend considerable time and money engaging in these conversations and feasibility assessments, including understanding the technical specifications of a particular plant-based chemistry, customer concerns and limitations, and the legal or regulatory landscape of a potential program or offering, which may not result in a commercial agreement. Even if an agreement is reached, the resulting relationship may not be successful for many reasons, including the Company's inability to complete the development of a plant-based chemistry to the customers' specifications or within the customers' time frames, or unsuccessful development or commercialization of products or processes by its customers. In such circumstances, the Company's revenues from such an agreement might be meaningfully reduced.

Development of new or improved plant-based synthetic biology products that meet customer demand-driven specifications involves risks of failure inherent in the deployment of innovative and complex emerging technologies. Accordingly, if the Company or its infrastructure partners experience any significant delays in the development of new products or if new products do not meet customer specifications, its business, operating results, and financial condition would be adversely affected.

The Company intends to rely on third parties for at-scale BioFactory production and other services, and any performance issues by such third parties, or the Company's inability to engage third parties on acceptable terms, may impact the Company's ability to successfully meet its commercial obligations.

The Company's current plan is to contract with third-party infrastructure partners for at-scale BioFactory production and for other R&D services. Although the Company intends to provide for audit and/or inspection rights and will provide the infrastructure partners with protocols regarding the production and handing of its plant-based chemistries, it will have limited control over the execution of their activities. Poor execution, failure to follow required protocols or regulatory requirements, or mishandling of the plant-based chemistry by these infrastructure partners could impair success, delay production, cause the Company to incur incremental costs, or damage the customer relationship.

Even if the Company's infrastructure partners adhere to protocols, production runs and other R&D activities may fail to succeed for a variety of other reasons. Ultimately, the Company remains responsible for ensuring work performed is conducted in accordance with the applicable protocol and standards, and reliance on infrastructure partners does not relieve the Company of its responsibilities. Should these infrastructure partners fail to comply with these standards, the Company's ability to develop plant-based chemistries in accordance with customer specifications or in a timely manner could be adversely impacted.

Additionally, if the Company is unable to maintain or enter into agreements with infrastructure partners on acceptable terms, or if engagement is terminated prematurely, it may be unable to conduct or complete research, development, and production in the anticipated manner. For example, establishing and operating infrastructure partner facilities may require the Company to make significant capital expenditures, which reduces its cash and places such capital at risk. Also, infrastructure partner agreements may contain terms that commit the Company to pay for other costs and amounts incurred or expected to be earned by the plant operators and owners, which can result in contractual liability and losses for it even if it terminates a particular infrastructure partner arrangement or decides to reduce or stop production under such an arrangement. Further, the Company cannot be sure that contract manufacturers will be available when it needs their services, that they will be willing to dedicate a portion of their capacity to its projects, or that it will be able to reach acceptable price, delivery, and other terms with the infrastructure partners for the provision of their production services.

If the Company's relationship with any of these infrastructure partners is terminated, it may be unable to enter arrangements with alternative infrastructure partners on commercially reasonable terms, or at all. Switching or adding infrastructure partners can involve

substantial cost and require extensive management time and focus. In addition, there is a natural transition period when any new infrastructure partner commences work. As a result, delays may occur, which could materially impact the Company's ability to meet desired development timelines, its achievement of product-related revenues, and profitability.

If the Company's technology licensees are delayed or unsuccessful in their development activities associated with their license of the technology, its financial results could be affected.

The Company expects to license its technology and its historically developed seed-trait product candidates for traditional agriculture to third parties. If the Company's licensees are delayed, are unsuccessful in their development and commercialization efforts, or if they fail to devote sufficient time and resources to support the marketing and selling efforts of products developed using the licenses of the Company's technology, it may not receive milestone and/or royalty payments as expected, and its financial results could be harmed. Further, if these licensee customers fail to market the licensed seed-trait products or products developed with the Company's licensed technology at prices that will achieve or sustain market acceptance for those products, its future royalty revenues could be further harmed. If a product is commercialized by a licensee, its performance may also be impact by numerous risks, including competition from alternative products, product defects, changes in end-consumer demand, changes in law or regulation, or changes in economic conditions. Moreover, licensees have significant discretion in determining the efforts and resources applied to commercializing products utilizing the plant-based chemistries developed by the Company, and they may not commit sufficient resources to successfully advance a product candidate or achieve commercial success. Disputes may arise with licensees that cause the delay or termination of commercial contracts for current or future products or that results in costly litigation or arbitration that diverts management attention and resources.

Any outdoor agriculture product development agreements that the Company may enter in the future may be delayed or may be unsuccessful, which could adversely affect its financial results.

The Company may opportunistically enter into product development arrangements with third parties for the development and commercialization of certain outdoor agriculture seed traits. For example, in the third quarter of 2021, the Company announced that it had entered into a research collaboration with a global food ingredient manufacturer based in Asia to develop an improved soybean capable of producing an oil as a commercial alternative to palm oil.

To the extent the Company enters into such product development agreements, their success will depend heavily on the efforts and activities of its customer's commercialization efforts and as a result its ability to achieve milestone payments or generate royalties will not be within its direct control. If an outdoor agriculture product is commercialized by a licensee, its performance may also be impacted by numerous risks, including:

- Adverse weather conditions, natural disasters, crop disease, pests and other natural conditions;
- Climate change that may cause changes in weather patterns and conditions, including changes in rainfall and storm patterns and intensities, water shortages, changes in sea levels, and changes in temperature levels;
- Licensee field trials may be unsuccessful;
- Licensee products, and food containing those products, may fail to meet standards established by third-party non-GMO verification organizations;
- The unintended presence of the Company's traits in other products or plants may have a negative effect on the licensee's operations.

The Company is subject to various risks related to public health crises, including the COVID-19 pandemic, that could have material and adverse impacts on its business, financial condition, liquidity, and results of operations.

Any outbreaks of contagious diseases and other adverse public health developments could have a material and adverse impact on the Company's business, financial condition, liquidity, and results of operations. As has occurred with the COVID-19 pandemic, a global pandemic could cause significant disruption to the global economy, including in regions in which we, the Company's suppliers, infrastructure partners, and customers do business. A regional epidemic or global pandemic and efforts to manage it, including those by governmental authorities, could have significant impacts on national and global financial markets, and could have a significant, negative impact on the Company's and the Company's customers' operating results. Disruptions could include partial shutdowns of the Company's facilities as mandated by government decree, significant travel restrictions, "work-from-home" orders, limited availability of the Company's workforce, supplier constraints, supply chain interruptions, logistics challenges and limitations, and reduced demand from customers. The COVID-19 pandemic has had, and could continue to have, these effects on the economy and the Company's business.

The extent to which the COVID-19 pandemic will continue to impact the Company's business going forward will be dependent on future developments such as the length and severity of the crisis, the potential resurgence of the crisis, variant strains of the virus, vaccine

availability and effectiveness, future government actions in response to the crisis and the overall impact of the COVID-19 pandemic on the global economy and capital markets, among many other factors, all of which remain highly uncertain and unpredictable. This unpredictability could limit the Company's ability to respond to future developments quickly. Additionally, the impacts described above and other impacts of a global pandemic, including the COVID-19 pandemic and responses to it, could substantially increase the risk to the Company from the other risks described in this Item 1A, "Risk Factors".

Risks Related to Intellectual Property

Patents and patent applications involve highly complex legal and factual questions, which, if determined adversely to the Company, could negatively impact its competitive position.

The patent positions of biotechnology companies and other actors in the Company's fields of business can be highly uncertain and involve complex scientific, legal, and factual analyses. The interpretation and breadth of claims allowed in some patents covering biological compositions may be uncertain and difficult to determine and are often affected materially by the facts and circumstances that pertain to the patented compositions and the related patent claims. The issuance and scope of patents cannot be predicted with certainty. Patents, if issued, may be challenged, invalidated, narrowed, or circumvented. Challenges to the Company or its licensors' patents and patent applications, if successful, may result in the denial of it or its licensors' patent applications or the loss or reduction in their scope. In addition, defending against such challenges may be costly and involve the diversion of significant management time. Accordingly, rights under any of the Company or its licensors' patents may not provide it with enough protection against competitive products or processes and any loss, denial, or reduction in scope of any of such patents and patent applications may have a material adverse effect on its business.

Even if not challenged, the Company or its licensors' patents and patent applications may not adequately protect its product candidates or technology or prevent others from designing their products or technology to avoid being covered by the Company or its licensors' patent claims. If the breadth or strength of protection provided by the patents the Company owns or licenses is threatened, it could dissuade companies from partnering with it to develop, and could threaten the ability to successfully commercialize, the Company's product candidates.

If the Company or its licensors fail to obtain and maintain patent protection and trade secret protection of its product candidates and technology, it could lose competitive advantage and competition the Company faces would increase, reducing any potential revenues and have a material adverse effect on its business.

The Company will not seek to protect its intellectual property rights in all jurisdictions throughout the world and it may not be able to adequately enforce its intellectual property rights even in the jurisdictions where it seeks protection.

Filing, prosecuting, and defending patents in all countries and jurisdictions throughout the world would be prohibitively expensive. Patent protection must be sought on a country-by-country basis, which is an expensive and time-consuming process with uncertain outcomes. The Company's intellectual property rights in some countries outside the United States could be less extensive than those in the United States, assuming that rights are obtained in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, the Company may not be able to prevent third parties from practicing its inventions in all countries outside the United States, or from selling or importing products made using its inventions in and into the United States or other jurisdictions.

Competitors may use the Company's technologies in jurisdictions where it or its licensors do not pursue and obtain patent protection. Further, competitors may export otherwise infringing products to territories where the Company or its licensors have patent protection, but where the ability to enforce those patent rights is not as strong as in the United States. These products may compete with the Company's products and its intellectual property rights and such rights may not be effective or enough to prevent such competition.

In addition, changes in, or different interpretations of, patent laws in the United States and other countries may permit others to use the Company's discoveries or to develop and commercialize its technology and products without providing any notice or compensation or may limit the scope of patent protection that the Company or its licensors are able to obtain. The laws of some countries do not protect intellectual property rights to the same extent as United States laws and those countries may lack adequate rules and procedures for defending the Company's intellectual property rights.

Furthermore, proceedings to enforce the Company's licensors' and its patent rights and other intellectual property rights in foreign jurisdictions could result in substantial costs and divert its efforts and attention from other aspects of its business, could put the Company or its licensors' patents at risk of being invalidated or interpreted narrowly, could put it or its licensors' patent applications at risk of not issuing and could provoke third parties to assert claims against it or its licensors. The Company may not prevail in any lawsuits that

initiates, and the damages or other remedies awarded to it, if any, may not be commercially meaningful, while the damages and other remedies the Company may be ordered to pay such third parties may be significant. Accordingly, the Company's licensors and its efforts to enforce its intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that it develops or licenses.

Third parties may assert rights to inventions the Company develops or otherwise regards as its own.

Third parties may in the future make claims challenging the inventorship or ownership of the Company or its licensors' intellectual property. The Company has written agreements with R&D partners that provide for the ownership of intellectual property arising from the relationship. Some agreements provide that the Company must negotiate certain commercial rights at a later date and others may not include or clearly address the allocation of intellectual property rights. If the Company cannot successfully negotiate sufficient ownership and commercial rights to the inventions that result from the Company's use of a third-party partner's materials, or if disputes otherwise arise with respect to the intellectual property developed through the use of a partner's samples, the Company may be limited in its ability to capitalize on the full market potential of these inventions. In addition, the Company may face claims by third parties that its agreements with employees, contractors, or consultants obligating them to assign intellectual property to it are ineffective or are in conflict with prior or competing contractual obligations of assignment. Litigation may be necessary to resolve an ownership dispute, and if the Company is not successful, it may be precluded from using certain intellectual property and associated products and technology, which could have a material adverse effect on its business.

In addition, the research resulting in certain of the Company's in-licensed patent rights and technology was funded in part by the United States government. As a result, the United States government has certain rights to such patent rights and technology, which include march-in rights. When new technologies are developed with government funding, the government generally obtains certain rights in any resulting patents, including a non-exclusive license authorizing the government to use the invention or to have others use the invention on its behalf. The government can exercise its march-in rights if it determines that action is necessary because the Company fails to achieve practical application of the government-funded technology, or because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to United States industry. Any exercise by the government of any of the foregoing rights could have a material adverse effect on the Company's business.

Any infringement, misappropriation, or other violation by the Company of intellectual property rights of others may prevent or delay its product development efforts and may prevent or increase the costs of successful commercialization by the Company, its customers or its licensees.

The Company's success will depend in part on its ability to operate without infringing, misappropriating, or otherwise violating the intellectual property and proprietary rights of third parties. The Company cannot assure that its business operations, products developed, historically developed agriculture-focused product candidates, and methods and the business operations, products, product candidates and methods of its customers or licensees do not or will not infringe, misappropriate, or otherwise violate the patents or other intellectual property rights of third parties.

The biotechnology industry is characterized by extensive litigation regarding patents and other intellectual property rights. Other parties may allege that the Company's product development activities, products, product candidates or the use of its technologies infringe, misappropriate, or otherwise violate patent claims or other intellectual property rights held by them or that it is employing their proprietary technology without authorization. Patent and other types of intellectual property litigation can involve complex factual and legal questions, and their outcome is uncertain. Any claim relating to intellectual property infringement that is successfully asserted against the Company may require it to pay substantial damages, including treble damages and attorneys' fees if it or its partners are found to be willfully infringing another party's patents, for past use of the asserted intellectual property and royalties and other consideration going forward if the Company is forced to take a license. Such a license may not be available on commercially reasonable terms, or at all. Even if the Company was able to obtain a license, it could be non-exclusive, thereby giving its competitors access to the same intellectual property rights or technologies licensed to the Company. In addition, if any such claim were successfully asserted against the Company and it could not obtain a license, the Company or its partners may be forced to stop or delay developing, manufacturing, selling or otherwise commercializing its products, product candidates or other infringing technology, or those it develops with its R&D partners.

Even if the Company is successful in these proceedings, it may incur substantial costs and divert management time and attention pursuing these proceedings, which could have a material adverse effect on the organization. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of the Company's confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of the Company's common stock. Such litigation or proceedings could

substantially increase the Company's operating losses and reduce the resources available for development activities or any future sales, marketing, or distribution activities. If the Company is unable to avoid infringing the patent rights of others, it may be required to seek a license, defend an infringement action, or challenge the validity of the patents in court, or redesign its products. Patent litigation is costly and time consuming. The Company may not have enough resources to bring these actions to a successful conclusion.

Any of these risks coming to fruition could have a material adverse effect on the Company's business, results of operations, financial condition, and prospects.

The Company may be unsuccessful in developing, licensing, or acquiring intellectual property that may be required to develop and commercialize its product candidates.

The Company's programs may involve additional product candidates that may require the use of intellectual property or proprietary rights held by third parties; the growth of its business may depend in part on its ability to acquire, in-license or use these intellectual property and proprietary rights. However, the Company may be unable to acquire or in-license any third-party intellectual property or proprietary rights that may be key to development. Even if the Company can acquire or in-license such rights, it may be unable to do so on commercially reasonable terms. The licensing and acquisition of third-party intellectual property and proprietary rights is a competitive area, and several more established companies are also pursuing strategies to license or acquire third-party intellectual property and proprietary rights that the Company may consider attractive or necessary. These established companies may have a competitive advantage over the Company due to their size, capital resources and agricultural development and commercialization capabilities.

In connection with his appointment as chair of the Scientific Advisory Board, Dr. Dan Voytas is no longer the Company's Chief Science Officer, a position he held from the Company's founding in January 2010 through February 2021. The consulting agreement with Dr. Voytas, while he served as Chief Science Officer, and the current engagement letter with Dr. Voytas, as chair of the Scientific Advisory Board, each generally obligates Dr. Voytas to assign to the Company any intellectual property solely or jointly conceived, developed or reduced to practice by him in the course of the performance of his services to the Company. However, the Company does not have any rights, including any assignment or right of first refusal rights, to intellectual property conceived, developed, or reduced to practice by Dr. Voytas outside the course of the performance of his services to the Company, including in connection with his employment at the University of Minnesota.

In addition, companies that perceive the Company to be a competitor may be unwilling to assign or license intellectual property and proprietary rights to the Company. The Company also may be unable to license or acquire third-party intellectual property and proprietary rights on terms that would allow it to make an appropriate return on its investment or at all. If the Company is unable to successfully acquire or in-license rights to required third-party intellectual property and proprietary rights or maintain the existing intellectual property and proprietary rights the Company has, it may have to cease development of the relevant program, product, or product candidate, which could have a material adverse effect on its business.

The Company licenses a portion of its intellectual property from Cellectis, its majority stockholder, and the University of Minnesota.

The Company relies on the intellectual property it licenses from Cellectis and the University of Minnesota. If it does not comply with obligations under the license agreements, it may be subject to damages, which may be significant, and in some cases Cellectis and/or the University of Minnesota may have the right to terminate the license agreement. Any termination of the Company's license agreement with Cellectis or the University of Minnesota could have a material adverse effect on its business and results of operations.

Moreover, any enforcement of the licensed intellectual property could be subject it to challenge by third parties and if any such challenge is successful, such intellectual property could be narrowed in scope or held to be invalid or unenforceable, which could materially impair any competitive advantage afforded to the Company by such intellectual property. There can be no assurance that Cellectis or the University of Minnesota will prosecute and maintain such intellectual property in the best interests of the Company's business or at all, and, if Cellectis or the University of Minnesota fails to properly prosecute and maintain such intellectual property, the Company could lose rights to such intellectual property, which would materially impair any competitive advantage afforded to it by such intellectual property. For more information regarding the Company's license agreement with Cellectis or the license agreement between Cellectis and the University of Minnesota, please see "Business—Intellectual Property."

Risks Related to Regulatory and Legal Matters

Ethical, legal, and social concerns about products using genetically modified or edited plant cells could limit or prevent the use of the Company's products and technologies and could harm its business.

The Company's technologies and products involve the use of genetically modified or edited plant cells. Public perception about the safety of, and ethical, legal, or social concerns over, genetically engineered products, including genetically modified or edited plant genetic materials, could affect public acceptance of the Company's products. If the Company is not able to overcome any such concerns relating to its products, these technologies may not be accepted by its customers or end-users of the customers' products that incorporate the Company's products. In addition, the use of genetically modified or edited plant cells has in the past received negative publicity, which could lead to greater regulation or restrictions on imports of the Company's products. If the Company's technologies and products are not accepted by its customers or their end-users due to negative publicity or lack of public acceptance, the Company's business could be materially harmed.

The Company may become subject to increasing regulation as a result of its hemp development activities, which could require it to incur additional costs associated with compliance requirements.

The Company has developed hemp product candidates and is currently exploring licensing opportunities in the crop. Hemp is legally distinct from marijuana and recognized as an agricultural crop by the United States government. Federal and state laws and regulations on hemp address production, monitoring, manufacturing, distribution, and laboratory testing to ensure that that the hemp has a THC concentration of not more than 0.3 percent on a dry weight basis. Federal laws and regulations may also address the transportation or shipment of hemp or hemp products. It is difficult to predict whether regulators, such as the USDA or the MDA, will alter the manner in which they interpret existing federal and state laws and regulations on hemp or institute new regulations, or otherwise modify regulations in a way that will render compliance more burdensome. As the Company continues to pursue hemp as a product candidate, it may become subject to increasing regulation particular to hemp, which could require it to incur additional costs associated with compliance requirements.

The regulatory environment outside the United States varies greatly from jurisdiction to jurisdiction and there is less certainty how the Company's products will be regulated.

The regulatory environment around gene editing and genetic modification in plants is greatly uncertain outside of the United States and varies greatly from jurisdiction to jurisdiction. Each jurisdiction may have its own regulatory framework regarding genetically modified and gene edited products and materials, which continue to evolve, and which may encapsulate the Company's products. To the extent regulatory frameworks outside of the United States are not receptive to the Company's genetic modification and gene editing technologies, this may limit its ability to expand into other global markets.

Complying with the regulatory requirements outside the United States will be costly and time-consuming, and there is no guarantee the Company will be able to commercialize its products outside the United States. Such regulatory requirements may also inhibit the Company's ability to market and sell its products to customers located outside of the United States.

The Company cannot predict whether or when any jurisdiction will change its regulations with respect to its products. Advocacy groups have engaged in publicity campaigns and filed lawsuits in various countries against companies and regulatory authorities, seeking to halt regulatory approval or clearance activities or influence public opinion against genetically engineered and/or gene edited products. In addition, governmental reaction to negative publicity concerning the Company's products could result in greater regulation of genetic research and derivative products or regulatory costs that render its products cost prohibitive.

The scale of the industries in which the Company intends as the end markets for its products may make it difficult to monitor and control the distribution of the Company's products. As a result, the Company's products may be sold inadvertently within jurisdictions where they are not approved for distribution. Such sales may lead to regulatory challenges or lawsuits against the Company, which could result in significant expenses and management attention.

The Company may use biological materials in its business and is subject to numerous environmental, health and safety laws and regulations. Compliance with such laws and regulations and any claims relating to improper handling, storage or disposal of these materials could be time consuming and costly.

The Company is subject to numerous federal, state, local and foreign environmental, health and safety laws and regulations, including those governing laboratory procedures, the handling, use, storage, treatment, manufacture and disposal of hazardous materials and wastes, discharge of pollutants into the environment and human health and safety matters. The Company's R&D processes involve the controlled use of hazardous materials, including biological materials. The Company may be sued for any injury or contamination that results from its use or the use by third parties of these materials, or may otherwise be required to remediate such contamination, and its liability may exceed any insurance coverage and its total assets. Compliance with environmental, health and safety laws and regulations may be expensive and may impair the Company's R&D efforts. If the Company fails to comply with these requirements, it could incur substantial costs and liabilities, including civil or criminal fines and penalties, clean-up costs or capital expenditures for control

equipment or operational changes necessary to achieve and maintain compliance. In addition, the Company cannot predict the impact on its business of new or amended environmental, health and safety laws or regulations or any changes in the way existing and future laws and regulations are interpreted and enforced. These current or future laws and regulations may impair the Company's research, development or production efforts or result in increased expense of compliance.

The regulatory environment in the United States is uncertain and evolving and may impact our customers' willingness to utilize the Company's products.

The Company anticipates that its customers will be responsible for any regulatory activities associated with development of compounds commissioned from the Company. Such regulatory activities may involve significant expense and changes in applicable regulatory requirements could result in substantial increases in the time and costs associated with such activities. It is difficult for the Company and its customers to predict whether regulators, such as the USDA or FDA, will alter the manner in which they interpret existing laws and regulations or institute new regulations, or otherwise modify regulations in a way that will subject products utilizing the Company's synthetic biology products to more burdensome standards, thereby substantially increasing the time and costs associated with the regulatory activities of its customers. If the regulatory burden and expense required for the utilization of the Company's products becomes too significant, its customers may seek alternatives that involve lesser regulatory costs.

If the Company is sued for defective products and if such lawsuits were determined adversely, it could be subject to substantial damages, for which insurance coverage is not available.

The Company expects that some applications of its products will be used as components of customers' end products and therefore its success will be tied, in part, to the success of such end products. The Company cannot be certain that material performance problems, defects, errors or delays will not arise in its products or the end products in which they are used as components.

The Company expects to provide warranties that its products will meet customer specifications. The costs incurred in correcting any failures to meet such specifications may be substantial and could adversely affect the Company's business. If the Company's products or the end products of which they are components, contain defects or are delayed, it may experience:

- a failure to achieve commercial traction with the Company's target customers;
- loss of customer contracts or delays in fulfilling the Company's contractual obligations;
- damage to the Company's brand reputation;
- product recalls or replacements;
- inability to attract new customers and collaboration opportunities;
- diversion of resources from the Company's R&D and sales activities; and
- legal and regulatory claims against the Company, including product liability claims, which could be costly, time consuming to defend, result in substantial damages and result in reputational damage.

Risks Related to Ownership of the Company's Common Stock and its Relationship with Cellectis

The market price of the Company's common stock has been and could remain volatile, which could adversely affect the market price of its common stock.

The market price of the Company's common stock has experienced, and may continue to experience, volatility in response to various factors, such as:

- the Company's strategic initiatives and technologies;
- fluctuations in the Company's financial results or outlook or peer companies;
- changes in estimates of the Company's financial results or recommendations by securities analysts;
- changes in the Company's capital structure, such as future issuances of common stock or the incurrence of debt;
- announcements by the Company or its competitors of significant contracts, acquisitions or strategic partnerships;
- regulatory developments in the United States, and/or other foreign countries;
- litigation involving the Company, its general industry or both;
- additions or departures of key personnel;
- investors' general perception of the Company; and
- changes in general economic, industry and market conditions affecting the Company or Cellectis; and
- the ongoing impacts of the COVID-19 pandemic and resulting impact on stock market performance.

Furthermore, stock markets have experienced price and volume fluctuations that have affected, and continue to affect, the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market fluctuations, as well as general economic, political and market conditions, such as recessions, interest rate changes and international currency fluctuations, may negatively affect the market price of the Company's common stock.

Certain rights that Cellectis possesses will prevent other stockholders from influencing significant decisions, even after Cellectis' ownership of Calyxt common stock falls substantially below a majority.

As of December 31, 2021, Cellectis owned 61.8 percent of the Company's outstanding shares of common stock. Pursuant to the stockholders' agreement between the Company and Cellectis, Cellectis will continue to retain substantial rights with respect to the Company for so long as it beneficially owns at least 15 percent of the outstanding shares of the Company's common stock (Continuing Cellectis Rights).

The Continuing Cellectis Rights, include the right to nominate a number of designees for the Company's board of directors representing a majority of the directors, to designate the Chairman of the board of directors and to have at least one designated director serve on each board committee. In addition, the Continuing Cellectis Rights include information rights for Cellectis, as well as approval rights over a significant number of key aspects of the Company's operations and management, including certain changes to Calyxt's constitutive documents, the making of any regular or special dividends, the commencement of any voluntary bankruptcy proceeding or any consent to any bankruptcy proceeding, any appointment to or removal from the board of directors, and the consummation of any public or private offering, merger, amalgamation or consolidation of Calyxt, the spinoff of a business of the Company, or any sale, conveyance, transfer or other disposition of Calyxt's assets.

For so long as Cellectis continues to hold at least 50 percent of the outstanding shares of the Company's common stock, Cellectis possesses approval rights over a broader, more expansive number of key aspects of its operations and management, as set forth in the stockholders' agreement. Cellectis' rights under the stockholders agreement, including the Continuing Cellectis Rights, are incorporated into, and form a part of, the Company's certificate of incorporation and bylaws, which makes any amendment, repeal or modification of such rights burdensome.

Following the date on which Cellectis and its affiliates no longer beneficially own more than 50 percent of the outstanding shares of Common Stock of the Company:

- the Company's Board of Directors will switch to a staggered board divided into three classes, with directors serving three-year terms;
- no director may be removed by the stockholders except for cause upon a majority vote of the stockholders;
- stockholder action may only be taken upon a majority vote of stockholders at a duly noticed stockholder meeting called in accordance with the Company's bylaws and may not be taken by written consent without a meeting;
- special stockholder meetings may be called only by a majority of the entire board of directors and not by the stockholders;
- the Company shall be governed by Section 203 of the Delaware General Corporation Law, which, subject to certain exceptions, prohibits a public Delaware corporation from engaging in a business combination (as defined in such section) with an "interested stockholder" (defined generally as any person who beneficially owns 15 percent or more of the outstanding voting stock of such corporation or any person affiliated with such person) for a period of three years following the time that such stockholder became an interested stockholder, unless certain conditions are satisfied; and
- specified provisions of the Company's Certificate of Incorporation and Bylaws, including those described in this risk factor, may not be repealed, amended or modified, unless such action is approved by a super-majority (66 2/3 percent) stockholder vote of all outstanding voting securities.

In addition, following the first date on which Cellectis no longer beneficially owns more than 50 percent of the Company's outstanding common stock, certain provisions of the Company's certificate of incorporation, bylaws and other agreements may make it more difficult for the Company's stockholders to influence its decisions or for a third party to acquire control of the Company, or may discourage a third-party from attempting to acquire control of the Company, in each case, even if these actions were considered beneficial by many stockholders or might involve transactions in which the Company's stockholders might otherwise receive a premium for their shares of the Company's common stock. Further, these provisions could limit the price that investors might be willing to pay in the future for shares of the Company's common stock, possibly depressing the market price of its common stock. As a result, stockholders may be limited in their ability to obtain a premium for their shares both while ownership of the Company's common stock is concentrated with Cellectis and after such time it is not.

As a result of the foregoing rights, Cellectis currently controls the direction of the Company's business and is expected, for so long as it holds 15 percent of the Company's outstanding common stock, to continue to have extensive influence over important operational

decisions. The extent of Cellectis' influence and the nature of its rights could prevent other stockholders from influencing significant decisions of the Company.

Future sales and issuances of the Company's common stock could result in additional dilution of the percentage ownership of its stockholders and could cause the stock price to decline.

From time to time, the Company has sold a substantial number of shares of its common stock, which results in dilution to the Company's stockholders. In the future, the Company may sell additional equity securities in one or more transactions at prices and in a manner the Company determines from time-to-time, to finance its business operations and investments. To the extent the Company raises capital by issuing equity securities, its stockholders may experience substantial dilution.

If Cellectis sells a substantial number of shares of the Company's common stock in either the private or public markets, the market price of the Company's common stock could decrease materially. The perception in the public market that these stockholders might sell the Company's common stock could also depress the market price of its common stock and could impair the Company's future ability to obtain capital, especially through an offering of equity securities.

Shares of the Company's common stock issued or issuable under its equity incentive plans to employees and directors have been registered on Form S-8 registration statements and may be freely sold in the public market upon issuance.

If Cellectis sells a controlling interest in the Company to a third party, stockholders may not realize any change-of-control premium on shares of the Company's common stock.

Cellectis has the ability, should it choose to do so, to sell some or all its shares of the Company's common stock to a third party, which, if sufficient in size, could result in a change of control of the Company. In certain circumstances, a third-party buyer may not be willing to pay a premium over the current market price of the Company's common stock to acquire a controlling interest in Calyxt. The Company's stockholders would not have the right to participate in Cellectis' sale of its common stock to a third-party buyer nor would the third-party buyer be required to make an offer to acquire shares of the common stock from any stockholder other than Cellectis.

If Cellectis sold a controlling interest to a third party, any change-of-control premium on shares of the Company's common stock would only accrue to Cellectis and not to any of the Company's other stockholders. Additionally, through its ownership of a majority of its common stock and its contractual rights under the stockholders' agreement, Cellectis will also determine whether a change of control of Calyxt occurs and if so, on what terms. In certain circumstances, including in connection with a proposed sale of Calyxt, Cellectis' interests as a stockholder of Calyxt may be different than the interests of other stockholders.

Future sales of common stock by Cellectis or others of the Company's common stock, or the perception that such sales may occur, could depress the market price of its common stock.

As of December 31, 2021, Cellectis owned 61.8 percent of the Company's outstanding shares of common stock. Future sales of these shares in the public market will be subject to the volume and other restrictions of Rule 144 under the Securities Act for so long as Cellectis is deemed to be the Company's affiliate, unless the shares to be sold are registered with the SEC. If Cellectis were to register its shares with the SEC, it could dispose of them at will. The Company is unable to predict with certainty whether or when Cellectis will sell a substantial number of shares of the Company's common stock. The sale by Cellectis of a substantial number of shares, or a perception that such sales could occur, could significantly reduce the market price of the Company's common stock.

Cellectis and the Company's directors who have relationships with Cellectis may have conflicts of interest with respect to matters involving the company.

The Company's certificate of incorporation provides that none of Cellectis, or any of its officers, directors, agents, shareholders, members, partners, subsidiaries (other than Calyxt and any future subsidiaries) and their affiliates will be liable to the Company or its stockholders for breach of any fiduciary duty by reason of the fact that Cellectis or any such individual directs a corporate opportunity to Cellectis or its affiliates instead of the Company, or does not communicate information regarding a corporate opportunity to the Company that such person or affiliate has directed to Cellectis or its affiliates.

The Company's certificate of incorporation also provides that neither Cellectis nor any of its affiliates or any of the Company's nonemployee directors will have any duty to refrain from engaging in a corporate opportunity in the same or similar lines of business in which it or any future subsidiaries now engage or propose to engage or otherwise competing with it or any of its future subsidiaries.

The Company's license agreement with Cellectis does not restrict Cellectis from competing with the Company generally. Cellectis could develop and commercialize agricultural and food products that may compete with the Company's current products or products in its pipeline using Cellectis intellectual property or technologies other than the gene editing technologies Cellectis has licensed to the Company. Cellectis could also use the licensed gene editing technologies to develop and commercialize products involving animals and animal cells and these animal-based products may be competitive with the Company's plant-based products in certain circumstances.

One of the Company's directors, Laurent Arthaud, is also a director of Cellectis, and Cellectis has the right to designate additional directors to serve on the Calyxt board of directors. Mr. Arthaud and any other directors designated by Cellectis who have relationships with Cellectis will have fiduciary duties to the Company and in addition will have duties to Cellectis.

Accordingly, there may be real or apparent conflicts of interest with respect to matters affecting both the Company and Cellectis, whose interests, in some circumstances, may be different than the interests of other stockholders or its interests.

The concentration of ownership of the Company's common stock and provisions in its Certificate of Incorporation, Bylaws and Delaware law may prevent or delay an acquisition of the Company, which could decrease the trading price of its common stock.

The fact that Cellectis owns 61.8 percent of the Company's common stock and Cellectis' rights under the stockholders' agreement to approve a sale of Calyxt and other changes to the Board of Directors and management will prevent a third party from attempting to acquire control of Calyxt and prevent changes to the Board of Directors or management, even if a sale of Calyxt or the changes would be considered beneficial by many stockholders other than Cellectis.

Following the first date on which Cellectis no longer beneficially owns more than 50 percent of the outstanding shares of the Company's common stock, certain provisions of its certificate of incorporation, bylaws and other agreements may make it more difficult for a third party to acquire or discourage a third-party from attempting to acquire control of Calyxt. These provisions could also make it more difficult for a third party to acquire the Company, even if the third party's offer may be considered beneficial by many stockholders, including transactions in which its stockholders might otherwise receive a premium for their shares of the Company's common stock. Further, these provisions could limit the price that investors might be willing to pay in the future for shares of the Company's common stock, possibly depressing the market price of its common stock. As a result, stockholders may be limited in their ability to obtain a premium for their shares both while ownership of the Company's common stock is concentrated with Cellectis and after.

The Company is a "controlled company" within the meaning of the rules of the NASDAQ and, as a result, relies on exemptions from certain corporate governance requirements. The Company's stockholders do not have the same protections afforded to stockholders of companies that are subject to such requirements.

Because Cellectis controls the majority of the voting power of the Company's outstanding common stock, it is a "controlled company" within the meaning of the corporate governance standards of the NASDAQ. Under these rules, a listed company of which more than 50 percent of the voting power is held by an individual, group or another company is a "controlled company" and may elect not to comply with certain corporate governance requirements, including the requirement to have a majority independent board of directors or fully independent nominating and compensation committees. The Company is relying upon and expects to continue to rely upon some of these exemptions from the NASDAQ corporate governance requirements. Accordingly, not all stockholders will have the same protections afforded to stockholders of companies that are subject to all the corporate governance requirements of the NASDAQ.

The Company is an "emerging growth company" and has reduced disclosure requirements that may make its common stock less attractive to investors.

The Company is an "emerging growth company," as defined in the JOBS Act, and takes advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not "emerging growth companies" including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in its periodic reports and proxy statements, and not being required to submit certain executive compensation matters to stockholder advisory votes, such as "say-on-pay," "say-on-frequency" and "say-on-golden parachutes". Investors may find the Company's common stock less attractive because of its reliance on these exemptions and, as a result, there may be a less active trading market for its common stock and its stock price may be more volatile.

The Company's ability to use its net operating losses to offset future taxable income may be subject to certain limitations.

As of December 31, 2021, the Company had approximately $228.5 million of net operating losses, or NOLs, for federal and state income tax purposes, which may be available to offset federal income tax liabilities in the future. In addition, the Company may generate

additional NOLs in future years. The Company has established a full valuation allowance for its deferred tax assets, including NOLs, due to the uncertainty that enough taxable income will be generated to utilize the assets.

The Company's ability to utilize its NOLs may be limited if it experiences an "ownership change" as defined in Section 382 (Section 382) of the Internal Revenue Code of 1986, as amended. An ownership change generally occurs if certain direct or indirect five percent shareholders increase their aggregate percentage ownership of a corporation's stock by more than 50 percentage points over their lowest percentage ownership at any time during the testing period, which is generally the three-year period preceding any potential ownership change.

There is no assurance that the Company will not experience a current or future ownership change under Section 382 that would significantly limit or possibly eliminate its ability to use its NOLs. Current or potential future transactions by the Company involving the sale or issuance of its common stock or pre-funded warrants, or the exercise of common warrants, or a combination of such transactions, may result in ownership changes under Section 382. In addition, the Company may experience ownership changes as a result of shifts in the direct or indirect ownership of its stock, some of which may be outside of its control.

Under Section 382, a current or future ownership change would subject the Company to an annual limitation that applies to the amount of pre-ownership change NOLs that may be used to offset post-ownership change taxable income. This limitation is generally determined by multiplying the value of a corporation's stock immediately before the ownership change by the applicable long-term tax-exempt rate. Any unused annual limitation may, subject to certain limits, be carried over to later years, and the limitation may under certain circumstances be increased by built-in gains in the assets held by such corporation at the time of the ownership change. This limitation could cause the Company's U.S. federal income taxes to be greater, or to be paid earlier, than they otherwise would be, and could cause some of its NOLs to expire unused. Similar rules and limitations may apply for state income tax purposes. There is also a risk that future legal or regulatory changes may limit the Company's ability to use current or future NOLs to offset its future federal income tax liabilities.

Risk Related to the Organization and Governance

Changes to the Company's strategic business focus have placed significant demands on the Company's management and the Company's infrastructure.

Since the Company's initial public offering, the strategic focus of the business has undergone changes. Most recently, in October 2021, the Company announced the launch of a strategic initiative which focused it on engineering synthetic biology solutions. The changes to the Company's strategic focus has placed, and may continue to place, significant demands on the Company's management and its operational and financial infrastructure. Managing a significant change in business focus requires significant expenditures and allocation of valuable management resources. If the Company fails to achieve the necessary level of efficiency in its organization as it evolves, its business, financial condition and results of operations would be adversely impacted.

The Company depends on key management personnel and attracting and retaining other qualified personnel, and its business could be harmed if it loses key management personnel or cannot attract and retain other qualified personnel.

The Company's success depends to a significant degree upon the technical skills and continued service of certain members of its management and other key employees. The loss of the services of the Company's management or key employees may delay or prevent the timely and successful execution of its business strategies and objectives. The Company's business is dependent on its ability to recruit and maintain a highly skilled and educated workforce with expertise in a range of disciplines, including biology, biochemistry, plant genetics, mathematics, and other subjects relevant to its operations. The Company's ability to successfully implement its strategic focus also depends on recruiting and retaining personnel with the necessary background and ability to understand its systems at a technical level to effectively identify and sell to potential new customers. Competition for these highly skilled employees is intense.

To attract top talent, the Company believes it will need to offer competitive compensation and benefits packages, including equity incentive compensation, which may require significant investment. If the Company is unable to offer competitive compensation this may make it more difficult for it to attract and retain key employees. Moreover, if the perceived value of the Company's equity awards declines, it may adversely affect the Company's ability to attract and retain key employees. Further, all of the Company's current employees are employed at-will and could depart with little or no prior notice. If the Company does not maintain the necessary personnel to accomplish its business objectives, it may experience staffing constraints that adversely affect its ability to support its R&D programs, customer acquisition efforts, and operations.

There can be no assurance that the Company will be successful in attracting or retaining such personnel and the failure to do so could have a material adverse effect on its business, financial condition, and results of operations.

The Company's business and operations would suffer in the event of computer system failures, cyber-attacks, or a deficiency in its cyber-security.

Increased information systems security threats, cyber- or phishing-attacks and more sophisticated, targeted computer invasions pose a risk to the security of the Company's systems and networks, and the confidentiality, availability, and integrity of its data, operations, and communications, and the exposure to such risks is enhanced in the Company's remote work environment as a result of the COVID-19 pandemic. Cyber-attacks against the Company's technology platform and infrastructure could result in exposure of confidential information, the modification of critical data, and/or the failure of critical operations. Likewise, improper or inadvertent employee behavior, including data privacy breaches by employees and others with permitted access to the Company's systems, may pose a risk that sensitive data may be exposed to unauthorized persons or to the public. While the Company attempts to mitigate these risks by employing a number of measures, including security measures, employee training, comprehensive monitoring of networks and systems, maintenance of backup and protective systems, and incident response procedures, if these measures prove inadequate, the Company could be adversely affected by, among other things, loss or damage of intellectual property, proprietary and confidential information, data integrity, and communications or customer data, increased costs to prevent, respond to, or mitigate these cyber security threats and interruptions of its business operations.

The Company's business activities are currently conducted at a limited number of locations, which makes it susceptible to damage or business disruptions caused by natural disasters or acts of vandalism.

The Company's current headquarters and R&D facilities, which include an office, labs, the BioFactory pilot facility, greenhouses, and field-testing plots are in Roseville, Minnesota. The Company takes precautions to safeguard its facilities, including insurance, health and safety protocols, and off-site storage of critical research results and computer data. Although the Company maintains levels of insurance that it believes are customary for its industry, its insurance policies may not cover certain losses, or losses may exceed the Company's coverage limits. A natural disaster, such as a hurricane, drought, fire, flood, tornado, earthquake, or other intentional or negligent acts, including acts of vandalism, could damage or destroy the Company's equipment, inventory, development projects, data, and cause it to incur significant additional expenses to repair or replace the damaged physical facilities, which increase the development schedule for the products under development for customers.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

The Company leases a 44,000 square-foot corporate headquarters facility in Roseville, Minnesota. The facility includes office, research laboratories, the first pilot BioFactory production system, greenhouses, and outdoor growing plots. The lease has an initial term that began in May 2018 and expires on the last day of May 2038, with monthly base rent of $0.1 million for the first five years with scheduled rent increases every five years thereafter until the end of the lease. The Company has the option to extend the term of the lease for four successive additional renewal terms of five years each commencing at the expiration date of the initial term, with monthly base rent set for each of these renewal terms. Cellectis has guaranteed all obligations under the lease, as discussed in Note 7 to the Consolidated Financial Statements, "Leases, Other Commitments, and Contingencies".

Item 3. Legal Proceedings

The Company is not a party to any material pending legal proceedings as of December 31, 2021. From time to time, the Company may be involved in legal proceedings arising in the ordinary course of business.

Item 4. Mine Safety Disclosures.

Not Applicable.

PART II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities

The Company's common stock has traded on the NASDAQ Global Market under the ticker symbol of CLXT since its initial public offering on July 25, 2017. Prior to that time, there was no established public trading market for the Company's common stock.

Holders of Common Stock

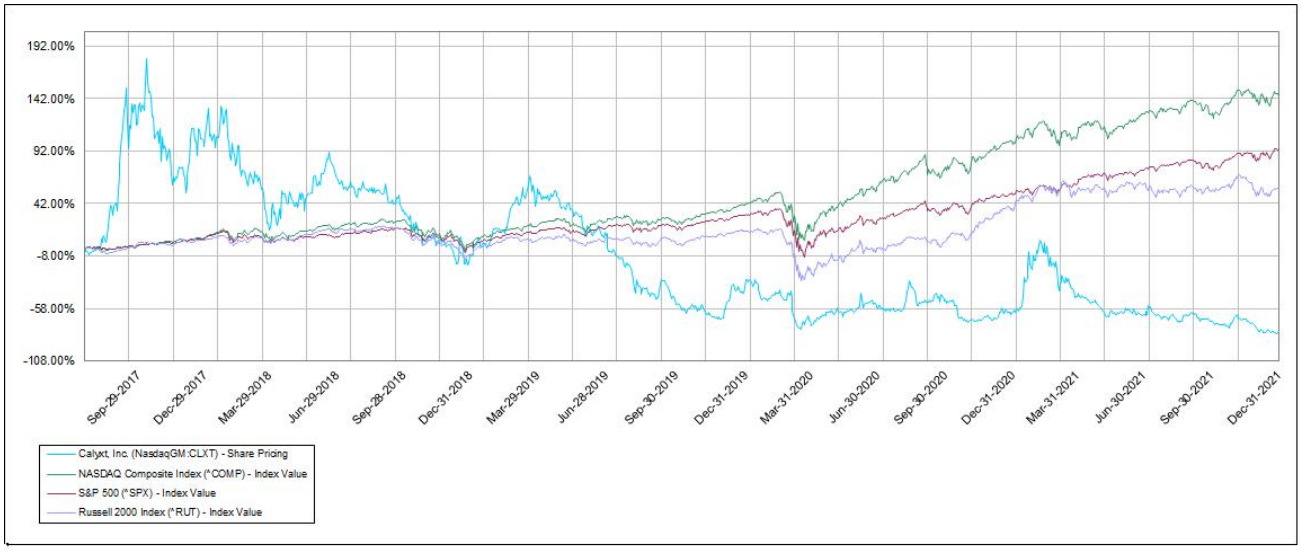
As of March 3, 2022, there were 84 holders of record of 42,718,930 outstanding shares of the Company's common stock. The number of holders of record of the Company's common stock does not reflect the number of beneficial holders whose shares are held by banks, depositaries, brokers, or other nominees.

Dividends

The Company has not paid dividends on its common stock and does not currently plan to pay any cash dividends in the foreseeable future.

Stock Performance Graph

The following graph shows a comparison from July 25, 2017 (the date the Company's common stock commenced trading on The NASDAQ Global Market) through December 31, 2021, of the cumulative total return for its common stock, the Russell 2000 Index, the Standard & Poor’s 500 Stock Index (S&P 500 Index) and the NASDAQ Composite Index (NASDAQ Composite). The graph assumes that $100 was invested at the close of the market on July 20, 2017, in the Company's common stock, the S&P 500 Index and the NASDAQ Composite, and data for the S&P 500 Index and the NASDAQ Composite assumes reinvestments of dividends. The stock price performance of the following graph is not necessarily indicative of future stock price performance.



This performance graph shall not be deemed soliciting material or to be filed with the SEC for purposes of Section 18 of the Exchange Act, or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any of the Company's filings under the Securities Act or the Exchange Act.

Securities Authorized for Issuance under Equity Compensation Plans

The following table sets forth certain information related to the Company's compensation plans under which shares of its common stock are authorized for issuance as of December 31, 2021:

Plan Category	(A) Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (A))
Equity compensation plans approved by security holders [1]	4,803,425	$ 9.47 [2]	5,642,247 [3]
Equity compensation plans not approved by security holders [4]	600,000	—	—
Total	5,403,425	$ 9.47	5,642,247

[1] Includes the Calyxt, Inc. Equity Incentive Plan (2014 Plan) and the 2017 Omnibus Plan (2017 Plan).

[2] Represents the weighted average exercise price of options outstanding under the 2014 Plan and the 2017 Plan.

[3] Of these shares, none are available for future issuance from the 2014 Plan and 5,642,247 remain available for future issuance from the 2017 Plan. The total number of Shares available for issuance under the 2017 Plan will be increased on the first day of each Company fiscal year following the effective date of the Company's initial public offering in an amount equal to the least of (i) 2,000,000 Shares, (ii) 5% of outstanding Shares on the last day of the immediately preceding fiscal year or (iii) such number of Shares as determined by the Board in its discretion All these shares are available for issuance other than upon exercise of options, warrants, or rights.

[4] Includes the Calyxt, Inc. 2021 Employee Inducement Plan (Inducement Plan). In July 2021, the Company adopted the Inducement Plan, pursuant to which shares of common stock are issuable upon the settlement of performance stock units granted to Mr. Michael A. Carr in July 2021 as a material inducement to accept employment as the Company's President and Chief Executive Officer. The performance stock units will vest if the Company's stock remains above three specified price levels for 30 calendar days over the three-year performance period. The performance stock units will be settled in unrestricted shares of the Company's common stock on the vesting date.

Repurchases of Equity Securities by the Issuer or Affiliate Purchasers

There were no repurchases of the Company's equity securities, including any repurchases by affiliates, for the year ended December 31, 2021.

Unregistered Sales of Equity Securities

None.

Item 6. [RESERVED].

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

EXECUTIVE OVERVIEW

Calyxt is a plant-based synthetic biology company. In October 2021, the Company announced the launch of a strategic initiative which focused it on engineering synthetic biology solutions using its proprietary and differentiated BioFactory production system for a diverse base of target customers across an expanded group of end markets including the cosmeceutical, nutraceutical, and pharmaceutical industries.

The Company currently leverages its proprietary PlantSpring technology platform to engineer plant metabolism to produce innovative, high-value, and sustainable materials and products for use in helping customers meet their sustainability targets and financial goals. The Company intends to commercialize its PlantSpring technology platform using three customer demand-driven commercialization strategies that include (i) the development and sale of high-value synthetic biology products from its proprietary BioFactory production system, which is the Company's primary focus, (ii) the licensing of elements of the PlantSpring technology platform and historically developed traditional agriculture seed-trait product candidates, and (iii) selective product development for customers in traditional agriculture.

The business is described in greater detail in "Item 1. Business—Company Overview."

The Company is an early-stage company and has incurred net losses since its inception. As of December 31, 2021, the Company had an accumulated deficit of $196.1 million. The Company's net losses were $29.2 million for the year ended December 31, 2021. The Company expects 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. The Company expects that its expenses will be primarily driven by:

- R&D expenses to continue to enhance the capabilities of its PlantSpring technology platform, including continued investments in artificial intelligence and machine learning capabilities;
- R&D expenses and capital expenditures to expand its BioFactory production system from laboratory scale through various pilot vessel sizes;
- other R&D expenses to further develop traditional agriculture seed-trait product candidates for its licensee customers;
- to the extent not reimbursed by its customers, conducting regulatory studies and other associated activities for its current and future products under development;
- acquiring or in-licensing other products, technologies, germplasm, or other biological material;
- maintaining, protecting, expanding, and defending its intellectual property portfolio, including intellectual property related to the PlantSpring technology platform and BioFactory production system;
- seeking to attract and retain skilled personnel;
- identifying and negotiating agreements with customers, licensees, and infrastructure partners; and
- experiencing any delays or encountering issues with any of the above, including due to the COVID-19 pandemic and its impacts.

RELATIONSHIP WITH CELLECTIS AND COMPARABILITY OF RESULTS

The Company is a majority-owned subsidiary of Cellectis. As of December 31, 2021, Cellectis owned 61.8 percent of the Company's issued and outstanding common stock. Cellectis has certain contractual rights as well as rights pursuant to the Company's certificate of incorporation and bylaws, in each case, for so long as it maintains threshold beneficial ownership levels in the Company's shares. See "Risk Factors—Risks Related to the Company's Relationship with Cellectis."

The Company's financial information for the year ended December 31, 2019, reflects expense allocations for certain support functions that were provided on a centralized basis pursuant to a management services agreement. These services were internalized during 2019. As a result, such historical financial information may not reflect the financial condition, results of operations, or cash flows the Company would have achieved as a stand-alone company and not a subsidiary of Cellectis during that period. Cellectis has also guaranteed the lease of the Company's headquarters facility.

The Company holds an exclusive license from Cellectis 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

Revenue is recognized from sales of products, from licenses of technology, and from product development activities for customers.

Cost of Goods Sold

Cost of goods sold are recognized as products are sold. Generally, there are minimal cost of goods sold associated with the Company’s technology licensing activities.

Research and Development Expense

The Company's R&D expenses primarily consist of employee-related costs for personnel who research and develop its product candidates, fees for contractors who support product development activities, purchasing material and supplies for its laboratories, licensing, an allocation of facility and information technology expenses, and other costs associated with owning and operating its own laboratories and pilot BioFactory capabilities. This includes the costs of performing activities to discover and develop products and advance the Company's PlantSpring technology platform, including its intellectual property portfolio. BioFactory expenses from lab through pilot, unless incurred related to a specific product sold to a customer, are also classified as R&D expense. R&D expenses also include costs to write and support the research for filing patents. The Company recognizes R&D expenses as they are incurred.

Selling, General, and Administrative Expense

Selling, general, and administrative (SG&A) expenses consist primarily of employee-related expenses for selling and licensing the Company's products and employee-related expenses for its executive, legal, intellectual property, information technology, finance, and human resources functions. In periods prior to 2021, these expenses also included employee-related and other expenses for selling soybean oil and meal, soybean acreage acquisition, and managing the soybean product supply chain. Other SG&A expenses include facility and information technology expenses not otherwise allocated to R&D, professional fees for auditing, tax and legal services, expenses associated with maintaining patents, consulting costs and other costs of the Company's information systems, and costs to market its products.

Interest, net

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

Non-operating expenses

Non-operating expenses are expenses that are not directly related to ongoing operations and are primarily comprised of gains and losses from foreign exchange-related transactions and disposals of land, buildings, and equipment.

Anticipated Changes Between Revenues and Costs

As the Company executes upon its business model, it expects the composition of revenues and costs to evolve. In the near-term, soybean-related revenues will decline to zero, the negative gross profit margins experienced from sales of those products will no longer occur, and the significant working capital investment to support those activities will also decline. As a result, the Company anticipates most of its revenues in the near-term to be from product development activities for customers for both the BioFactory and agricultural production and technology licensing arrangements. Future cash and revenue-generating opportunities associated with these activities are expected to primarily arise from up-front and milestone payments, annual license fees, and royalties. Over the next several years as the BioFactory begins to produce products for customers, it is anticipated those revenues will grow and surpass revenues from other sources. These revenues are anticipated to have strong positive gross profit margins over time.

Recent Developments – COVID-19 Update

In accordance with the Company's COVID-19 Preparedness Plan, Minnesota executive order requirements, and guidelines promoted by the Centers for Disease Control and Prevention, the Company implemented health and safety measures for the protection of its onsite workers, maintained remote work arrangements for its non-laboratory personnel, and implemented, as necessary, appropriate self-quarantine precautions for potentially affected laboratory personnel. On May 28, 2021, nearly all Minnesota COVID-19 restrictions

came to an end, including all capacity limits and distancing requirements - both indoors and outdoors. The Company's non-laboratory personnel returned to working onsite in mid-July 2021.

During the year ended December 31, 2021, the COVID-19 pandemic did not have a material impact on the Company's operations. However, a resurgence or prolonging of the COVID-19 pandemic, governmental response measures (including vaccination requirements or other mandatory health and safety requirements), and resulting disruptions could rapidly offset such improvements. Moreover, the long-term effects of the COVID-19 pandemic on the financial markets and broader economy remain uncertain, which may make obtaining capital challenging and may exacerbate the risk that capital, if available, may not be available on terms acceptable to the Company. There continues to be uncertainty relating to the COVID-19 pandemic and its long-term impact, and many factors could affect the Company's results and operations, including, but not limited to, those described in Part I, Item 1A, “Risk Factors” of this report.

RESULTS OF OPERATIONS FOR THE YEAR ENDED DECEMBER 31, 2021, COMPARED TO THE YEAR ENDED DECEMBER 31, 2020

A summary of results of operations for the years ended December 31, 2021, and 2020 follows:

	Year Ended December 31,			
	2021	**2020**	**$ Change**	**% Change**
	(In thousands, except percentage values)			
Revenue	**$ 25,987**	$ 23,851	$ 2,136	9 %
Cost of goods sold	**28,557**	35,127	(6,570)	(19)%
Gross profit	**(2,570)**	(11,276)	8,706	77 %
Research and development	**11,335**	11,082	253	2 %
Selling, general, and administrative	**15,382**	20,537	(5,155)	(25)%
Management fees	**45**	252	(207)	(82)%
Restructuring costs	**—**	685	(685)	NM
Loss from operations	**(29,332)**	(43,832)	14,500	33 %
Gain upon extinguishment of Payroll Protection Program loan	**1,528**	**—**	1,528	NM
Interest, net	**(1,414)**	(878)	(536)	(61)%
Non-operating expenses	**19**	(126)	145	115 %
Net loss	**$ (29,199)**	$ (44,836)	$ 15,637	35 %
Basic and diluted net loss per share	**$ (0.78)**	$ (1.32)	$ 0.54	41 %
Adjusted EBITDA [1]	**$ (24,855)**	$ (31,641)	$ 6,786	21 %

[1] See “Use of Non-GAAP Financial Information” for a discussion of Adjusted EBITDA and a reconciliation of Adjusted EBITDA to Net loss, the most comparable GAAP measure.
NM- not meaningful

Revenue

Revenue was $26.0 million in 2021, an increase of $2.1 million, or 9 percent, from 2020. The increase was driven by sales of the 2020 grain crop, which included higher volumes and reflected higher commodity prices, in each case, as compared to 2020. As of December 31, 2021, the Company had sold all of the 2020 grain crop.

Cost of Goods Sold

Cost of goods sold was $28.6 million in 2021, a decrease of $6.6 million, or 19 percent, from 2020. The decrease was driven by the benefits resulting from the move to sell grain compared to selling soybean oil and meal, as well as a $2.8 million year-over-year benefit from net commodity derivative impacts from hedging contracts entered into to convert fixed price grain inventories and fixed price grain production agreements to floating prices, consistent with how the grain was sold, and a $2.2 million year-over-year decrease in net realizable value adjustments to inventory as the year ago period included costs to write down inventory balances to expected margins.

Gross Profit and Adjusted Gross Profit

Gross profit was negative $2.6 million, or negative 10 percent of revenue, in 2021, compared to negative $11.3 million, or negative 47 percent of revenue, in 2020. This is an improvement of $8.7 million, or 77 percent, from 2020 and was driven by the move to sell grain compared to selling oil and meal, as well as a $2.8 million year-over-year benefit from net commodity derivative impacts from hedging contracts entered into to convert fixed price grain inventories and fixed price grain production agreements to floating prices, consistent

with how the grain was sold, and a $2.2 million year-over-year decrease in net realizable value adjustments to inventory as the year ago period included costs to write down inventory balances to expected margins.

Adjusted gross profit, a non-GAAP measure, was negative $5.7 million, or negative 22 percent of revenue, in 2021, compared to negative $7.2 million, or negative 30 percent of revenue, in 2020. The improvement on a percentage basis was driven by benefits resulting from the move to sell grain compared to selling oil and meal.

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

Research and Development Expense

R&D expense was $11.3 million in 2021, an increase of $0.3 million, or 2 percent, from 2020. The increase was driven by an increase in non-cash stock compensation expense, personnel costs, and other expenses. These increases were partially offset by lower professional fees.

Selling, General, and Administrative Expense

SG&A expense was $15.4 million in 2021, a decrease of $5.2 million, or 25 percent, from 2020. The decrease was driven by lower personnel costs and lower professional fees.

Management Fees

Management fees were nominal for 2021 and 2020.

Restructuring Costs

In 2020, the Company approved a move to a streamlined go-to-market strategy for its soybean product line. The impact of the action included staffing adjustments related to soybean processing and product sales, as well as the gradual exit of all supply chain contractual commitments that were not associated with the ongoing soybean go-to-market strategy. As a result, the Company recorded $0.7 million of expenses for severance and other related payments.

Gain Upon Extinguishment of Payroll Protection Program Loan

On April 8, 2021, the Company was notified by the Small Business Administration (SBA) that the full principal amount and all accrued interest of the Paycheck Protection Program (PPP) loan had been forgiven. Accordingly, the Company recognized a gain upon the extinguishment of the PPP loan of $1.5 million.

Interest, net

Interest, net was an expense of $1.4 million in 2021, a $0.5 million decrease, or 61 percent, compared to 2020. The decline was driven by lower balances and rates on invested cash balances.

Net Loss and Adjusted Net Loss

Net loss was $29.2 million in 2021, an improvement of $15.6 million, or 35 percent, from 2020. The improvement in net loss was driven by improved gross profits, reduced operating expenses, and the gain upon the extinguishment of the PPP loan.

Adjusted net loss was $33.2 million in 2021, an improvement of $7.6 million, or 19 percent, from 2020. The improvement in adjusted net loss was driven by the benefits resulting from the move to sell grain compared to selling oil and meal and reductions in operating expenses.

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 and Adjusted Net Loss Per Share

Net loss per share was $0.78 in 2021, an improvement of $0.54 per share, or 41 percent, from 2020. The improvement in net loss per share was driven by the change in net loss and a year-over-year increase in the weighted average share count.

Adjusted net loss per share was $0.89 in 2021, an improvement of $0.31 per share, or 26 percent, from 2020. The improvement in adjusted net loss per share was driven by the change in adjusted net loss and a year-over-year increase in the weighted average share count.

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 EBITDA

Adjusted EBITDA loss was $24.9 million in 2021, an improvement of $6.8 million, or 21 percent, from 2020. The improvement was driven by the benefits resulting from the move to sell grain compared to selling oil and meal and reductions in operating expenses.

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.

LIQUIDITY AND CAPITAL RESOURCES

Liquidity

The Company's primary sources of liquidity are its cash and cash equivalents, with additional liquidity accessible from the capital markets, including under its ATM Facility. That additional liquidity is subject to market conditions and other factors, including limitations that may apply to the Company under applicable SEC regulations.

As of December 31, 2021, the Company had $14.4 million of cash, cash equivalents, and restricted cash. The Company's restricted cash balances are cash and cash equivalents deposited in an amount equal to future equipment rent payments, as required under its equipment lease facility. The Company may request the return of excess restricted cash collateral annually in December. The Company’s restricted cash was $0.6 million as of December 31, 2021. Current liabilities were $4.9 million as of December 31, 2021. The Company's current cash, cash equivalents, and restricted cash is sufficient to cover all of its current liabilities as of December 31, 2021.

Prior to December 31, 2021, the Company completed the following capital raising transactions:

- On July 25, 2017, the Company completed its IPO of common stock. In the aggregate, the Company received net proceeds from the IPO of $58.0 million, all of which have been used to fund R&D costs, build out commercial capabilities, and for general corporate purposes.
- On May 22, 2018, the Company completed a follow-on offering of its common stock. In the aggregate, the Company received net proceeds from the follow-on offering of $57.0 million.
- On October 20, 2020, the Company completed a follow-on offering of its common stock. In the aggregate, the Company received net proceeds from the follow-on offering of $14.0 million.
- On September 21, 2021, the Company entered into an ATM Facility. Under the terms of the ATM Facility, the Company may, from time-to-time, issue common stock having an aggregate offering value of up to $50.0 million. At its discretion, the Company determines the timing and number of shares to be issued under the ATM Facility. As of December 31, 2021, the Company had issued approximately 1.4 million shares of common stock under the ATM Facility. The Company's balance of cash and cash equivalents includes $3.9 million of net proceeds from those sales, and another $0.2 million of cash was received in early January 2022 following the settlement of those sales with the broker. As of the date of this filing, the Company has not issued any additional shares under the ATM Facility.

On February 23, 2022 (the February 2022 Offering), the Company issued 3,880,000 shares of its common stock, pre-funded warrants to purchase up to 3,880,000 shares of its common stock, and common warrants to purchase up to 7,760,000 shares of its common stock. In the aggregate, the Company received net proceeds of $10.0 million, after deducting approximately $0.9 million of underwriting discounts and estimated other offering expenses.

The Company's liquidity funds its non-discretionary cash requirements and its discretionary spending. Prior to the wind-down of the Company’s soybean go-to-market strategy, working capital was its principal non-discretionary funding requirement. In addition, the Company has contractual obligations related to recurring business operations, primarily related to its headquarters and laboratory facilities. The Company's principal discretionary cash spending is for capital expenditures. The Company's capital expenditures include its pilot-scale BioFactory production system which became operational in December 2021 and that may require additional capital expenditures in 2022 to support additional pilot-scale or commercial-level production based on customer demand.

The Company incurred net losses of $29.2 million for the year ended December 31, 2021. As of December 31, 2021, the Company had an accumulated deficit of $196.1 million and expects to continue to incur losses in the future.

Cash Flows from Operating Activities

	Year Ended December 31,			
In Thousands	**2021**	**2020**	**$ Change**	**% Change**
Net loss	**$ (29,199)**	$ (44,836)	$ 15,637	35%
Gain upon extinguishment of Payroll Protection Program loan	**(1,528)**	-	(1,528)	NM
Depreciation and amortization expenses	**2,338**	1,869	469	25%
Stock-based compensation	**2,090**	4,971	(2,881)	(58)%
Changes in operating assets and liabilities	**7,488**	(5,676)	13,164	232%
Net cash used by operating activities	**$ (18,811)**	$ (43,672)	$ 24,861	57%

NM- not meaningful

Net cash used by operating activities was $18.8 million in 2021, an improvement of $24.9 million, or 57 percent, from 2020. The improvement was driven by a $15.6 million decrease in net loss and a $13.2 million improvement in cash used by operating assets and liabilities due to the completed wind-down of the soybean product line. These improvements were partially offset by a $2.9 million decrease in non-cash stock compensation, primarily the result of the forfeiture of unvested stock awards, and the $1.5 million non-cash gain upon the extinguishment of the PPP loan.

The Company expects cash used by operating activities in 2022 to be higher than 2021 driven by the elimination of the working capital benefit received in 2021, and a slightly higher net loss driven by AIML and BioFactory-related investments.

Cash Flows from Investing Activities

	Year Ended December 31,			
In Thousands	**2021**	**2020**	**$ Change**	**% Change**
Sales and (purchases) of short-term investments, net	**$ 11,698**	$ (11,698)	$ 23,396	200%
Purchases of land, buildings, and equipment	**(497)**	(1,786)	1,289	72%
Net cash provided (used) by investing activities	**$ 11,201**	$ (13,484)	$ 24,685	183%

Net cash provided by investing activities was $11.2 million in 2021, an increase of $24.7 million, or 183 percent, from 2020. This increase was driven by changes in purchases and sales of short-term investments, as 2020 saw the Company invest its cash in short-term investments while 2021 reflects the draw-down of those short-term investments to fund operations.

The Company expects cash used for purchases of land, buildings, and equipment in 2022 to be higher than 2021, driven by investments to scale its BioFactory production system and its AIML capabilities.

Cash Flows from Financing Activities

	Year Ended December 31,			
In Thousands	**2021**	**2020**	**$ Change**	**% Change**
Proceeds from common stock issuance	**$ 4,380**	$ 15,000	$ (10,620)	(71)%
Costs incurred related to the issuance of stock	**(501)**	(963)	462	48%
Proceeds from Payroll Protection Program loan	**—**	1,518	(1,518)	(100)%
Repayments of financing lease obligations	**(364)**	(360)	(4)	(1)%
Proceeds from the exercise of stock options	**227**	212	15	7%
Net cash provided by financing activities	**$ 3,742**	$ 15,407	(11,665)	(76)%

NM – not meaningful

Net cash provided by financing activities was $3.7 million in 2021, a decrease of $11.7 million, or 76 percent, from 2020. The decrease was primarily driven by the $14.0 million of net proceeds from the follow-on offering of the Company's common stock completed in the fourth quarter of 2020.

The Company expects net cash provided by financing activities in 2022 to increase compared to 2021, primarily due to the $10.0 million of net proceeds received from the February 2022 Offering.

Capital Resources

Operating Capital Requirements

The Company has incurred losses since its inception and its net loss was $29.2 million for the year ended December 31, 2021, and it used $18.8 million of cash for operating activities for the year ended December 31, 2021. The Company's primary sources of liquidity are its cash and cash equivalents, with additional liquidity accessible, subject to market conditions and other factors, including limitations that may apply to the Company under applicable SEC regulations, from the capital markets, including under its ATM Facility.

As of December 31, 2021, the Company had $14.4 million of cash, cash equivalents, and restricted cash. The Company’s restricted cash is associated with its equipment financing leases and was $0.6 million as of December 31, 2021, with $0.5 million scheduled to be returned in December 2022. Current liabilities were $4.9 million as of December 31, 2021.

During the February 2022 Offering, the Company issued 3,880,000 shares of its common stock, pre-funded warrants to purchase up to 3,880,000 shares of its common stock, and common warrants to purchase up to 7,760,000 shares of its common stock. In the aggregate, the Company received net proceeds of $10.0 million, after deducting approximately $0.9 million of underwriting discounts and estimated other offering expenses.

The Company has incurred losses since its inception and anticipates that it will continue to generate losses for the next several years. Over the longer term and until the Company can generate cash flows sufficient to support its operating capital requirements, it expects to finance a portion of future cash needs through (i) cash on hand, (ii) commercialization activities, which may result in various types of revenue streams from (a) future product development agreements and technology licenses, including upfront and milestone payments, annual license fees, and royalties; and (b) product sales from its proprietary BioFactory production system; (iii) government or other third-party funding, which the Company expects to be more readily available if Cellectis were to own less than 50 percent of the Company’s common stock, (iv) public or private equity or debt financings, or (v) a combination of the foregoing. However, additional capital may not be available on reasonable terms, if at all.

For example, based on the Company’s public float, as of the date of the filing of this Annual Report, the Company is only permitted to utilize a “shelf” registration statement, including the registration statement under which the Company’s the ATM Facility, is operated, subject to Instruction I.B.6 to Form S-3, which is referred to as the “baby shelf” rules. For so long as the Company's public float is less than $75,000,000, it may not sell more than the equivalent of one-third of its public float during any 12 consecutive months pursuant to the baby shelf rules. Although alternative public and private transaction structures are expected to be available, these may require additional time and cost, may impose operational restrictions on the Company, and may not be available on attractive terms.

The Company’s ability to continue as a going concern will depend on its ability to obtain additional public or private equity or debt financing, obtain government or private grants and other similar types of funding, attain further operating efficiencies, reduce or contain expenditures, and, ultimately, to generate revenue. The Company’s cash, cash equivalents, and restricted cash as of December 31, 2021, considering its plan to continue to invest in the growth and scaling of its BioFactory production system and AIML capabilities and the $10.0 million of net proceeds from the February 2022 Offering, is sufficient to fund its operations into late 2022. The Company’s management has concluded there is substantial doubt regarding its ability to continue as a going concern because it anticipates that it will need to raise additional capital to support this business plan for a period of 12 months or more from the date of this filing.

If the Company is unable to raise additional capital in a sufficient amount or on acceptable terms, management may be required to implement various cost reduction and other cash-focused measures to manage liquidity and the Company may have to significantly delay, scale back, or cease operations, in part or in full. If the Company raises additional funds through the issuance of additional debt or equity securities, it could result in dilution to its existing stockholders and increased fixed payment obligations, and these securities may have rights senior to those of the Company's shares of common stock. Any of these events could significantly harm the Company's business, financial condition, and prospects.

The Company's financing needs are subject to change depending on, among other things, the success of its product development efforts, the effective execution of its business model, its revenue, and its efforts to effectively manage expenses. The effects of the COVID-19 pandemic, other macroeconomic events, and potential geopolitical developments on the financial markets and broader economic uncertainties may make obtaining capital through equity or debt financings more challenging and may exacerbate the risk that such capital, if available, may not be available on terms acceptable to the Company.

CONTRACTUAL OBLIGATIONS, COMMITMENTS, AND CONTINGENCIES

As of December 31, 2021, the Company had the following contractual obligations:

- Liability for minimum lease payments for its corporate headquarters and lab facilities, and equipment leases due within the next five years in an aggregate amount of $7.7 million, of which $1.7 million is payable in 2022;
- Remaining severance obligation to Mr. Blome, its former Chief Executive Officer, due within the next two years in an aggregate amount of $1.8 million, of which $1.1 million is payable in 2022.

Sale-Leaseback of Headquarters and Lab Facility

In September 2017, the Company consummated a sale-leaseback transaction with a third party for its corporate headquarters and lab facilities.

The Company's headquarters facility is comprised of a 44,000 square-foot office and lab building, the first pilot BioFactory production system, greenhouses, and outdoor research plots. The Company is deemed the owner for accounting purposes. The lease has a term of twenty years with four options to extend its term for five years each subject to there being no default under the lease terms beyond any cure period and the Company occupying the property at the time of extension. In 2017, the Company received $7.0 million in connection with the sale of the land and uncompleted facility.

The lease commenced in May 2018. Under the lease, the Company pays an annual base rent of eight percent of the total project cost with scheduled increases in rent of 7.5 percent on the sixth, eleventh, and sixteenth anniversaries of the start of the lease commencement as well as on the first day of each renewal term. Currently, the Company pays an annual base rent of $1.4 million.

The Company is also responsible for all operating costs and expenses associated with the property. If the landlord decides to sell the property, the Company has a right of first refusal to purchase the property on the same terms offered to any third party.

Concurrent with entering the lease, Cellectis guaranteed all of the Company's obligations under the lease agreement. Cellectis' guarantee of the Company's obligations will terminate at the end of the second consecutive calendar year in which its tangible net worth exceeds $300 million, as determined in accordance with generally accepted accounting principles. At a point when Cellectis owns 50 percent or less of the Company's outstanding common stock, the Company has agreed to indemnify Cellectis for any obligations incurred by Cellectis under its guaranty of the obligations under the lease.

Sale-Leaseback of Equipment

The Company also has an equipment financing arrangement that is considered a financing lease. As of December 31, 2021, this arrangement requires aggregate payments of $0.6 million over the next 21 months. The Company was required to deposit cash and cash equivalent amounts equal to the future rent payments as required under the Company's equipment lease facility. As of December 31, 2021, this restricted cash totaled $0.6 million, and a portion may be requested to be returned in each of December 2022 and December 2023.

CRITICAL ACCOUNTING ESTIMATES

The accompanying discussion and analysis of the Company's financial condition and results of operations are based upon its consolidated financial statements and the related disclosures, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these consolidated financial statements requires the Company to make estimates, assumptions, and judgments that affect the reported amounts in the Company's consolidated financial statements and accompanying notes. The Company bases its estimates on historical experience and on various other assumptions that it believes 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. The Company believes the following policies to be the most critical to understanding its financial condition and results of operations because they require the use of estimates, assumptions, and judgments about matters that are inherently uncertain.

Stock-Based Compensation

The valuation of stock options is a critical accounting estimate that requires the use of judgments and assumptions that are likely to have a material impact on the Company's consolidated financial statements. The Company generally measures the fair value of employee and nonemployee stock-based awards on their grant date and records compensation expense on a straight-line basis over the related service

period of the award, which is generally the vesting period. The Company uses the Black-Scholes option pricing model to value its stock option awards, which requires the Company to make predictive assumptions regarding employee exercise behavior, future stock price volatility, and dividend yield. The Company generally measures compensation expense for grants of restricted stock units using the Company's share price on the date of grant. The Company uses a Monte Carlo simulation pricing model when estimating the fair values of performance stock units, which requires the Company to make predictive assumptions. The Company estimates fair values and accounts for employee and nonemployee awards in a similar manner.

Due to the limited historical experience of the Company's stock awards program, it has elected to account for forfeitures of awards as they occur. If an award is forfeited prior to vesting, the associated reduction in expense is reflected net in stock-based compensation expense in that period.

Stock Options

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

	2021	2020
Expected term (in years)	**5.5 - 6.5**	6.0 - 10.0
Expected volatility	**80.1% - 91.0%**	77.4% - 81.2%
Risk-free interest rate	**0.6% - 1.2%**	0.3% - 1.7%

Due to the Company's limited history, it does not always have sufficient historical stock option activity to make predictive assumptions based solely on its stock or stock option activity for the Black-Scholes option pricing model. As a result, the Company may need to use data from other comparable public companies or alternative calculation methods as allowed by generally accepted accounting principles to make predictive assumptions.

The Company estimates its future stock price volatility using the weighted-average historical volatility calculated from a group of comparable public companies over the expected term of the option. The group of comparable public companies is determined by management on an annual basis. When selecting a comparable company, management considers relevant factors including industry and strategy, size, maturity, and financial leverage. The comparable companies used by management to calculate expected volatility may change from year-to-year because of changes in those factors and because a new comparable company may become publicly traded. A one percentage point increase in the Company's volatility assumption, leaving all other assumptions constant, would increase the grant date fair value by one percent.

The expected term of stock options is estimated using the average of the vesting tranches and the contractual life of each grant for employee options, or the simplified method, as the Company has limited historical information to develop reasonable expectations about future exercise patterns and post-vesting employment termination behavior for its stock option grants. The use of the simplified method is dependent upon the type of equity award granted and the term of the award. Management reviews the expected term of stock options before issuance to ensure that the use of the simplified method is appropriate and that the Company does not have sufficient historical exercise data to estimate the expected term using a different method. An increase in the expected term by one year, leaving all other assumptions constant, would increase the grant date fair value by five percent.

The Company estimates the risk-free interest rate based on the United States Treasury zero-coupon yield curve at the date of grant for the expected term of the option. A one percentage point increase in the risk-free interest rate, leaving all other assumptions constant, would not change the grant date fair value.

The Company does not, nor does it expect to pay dividends in the foreseeable future.

Performance Stock Units

From time-to-time the Company issues performance stock units to certain individuals in management to align their objectives with stockholders of the Company. In July 2021, the Company granted 600,000 performance stock units under the Inducement Plan to Mr. Michael A. Carr, its President and Chief Executive Officer. The estimated fair values of performance stock units granted in 2021, and the assumptions used were as follows:

Estimated fair values of performance stock units granted:		
At least $12 per share	$	2.16
At least $15 per share	$	1.89
At least $20 per share	$	1.55
Assumptions:		
Expected term (in years)		3.0
Expected volatility		90.0 %
Risk-free interest rate		0.4 %

The Company estimated the fair value of each tranche of the performance stock units on the grant date using the Monte Carlo simulation pricing model, which required it to make predictive assumptions as to the expected term of the grant, future stock price volatility, and dividend yield. The expected term represents the expected service period of the performance stock units granted. It does not represent a significant accounting estimate. Due to the expected term of the award being three years and the Company having been publicly traded for more than three years, the volatility assumption was based on the historical volatility of the Company's common stock over the expected term. The Company estimates the risk-free interest rate based on the United States Treasury zero-coupon yield curve at the date of grant for the expected term of the performance stock unit.

Net Realizable Value of Inventories

Due to the wind-down of its soybean product line, the Company did not have any inventory balances, nor does it anticipate having any such balances in 2022 based on the nature of its business activities.

Under the Company's prior go-to-market soybean strategy, the determination of the net realizable value of inventories was a critical accounting estimate that required the use of judgments and assumptions that may have had a material impact on the Company's consolidated financial statements. At each period-end, the Company made assumptions regarding projected selling prices of its products considering futures market prices for the underlying agricultural markets and its associated risk management strategies, anticipated costs, and other factors that take into consideration the Company's limited operating history and compare those prices to the current weighted average costs of its inventories. If the Company's costs were higher than the projected selling prices, then a valuation adjustment was recorded.

Income Tax Valuation Allowances

The determination of the income tax valuation allowances requires the use of judgments and assumptions that may have a material impact on the Company's consolidated financial statements, especially at the early stage of commercialization. The Company provides deferred taxes for deductible and taxable temporary differences. Deferred tax assets are reduced by a valuation allowance when the Company believes it is more likely than not that some portion or all the deferred tax assets will not be realized. Because the Company has generated losses cumulatively, management believes it is more likely than not that some portion or all the deferred tax assets will not be realized and have reflected a full valuation allowance against its net deferred tax assets. If the Company were to generate profits, the valuation allowance may change.

RECENTLY ISSUED ACCOUNTING PRONOUNCEMENTS

For more information on recently issued accounting pronouncements, see the Company's consolidated financial statements and related financial statement schedules on page F-1.

USE OF NON-GAAP FINANCIAL INFORMATION

To supplement the Company's financial results prepared in accordance with GAAP, it has 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 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 the Company's business.

The Company's non-GAAP financial measures reflect adjustments for certain commodity derivatives entered into in connection with its soybean product line. As a result of the continued wind-down of this product line, the Company held no commodity derivative contracts as of December 31, 2021.

The Company presents adjusted gross profit and adjusted gross profit percentage, which are non-GAAP measures. Adjusted gross profit reflects adjustments necessary to present the underlying gross profit of its soybean product line, including (i) unrealized gains and losses associated with commodity derivatives entered into to hedge the change in value of fixed price grain inventories and fixed price grain production agreements that should be recognized in the future when the underlying inventory is sold, (ii) gains and losses from commodity derivatives realized in prior periods but associated with inventory sold in the current period, (iii) net realizable value adjustments to inventories occurring in the period which otherwise would have been recognized in the future when the underlying inventory is sold, and (iv) net realizable value adjustments recognized in prior periods but associated with inventory sold in the current period. Adjusted gross profit percentage is derived from adjusted gross profit, a non-GAAP measure, and total revenue.

The Company provides in the table below a reconciliation of gross profit and gross profit percentage, which are the most directly comparable GAAP financial measures, to adjusted gross profit and adjusted gross profit percentage. The Company provides adjusted gross profit and adjusted gross profit percentage because it believes that these non-GAAP financial metrics provide investors with useful supplemental information as the amounts being adjusted affect the period-to-period comparability of gross profit and financial performance.

The table below presents a reconciliation of gross profit and gross profit percentage to adjusted gross profit and adjusted gross profit percentage:

	Year Ended December 31,	
In Thousands	**2021**	**2020**
Gross profit (GAAP measure)	**$ (2,570)**	$ (11,276)
Gross profit percentage	**(10 %)**	(47 %)
Non-GAAP adjustments:		
Commodity derivative impact, net	**(2,801)**	2,801
Net realizable value adjustment to inventories	**(346)**	1,322
Adjusted gross profit	**$ (5,717)**	$ (7,153)
Adjusted gross profit percentage	**(22 %)**	(30 %)

The Company presents adjusted net loss, a non-GAAP measure, and defines it as net loss including adjustments necessary to present the underlying gross profit of its soybean product line, including (i) unrealized gains and losses associated with commodity derivatives entered into to hedge the change in value of fixed price grain inventories and fixed price grain production agreements that should be recognized in the future when the underlying inventory is sold, (ii) gains and losses from commodity derivatives realized in prior periods but associated with inventory sold in the current period, (iii) net realizable value adjustments to inventories occurring in the period which otherwise would have been recognized in the future when the underlying inventory is sold, and (iv) net realizable value adjustments recognized in prior periods but associated with inventory sold in the current period, and excluding cash-based Section 16 officer transition expenses, restructuring costs, the recapture of non-cash stock compensation associated with the departure of Section 16 officers and restructuring-related staffing adjustments made in the third quarter of 2020, the gain upon the extinguishment of the PPP loan, and non-operating expenses, which are primarily gains and losses on foreign exchange transactions and losses on the disposals of land, buildings, and equipment.

The Company provides in the table below a reconciliation of net loss, which is the most directly comparable GAAP financial measure, to adjusted net loss. The Company provides adjusted net loss because it believes 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 net losses and financial performance.

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

In Thousands	Year Ended December 31, 2021	2020
Net loss (GAAP measure)	**$ (29,199)**	$ (44,836)
Non-GAAP adjustments:		
Commodity derivative impact, net	**(2,801)**	2,801
Net realizable value adjustment to inventories	**(346)**	1,322
Section 16 officer transition expenses	**3,196**	543
Restructuring costs	**—**	685
Recapture of non-cash stock compensation	**(2,540)**	(1,452)
Gain upon extinguishment of Payroll Protection Program loan	**(1,528)**	—
Non-operating expenses	**(19)**	126
Adjusted net loss	**$ (33,237)**	$ (40,811)

The Company presents adjusted net loss per share, a non-GAAP measure, and defines it as net loss per share including adjustments necessary to present the underlying gross profit of its soybean product line, including (i) unrealized gains and losses associated with commodity derivatives entered into to hedge the change in value of fixed price grain inventories and fixed price grain production agreements that should be recognized in the future when the underlying inventory is sold, (ii) gains and losses from commodity derivatives realized in prior periods but associated with inventory sold in the current period, (iii) net realizable value adjustments to inventories occurring in the period which otherwise would have been recognized in the future when the underlying inventory is sold, and (iv) net realizable value adjustments recognized in prior periods but associated with inventory sold in the current period, and excluding cash-based Section 16 officer transition expenses, restructuring costs, the recapture of non-cash stock compensation associated with the departure of Section 16 officers and restructuring-related staffing adjustments made in the third quarter of 2020, the gain upon the extinguishment of the PPP loan, and non-operating expenses, which are primarily gains and losses on foreign exchange transactions and losses on the disposals of land, buildings, and equipment.

The Company provides in the table below a reconciliation of net loss per share, which is the most directly comparable GAAP financial measure, to adjusted net loss per share. The Company provides adjusted net loss per share because it believes 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 net losses per share and financial performance.

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

	Year Ended December 31, 2021	2020
Net loss per share (GAAP measure)	**$ (0.78)**	$ (1.32)
Non-GAAP adjustments:		
Commodity derivative impact, net	**(0.07)**	0.08
Net realizable value adjustment to inventories	**(0.01)**	0.04
Section 16 officer transition expenses	**0.08**	0.02
Restructuring costs	**—**	0.02
Recapture of non-cash stock compensation	**(0.07)**	(0.04)
Gain upon extinguishment of Payroll Protection Program loan	**(0.04)**	**—**
Non-operating expenses	**—**	**—**
Adjusted net loss per share	**$ (0.89)**	$ (1.20)

The Company presents adjusted EBITDA, a non-GAAP measure, and defines it as net loss including adjustments necessary to present the underlying gross profit of its soybean product line, including (i) unrealized gains and losses associated with commodity derivatives entered into to hedge the change in value of fixed price grain inventories and fixed price grain production agreements that should be recognized in the future when the underlying inventory is sold, (ii) gains and losses from commodity derivatives realized in prior periods but associated with inventory sold in the current period, (iii) net realizable value adjustments to inventories occurring in the period which otherwise would have been recognized in the future when the underlying inventory is sold, and (iv) net realizable value adjustments recognized in prior periods but associated with inventory sold in the current period, and excluding interest, net, depreciation and amortization expenses, non-cash stock compensation expenses including the recapture of non-cash stock compensation associated with the departure of Section 16 officers and restructuring-related staffing adjustments made in the third quarter of 2020, cash-based Section

16 officer transition expenses, restructuring costs, the gain upon the extinguishment of the PPP loan, and non-operating expenses, which are primarily gains and losses on foreign exchange transactions and losses on the disposals of land, buildings, and equipment.

The Company provides in the table below a reconciliation of net loss, which is the most directly comparable GAAP financial measure, to adjusted EBITDA. Because adjusted EBITDA excludes non-cash items and discrete or infrequently occurring items, the Company believes that adjusted EBITDA provides investors with useful supplemental information about the operational performance of its business and facilitates the period-to-period comparability of financial results where certain items may vary significantly independent of business performance.

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

	Year Ended December 31,	
In Thousands	**2021**	**2020**
Net loss (GAAP measure)	**$ (29,199)**	$ (44,836)
Non-GAAP adjustments:		
Commodity derivative impact, net	**(2,801)**	2,801
Net realizable value adjustment to inventories	**(346)**	1,322
Interest, net	**1,414**	878
Depreciation and amortization expenses	**2,338**	1,869
Stock-based compensation expenses	**2,090**	4,971
Section 16 officer transition expenses	**3,196**	543
Restructuring costs	**—**	685
Gain upon extinguishment of Payroll Protection Program loan	**(1,528)**	—
Non-operating expenses	**(19)**	126
Adjusted EBITDA	**$ (24,855)**	$ (31,641)

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Prior to the Company's shift in business strategy, the Company's primary exposure to market risk was commodity price sensitivity under its former soybean go-to-market strategy. The Company was susceptible to changes in commodity market prices that could impact the selling price for grain inventories, which were carried at historical cost. Prior to the purchase, the Company also had market exposure associated with fixed price grain production agreements. Under this former strategy, the Company managed its exposure to changes in market prices by entering commodity hedges to convert fixed price grain inventories and fixed price grain production agreements to floating market prices. By executing these hedging strategies, the Company could closely match the expected economic terms of the grain sale with the market. In a rising market these positions resulted in losses, and in a falling market these positions resulted in gains once any losses, if any, are recaptured. At time of sale, the gains or losses on the commodity derivatives were realized and fully offset by gains or losses on the grain inventories. As a result of the wind-down of the soybean product line, the Company’s market risk related to commodity price sensitivity has been eliminated. As a result, the Company held no commodity derivative contracts as of December 31, 2021.

The Company is also exposed to interest rate sensitivity on its cash equivalents and investments, which are affected by changes in the general level of United States interest rates. However, because of the short-term nature of the duration of its portfolio and the low-risk profile of its investments, the Company believes an immediate ten percent change in market interest rates would not have a material impact on the fair market value of its investment portfolio or on its financial condition or results of operations. As of December 31, 2021, the Company had $14.4 million of cash, cash equivalents, and restricted cash. As of December 31, 2021, the Company did not hold any short-term investments.

The Company also has foreign exchange exposure from fluctuations in foreign currency exchange rates, primarily as a result of certain receivable and payable balances with Cellectis. The primary currency exposure is to the Euro. The Company believes an immediate ten percent change in foreign exchange rates would not have a material impact on its financial condition or results of operations.

Item 8. Consolidated Financial Statements and Supplementary Data

The consolidated financial statements and related financial statement schedules required to be filed are listed in the Index to Consolidated Financial Statements on page F-1 hereto and are incorporated herein.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Management's Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures that are designed to provide reasonable assurance that information required to be disclosed in its Exchange Act reports is recorded, processed, summarized, and reported within the time periods specified in the Securities and Exchange Commission's rules and forms and that such information is accumulated and communicated to Management, including the Company's principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Under the supervision of the Company's principal executive officer and principal financial officer, it evaluated the effectiveness of its disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) as of December 31, 2021. Based on that evaluation, as of December 31, 2021, the Company's principal executive officer and principal financial officer have concluded that its disclosure controls and procedures were effective.

Management's Annual Report on Internal Control Over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act. The Company's management, including its principal executive officer and principal financial officer, conducted an evaluation of the effectiveness of its internal controls over financial reporting based on the framework set forth in the "Internal Control—Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on an evaluation under that framework, Management concluded that the Company's internal control over financial reporting was effective as of December 31, 2021.

Inherent Limitations on Controls and Procedures

The Company's management, including the principal executive officer and principal financial officer, does not expect that its disclosure controls and procedures and its internal control over financial reporting will prevent all error and all fraud. A control system, no matter how well designed and operated, can only provide reasonable assurances that the objectives of the control system are met. The design of a control system reflects resource constraints; the benefits of controls must be considered relative to their costs. Because there are inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, for the Company have been or will be detected. As these inherent limitations are known features of the disclosure and financial reporting processes, it is possible to design into the processes safeguards to reduce, though not eliminate, these risks. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the control. The design of any system of controls is based in part upon certain assumptions about the likelihood of future events. While the Company's disclosure controls and procedures and its internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives, there can be no assurance that any design will succeed in achieving its stated goals under all future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with the policies or procedures. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Changes in Internal Control over Financial Reporting

There have been no changes in the Company's internal control over financial reporting identified in connection with the evaluation required by Rules 13a-13(d) and 15d-15(d) of the Exchange Act that occurred during the fourth quarter ended December 31, 2021, that has materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item concerning the Company's directors, executive officers, and corporate governance matters is incorporated by reference to its 2022 Proxy Statement.

The Company's Board of Directors has adopted a Code of Business Conduct and Ethics applicable to all officers, directors, and employees. The Company's Code of Business Conduct and Ethics, Corporate Governance Guidelines, and the charters of its Audit Committee, Compensation Committee, and Nominating and Corporate Governance Committee are available on the Company's website (www.calyxt.com) under “Corporate Governance” in the “Investors” section. The Company will provide a copy of these documents to any person, without charge, upon request. The Company intends to make all required disclosures concerning any amendments to, or waivers from, the Code of Business Conduct and Ethics on its website.

Item 11. Executive Compensation

The information required by this item regarding executive compensation is incorporated by reference to the Company's 2022 Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item regarding security ownership of certain beneficial owners and management is incorporated by reference in the Company's 2022 Proxy Statement.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item regarding certain relationships and related transactions is incorporated by reference to the Company's 2022 Proxy Statement.

Item 14. Principal Accounting Fees and Services

The information required by this item regarding principal accounting fees and services is incorporated by reference to the Company's 2022 Proxy Statement.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(1) Consolidated Financial Statements
(2) See "Index to Consolidated Financial Statements" in Item 8, which is incorporated into this Item by reference.
(3) Financial Statement Schedules—Not applicable.
(4) Schedules not filed with this Annual Report on Form 10-K are omitted because of the absence of conditions under which they are required or because the information called for is shown in the consolidated financial statements or related notes.

(a)(3) Exhibits

Exhibit Number	Description
3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Company's Annual Report on Form 10-K filed with the SEC on March 14, 2018)
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)
4.1	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934 (incorporated by reference to Exhibit 4.1 to the Company's Annual Report on Form 10-K filed with the SEC on March 5, 2020)
10.1	Management Services Agreement between Cellectis S.A., Cellectis, Inc. and Calyxt, Inc., dated as of January 1, 2016 (incorporated by reference to Exhibit 10.1 of the Company's Registration Statement on Form S-1 filed with the SEC on June 23, 2017)
10.2	First Amendment to the Management Services Agreement Amendment dated July 25, 2017 between Cellectis S.A. and Calyxt, Inc. (incorporated by reference to Exhibit 10.2 of the Company's Annual Report on Form 10-K filed with the SEC on March 14, 2018)
10.3	Second Amendment to the Management Services Agreement Amendment dated January 29, 2020 between Cellectis S.A., Cellectis, Inc., Cellectis Biologics, Inc. and Calyxt, Inc. (incorporated by reference to Exhibit 10.3 of the Company's Annual Report on Form 10-K filed with the SEC on March 5, 2020)
10.4	Separation Agreement dated July 25, 2017 between Cellectis S.A. and Calyxt, Inc. (incorporated by reference to Exhibit 10.3 of the Company's Annual Report on Form 10-K filed with the SEC on March 14, 2018)
10.5	Stockholders Agreement dated July 25, 2017 between Cellectis S.A. and Calyxt, Inc. (incorporated by reference to Exhibit 10.4 of the Company's Annual Report on Form 10-K filed with the SEC on March 14, 2018)
10.6	License Agreement dated July 25, 2017 between Cellectis S.A. and Calyxt, Inc. (incorporated by reference to Exhibit 10.5 of the Company's Annual Report on Form 10-K filed with the SEC on March 14, 2018)
10.7#	Exclusive Patent License Agreement between Regents of the University of Minnesota and Calyxt Inc. (f.k.a. Cellectis Plant Sciences, Inc.), dated December 15, 2014 (incorporated by reference to Exhibit 10.6 of the Company's Registration Statement on Form S-1/A filed with the SEC on July 3, 2017)
10.11†	Calyxt, Inc. Equity Incentive Plan (incorporated by reference to Exhibit 10.11 of the Company's Registration Statement on Form S-1 filed with the SEC on June 23, 2017)
10.12†	Form of Stock Option Agreement pursuant to the Calyxt, Inc. Equity Incentive Plan (incorporated by reference to Exhibit 10.12 of the Company's Registration Statement on Form S-1 filed with the SEC on June 23, 2017)
10.16†	Calyxt, Inc. 2017 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.20 of the Company's Registration Statement on Form S-1/A filed with the SEC on July 3, 2017)
10.17†	Calyxt, Inc. 2017 Stock Option Sub-Plan for French Employees and Directors (incorporated by reference to Exhibit 10.21 of the Company's Registration Statement on Form S-1/A filed with the SEC on July 3, 2017)
10.18†	Form of Stock Option Agreement pursuant to the Calyxt, Inc. 2017 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.22 of the Company's Form 10-Q for the quarter ended June 30, 2020)
10.19†	Form of Restrictive Stock Unit Agreement pursuant to the Calyxt, Inc. 2017 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.23 of the Company's Form 10-Q for the quarter ended June 30, 2020)
10.20†	Form of Performance Stock Unit Award Agreement†(incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2019)
10.21†	Calyxt, Inc. 2017 Restricted Stock Unit Sub-Plan for French Employees and Directors (incorporated by reference to Exhibit 10.25 of the Company's Registration Statement on Form S-1/A filed with the SEC on July 3, 2017)
10.22†	Lease Agreement between Calyxt, Inc., as Tenant, and NLD Mount Ridge LLC, as Landlord, dated September 6, 2017 (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the SEC on September 7, 2017)

10.23	Form of Indemnification Agreement (incorporated by reference to Exhibit 10.24 of the Company's Annual Report on Form 10-K for the year ended December 31, 2017)
10.24	Amendment No. 1 to Stockholders Agreement dated May 7, 2018 between Cellectis S.A. and Calyxt, Inc. (incorporated by reference to Exhibit 10.1 of the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018)
10.25†	Offer Letter between Calyxt, Inc. and Mr. Michael A. Carr, dated July 13, 2021 (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the SEC on July 15, 2021)
10.26†	Employment Agreement between Calyxt, Inc. and Mr. Bill Koschak, dated December 21, 2018 (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed with the SEC on January 3, 2019)
10.27†	Employment Agreement between Calyxt, Inc. and Ms. Debra Frimerman, dated January 21, 2019 (incorporated by reference to Exhibit 10.29 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018)
10.28†	Employment Agreement between Calyxt, Inc. and Dr Travis J. Frey, dated May 13, 2019 (incorporated by reference to Exhibit 10.28 to the Company's Annual Report on Form 10-K for the year ended December 31, 2019)
10.29†	Calyxt, Inc. 2021 Short Term Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 18, 2021)
10.30†	Calyxt, Inc. 2021 Executive Severance Plan (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on March 18, 2021)
10.31†	Separation Agreement between Calyxt, Inc. and James Blome, dated March 18, 2021
10.32†	Employment Agreement between Calyxt, Inc. and Ms. Sarah Reiter, dated October 13, 2020
10.33†	Calyxt, Inc. 2021 Employee Inducement Incentive Plan (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on July 15, 2021)
10.34†	Form of Performance Stock Unit Agreement under the Calyxt, Inc. 2021 Employee Inducement Incentive Plan (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed on July 15, 2021)
10.35†	Participation Agreement of Mr. Michael A. Carr under the 2021 Executive Severance Plan (incorporated by reference to Exhibit 10.6 to the Company's Current Report on Form 8-K filed on July 15, 2021)
10.36	Calyxt, Inc. Form of Non-Competition, Non-Solicitation, Confidentiality and Inventions Agreement (incorporated by reference to Exhibit 10.7 to the Company's Current Report on Form 8-K filed on July 15, 2021)
10.37	Open Market Sale Agreement℠ dated September 21, 2021, by and between Calyxt, Inc. and Jefferies LLC (incorporated by reference to Exhibit 1.1. to the Company's Current Report on Form 8-K filed on September 21, 2021)
10.38†	Annual Incentive Payment Criteria for Executive Officers - In Respect of Fiscal Year 2021 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed on November 4, 2021)
10.39†*	Separation Agreement between Calyxt, Inc. and Sarah Reiter, dated January 20, 2022
21.1	Subsidiaries of Registrant (incorporated by reference to Exhibit 21.1 to the Company's Annual Report on Form 10-K filed with the SEC on March 5, 2020)
23.1*	Consent of Independent Registered Public Accounting Firm
24.1*	Power of Attorney (included on signature page to this Form 10-K)
31.1*	Certification of the Chief Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) of the Securities Exchange Act
31.2*	Certification of the Chief Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) of the Securities 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 Annual Report on 10-K for the year ended December 31, 2021 has been formatted in Inline IXBRL

Confidential treatment has been granted for certain information contained in this exhibit. These portions have been omitted and filed separately with the United States Securities and Exchange Commission.
† Indicates management contract or compensatory plan.
* Filed herewith

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CALYXT, INC.

Date: March 3, 2022

By: /s/ Michael A. Carr

Name: Michael A. Carr

Title: President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated. Each of the undersigned hereby constitute and appoint Michael A. Carr, William F. Koschak, and Debra Frimerman, and each of them, his or her true and lawful attorneys-in-fact and agents, with full and several power of substitution and resubstitution, for him or her and in his or her name, place, and stead in any and all capacities, to sign one or more amendments to this Annual Report on Form 10-K, each in such form as they or any one of them may approve, and to file the same with all exhibits thereto and other documents in connection therewith with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done so that this Annual Report and any amendments shall comply with the Securities Exchange Act of 1934, as amended, and the applicable rules and regulations adopted or issued pursuant thereto, as fully and to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them or their substitute or resubstitute, may lawfully do or cause to be done by virtue hereof.

Signature	Title	Date
/s/ Michael A. Carr Michael A. Carr	President, Chief Executive Officer, and Director (principal executive officer)	March 3, 2022
/s/ William F. Koschak William F. Koschak	Chief Financial Officer (principal financial and accounting officer)	March 3, 2022
/s/ Yves Ribeill Yves Ribeill	Board Chair and Director	March 3, 2022
/s/ Philippe Dumont Philippe Dumont	Director	March 3, 2022
/s/ Anna Ewa Kozicz-Stankiewicz Anna Ewa Kozicz-Stankiewicz	Director	March 3, 2022
/s/ Christopher Neugent Christopher Neugent	Director	March 3, 2022
/s/ Jonathan Fassberg Jonathan Fassberg	Director	March 3, 2022
/s/ Kimberly Nelson Kimberly Nelson	Director	March 3, 2022
/s/ Laurent Arthaud Laurent Arthaud	Director	March 3, 2022

CALYXT, INC.
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Calyxt, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Calyxt, Inc. (the Company) as of December 31, 2021, and 2020, the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2021, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2021, and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

The Company's Ability to Continue as a Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 2, Going Concern, to the financial statements, the Company has incurred recurring losses from operations, utilized cash from operations, and has stated that substantial doubt exists about the Company's ability to continue as a going concern. Management's evaluation of the events and conditions and management's plans regarding these matters are also described in Note 2. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2015.

Minneapolis, Minnesota
March 3, 2022

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

	December 31,	
	2021	**2020**
Assets		
Current assets:		
Cash and cash equivalents	**$ 13,823**	$ 17,299
Short-term investments	**—**	11,698
Restricted cash	**499**	393
Accounts receivable	**—**	4,887
Inventory	**—**	1,383
Prepaid expenses and other current assets	**859**	3,930
Total current assets	**15,181**	39,590
Non-current restricted cash	**99**	597
Land, buildings, and equipment	**21,731**	22,860
Other non-current assets	**183**	280
Total assets	**$ 37,194**	$ 63,327
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	**$ 1,260**	$ 929
Accrued expenses	**339**	2,891
Accrued compensation	**2,522**	1,950
Due to related parties	**172**	766
Current portion of financing lease obligations	**370**	364
Other current liabilities	**191**	45
Total current liabilities	**4,854**	6,945
Financing lease obligations	**17,506**	17,876
Long-term debt	**—**	1,518
Other non-current liabilities	**702**	113
Total liabilities	**23,062**	26,452
Stockholders' equity:		
Common stock, $0.0001 par value; 275,000,000 shares authorized; 38,874,146 shares issued and 38,773,994 shares outstanding as of December 31, 2021, and 37,165,196 shares issued and 37,065,044 shares outstanding as of December 31, 2020	**4**	4
Additional paid-in capital	**211,263**	204,807
Common stock in treasury, at cost; 100,152 shares as of December 31, 2021, and December 31, 2020	**(1,043)**	(1,043)
Accumulated deficit	**(196,092)**	(166,893)
Total stockholders' equity	**14,132**	36,875
Total liabilities and stockholders' equity	**$ 37,194**	$ 63,327

See accompanying notes to the Consolidated Financial Statements.

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

	Year Ended December 31,		
	2021	**2020**	**2019**
Revenue	**$ 25,987**	$ 23,851	$ 7,296
Cost of goods sold	**28,557**	35,127	9,280
Gross profit	**(2,570)**	(11,276)	(1,984)
Operating expenses:			
Research and development	**11,335**	11,082	12,213
Selling, general, and administrative	**15,382**	20,537	24,138
Management fees	**45**	252	1,338
Restructuring costs	**—**	685	—
Total operating expenses	**26,762**	32,556	37,689
Loss from operations	**(29,332)**	(43,832)	(39,673)
Gain upon extinguishment of Payroll Protection Program loan	**1,528**	—	—
Interest, net	**(1,414)**	(878)	110
Non-operating expenses	**19**	(126)	(49)
Loss before income taxes	**(29,199)**	(44,836)	(39,612)
Income taxes	**—**	—	—
Net loss	**$ (29,199)**	$ (44,836)	$ (39,612)
Basic and diluted net loss per share	**$ (0.78)**	$ (1.32)	$ (1.21)
Weighted average shares outstanding - basic and diluted	**37,475,763**	33,882,406	32,805,684
Anti-dilutive stock options, restricted stock units, and performance stock units	**6,001,405**	5,522,418	5,606,552

See accompanying notes to the Consolidated Financial Statements.

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

	Shares Outstanding	Common Stock	Additional Paid-In Capital	Shares in Treasury	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
Balances at December 31, 2018	32,648,893	$ 3	$ 176,069	$ (230)	$ (82,445)	$ —	$ 93,397
Net loss	—	—	—	—	(39,612)	—	(39,612)
Stock-based compensation	—	—	9,175	—	—	—	9,175
Issuance of common stock from stock-based compensation awards	369,260	—	344	—	—	—	344
Shares withheld for net share settlement	(66,824)	—	—	(813)	—	—	(813)
Other comprehensive income	—	—	—	—	—	17	17
Balances at December 31, 2019	32,951,329	3	185,588	(1,043)	(122,057)	17	62,508
Net loss		—		—	(44,836)	—	(44,836)
Stock-based compensation	—	—	4,971	—	—	—	4,971
Issuance of common stock from stock-based compensation awards	381,507	—	212	—	—	—	212
Issuance of common stock from the follow-on offering, net of $1.0 million of issuance costs	3,750,000	1	14,036	—	—	—	14,037
Shares withheld for net share settlement	(17,792)	—	—	—	—	—	—
Other comprehensive income	—	—	—	—	—	(17)	(17)
Balances at December 31, 2020	37,065,044	4	204,807	(1,043)	(166,893)	—	36,875
Net loss		—		—	(29,199)	—	(29,199)
Stock-based compensation	—	—	2,090	—	—	—	2,090
Issuance of common stock from stock-based compensation awards	270,303	—	227	—	—	—	227
Issuance of common stock from ATM Facility, net of $0.5 million of issuance costs	1,438,647	—	4,139	—	—	—	4,139
Shares withheld for net share settlement	—	—	—	—	—	—	—
Balances at December 31, 2021	**38,773,994**	**$ 4**	**$ 211,263**	**$ (1,043)**	**$ (196,092)**	**$ —**	**$ 14,132**

See accompanying notes to the Consolidated Financial Statements.

CALYXT, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In Thousands)

	Year Ended December 31,		
	2021	**2020**	**2019**
Operating activities			
Net loss	**$ (29,199)**	$ (44,836)	$ (39,612)
Adjustments to reconcile net loss to net cash used by operating activities:			
Gain upon extinguishment of Payroll Protection Program loan	**(1,528)**	**—**	**—**
Depreciation and amortization	**2,338**	1,869	1,607
Stock-based compensation	**2,090**	4,971	9,175
Changes in operating assets and liabilities:			
Accounts receivable	**4,887**	(3,765)	(1,122)
Due to/from related parties	**(594)**	(211)	(882)
Inventory	**1,383**	1,211	(2,594)
Prepaid expenses and other current assets	**3,331**	(3,122)	493
Accounts payable	**(360)**	(148)	259
Accrued expenses	**(2,542)**	347	537
Accrued compensation	**572**	(231)	876
Other	**811**	243	(688)
Net cash used by operating activities	**(18,811)**	(43,672)	(31,951)
Investing activities			
Sales and (purchases) of short-term investments, net	**11,698**	(11,698)	—
Purchases of land, buildings, and equipment	**(497)**	(1,786)	(2,969)
Net cash provided (used) by investing activities	**11,201**	(13,484)	(2,969)
Financing activities			
Proceeds from common stock issuance	**4,380**	15,000	—
Costs incurred related to the issuance of stock	**(501)**	(963)	—
Proceeds from Payroll Protection Program loan	**—**	1,518	—
Repayments of financing lease obligations	**(364)**	(360)	(275)
Proceeds from the exercise of stock options	**227**	212	344
Costs incurred related to shares withheld for net settlement	**—**	—	(813)
Proceeds from sale and leaseback of land, buildings, and equipment	**—**	—	414
Net cash provided (used) by financing activities	**3,742**	15,407	(330)
Net decrease in cash, cash equivalents, and restricted cash	**(3,868)**	(41,749)	(35,250)
Cash, cash equivalents, and restricted cash - beginning of period	**18,289**	60,038	95,288
Cash, cash equivalents, and restricted cash – end of period	**$ 14,421**	$ 18,289	$ 60,038

See accompanying notes to the Consolidated Financial Statements.

CALYXT, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Overview

Calyxt, Inc. was founded in 2010 and incorporated in Delaware. Calyxt is a plant-based synthetic biology company that leverages its proprietary PlantSpring™ technology platform to engineer plant metabolism to produce innovative, high-value materials and products for use in helping customers meet their sustainability targets and financial goals. The Company is focused on developing these materials and products for customers in large and differentiated end markets including the cosmeceutical, nutraceutical, and pharmaceutical industries. The Company uses its PlantSpring technology platform for development of those plant-based chemistries and will produce them in its proprietary BioFactory™ production system.

Prior to its initial public offering (IPO) on July 25, 2017, the Company was a wholly owned subsidiary of Cellectis S.A. (Cellectis). As of December 31, 2021, Cellectis owned 61.8 percent of the Company's issued and outstanding common stock. Cellectis has certain contractual rights as well as rights pursuant to the Company's certificate of incorporation and bylaws, in each case, for so long as it maintains threshold beneficial ownership levels in the Company's shares.

Basis of Presentation and Use of Estimates

The Company has prepared its Consolidated Financial Statements according to accounting principles generally accepted in the United States and has included the accounts of Calyxt and its subsidiary.

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires the Company to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes, including those related to revenue recognition, the net realizable value of inventories, stock-based compensation, and valuation allowances on deferred tax assets. Actual results could differ from those estimates.

Cash, Cash Equivalents, Restricted Cash, and Investments

All investments purchased with an original maturity of three months or less are accounted for as cash equivalents. The Company's restricted cash balances are cash and cash equivalents deposited in an amount equal to the future rent payments as required under the Company's equipment lease facility. The Company may request the return of excess restricted cash collateral annually in December. The amount of the restricted cash balance the Company expects to have returned in December 2022 is reflected as a current asset.

The Company periodically invests its cash in high grade, highly liquid securities, and investment funds. The Company considers securities purchased with more than ninety days to their original maturity at issuance to be short-term investments. These short-term investments are classified as available-for-sale securities based on the Company's intent to generally match maturities with Calyxt's projected monthly cash usage. The Company held these securities to their planned maturity or liquidated them earlier in response to variations in the Company's monthly cash usage.

The Company ensures the credit risk in this portfolio is in accordance with its internal policies and if necessary, makes changes to investments to ensure credit risk is minimized. The Company has not experienced any counterparty credit losses.

Accounts Receivable

Accounts receivable are unsecured and are recorded at net realizable value. The Company makes judgments as to its ability to collect outstanding receivables based upon patterns of collectability, historical experience, and its evaluation of specific accounts and will provide an allowance for credit losses when collection becomes doubtful. The Company performs credit evaluations of its customers' financial condition on an as-needed basis. Payment is generally due fifteen or thirty days from the invoice date depending upon the product, and accounts past 30 days are individually analyzed for collectability. When all collection efforts have been exhausted, the account is written off.

Inventory

Inventories are recorded at the lower of cost or net realizable value and include all costs of seed production and grain the Company purchased as well as costs to store and transport the grain. As of December 31, 2020, inventory included the costs to process the grain into finished products. Consideration received from growers when they purchase seed is recorded as a reduction of inventory.

The Company evaluates inventory balances for obsolescence or estimated net realizable value on a regular basis based on the age of the inventory and its sales forecasts. At each period-end, the Company made assumptions regarding projected selling prices for its products considering futures market prices for the underlying agricultural markets and its associated risk management strategies, anticipated costs, and other factors that take into consideration its limited operating history and compare those prices to the current weighted average inventory costs. If the Company's costs were higher than the projected selling prices, then a valuation adjustment was recorded.

Prior to the commercialization of its high oleic soybean products, the Company expensed all grain costs as R&D.

Forward Purchase Contracts

Under the Company's former go-to-market soybean strategy, it would enter into hedging contracts to convert fixed price grain inventories and fixed price grain production agreements to floating prices, consistent with how the grain was sold.

The seed contracts often required the Company to pay prices for the seed produced at commodity futures market prices plus a premium. The seed growers had the option to fix their price with the Company throughout the term of the agreement. The Company paid a portion of the seed cost in December each year and the remainder upon delivery in either the first or second quarter of the following year.

The grain grower contracts required the Company to pay prices for all grain produced at commodity futures market prices plus a premium. The grain growers had the option to fix their price with the Company throughout the term of the agreement. The grain grower contracts allowed for delivery of grain to the Company at harvest, if so specified when the agreement was executed, otherwise delivery occurred on a date that was elected by the Company through August 31, 2021. The Company paid for grain within a contractually determined number of days following delivery and final pricing.

Upon delivery, the inventory was carried at historical cost but sold at prevailing market prices. As a result, the Company entered into hedging arrangements by selling futures contracts which converted its market exposure to these fixed prices to floating prices. By executing these hedging strategies, the Company could closely match the expected economic terms of the grain sale with the market, which helped stabilize margins until such inventory was sold. The Company did not account for these economic hedges as accounting hedges. All unrealized gains or losses on outstanding hedging contracts were recognized in Cost of Goods sold. The Company expected that any gains or losses from these hedging arrangements would be offset by gains or losses on the grain inventories when such grain inventories were sold.

Prior to August 1, 2020, the Company designated all of its commodity derivative contracts as cash flow hedges based on the nature of its business activities. 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). The Company reclassified amounts from AOCI to cost of goods sold when the underlying products were sold to which those hedges related. For the year ended December 31, 2020, the Company reclassified a nominal amount from AOCI to cost of goods sold, and there were no such reclassifications in 2021.

Land, Buildings, and Equipment

Land, buildings, and equipment are stated at cost less accumulated depreciation. Assets under capital lease are stated at the lesser of their net present value of future lease payments or fair market value. Repairs and maintenance costs are expensed as incurred. The cost and accumulated depreciation of property and equipment retired, or otherwise disposed of, are removed from the related accounts, and any residual values are charged to expense. Depreciation is recorded using the straight-line method over estimated useful lives as follows:

Buildings and improvements	10-20 years
Leasehold improvements	Shorter of lease term or 15 years
Office furniture and equipment	7 years
Assets under capital lease	4-20 years
Computer equipment and software	3-5 years
Vehicles	3-6 years

Impairment of Long-Lived Assets

The Company has a single asset group and reviews its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of that asset group may not be recoverable. If the impairment tests indicate that the carrying value of the asset group is greater than the expected undiscounted cash flows to be generated by the asset group, further analysis is performed to determine the fair value of the asset group. To the extent the fair value of the asset group is less than its carrying value, an impairment loss is recognized equal to the amount the carrying value exceeds the fair value of the asset group. If the Company's plans or intentions change with regard to a specific asset within the asset group, that asset's remaining useful life is assessed and depreciation is accelerated if necessary. Assets to be disposed of are carried at the lower of their carrying value or fair value less costs to sell. Fair value is measured using a discounted cash flow model or independent appraisals, as appropriate. The Company has not recognized any impairment losses in these consolidated financial statements.

Revenue Recognition

The Company accounts for a contract as revenue when it has approval and commitment to perform from both parties, the rights of the parties are identified, payment terms are established, the contract has commercial substance, and collectability of the consideration is probable. Changes to contracts are assessed for whether they represent a modification or should be accounted for as a new contract. The Company considers the following indicators, among others, when determining if it is acting as a principal in the transaction and recording revenue on a gross basis: (i) the Company is primarily responsible for fulfilling the promise to provide the specified good or service, (ii) the Company has inventory risk before the specified good or service has been transferred to a customer or after transfer of control to the customer and (iii) the Company has discretion in establishing the price for the specified good or service. If a transaction does not meet the Company's indicators of being a principal in the transaction, then the Company is acting as an agent in the transaction and the associated revenues are recognized on a net basis.

The Company recognizes revenue when control of the good or service has passed to the customer. The following indicators are evaluated in determining when control has passed to the customer: (i) the customer has legal title to the product, (ii) the Company has transferred physical possession of the product or service to the customer, (iii) the Company has a right to receive payment for the good or service, (iv) the customer absorbs the significant risks and rewards of ownership of the good and (v) the customer has accepted the good.

The Company generally does not incur costs to obtain new contracts.

Performance Obligations

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. The Company's contracts may contain multiple performance obligations if a promise to transfer the individual good or service is separately identifiable from other promises in the contracts and, therefore, is considered distinct. Performance obligations that are not considered distinct are combined with other goods or services in the contract until that combination meets the distinct criteria above. For contracts with multiple performance obligations, the Company determines the standalone selling price of each performance obligation and allocates the total transaction price using the relative selling price basis.

The following is a description of the principal goods and services from which the Company generates revenue:

Product Sales

Historically, the Company sold soybean grain, oil, and meal. The Company recognized sales revenue at the point in time that title transferred to the customer, which was based on shipping terms. Sales included shipping and handling charges if billed to the customer and were reported net of trade promotion and other costs, including estimated allowances for returns, unsalable product, and prompt pay discounts. Sales, use, value-added, and other excise taxes were not recognized in revenue. Trade promotions were recorded based on estimated participation and performance levels for offered programs at the time of sale. The Company generally did not allow a right of return.

During 2021 and 2020, the Company sold soybean grain to a processor and subsequent to the sale they utilized the Company's rented third-party storage facility to hold the grain until such time they requested it be delivered. The Company was responsible for all handling charges and delivery activities. In those instances, the Company recognized revenue from the sale of grain to the processor upon the transfer of the control of the grain, which was determined to be at the time of the issuance of the purchase order and assignment of warehouse receipts to the customer. The Company determined that the reason for the arrangement was substantive, in that the customer had requested the arrangement, the product was separately identified as belonging to the customer, the product was ready for physical

transfer, and the Company did not have the ability to use the product or direct it to another customer. The Company concluded that any remaining performance obligations (e.g., for custodial services) were immaterial in relation to the contract. The Company concurrently accrued all estimated future storage, handling, and delivery costs associated with that sale. All arrangements of this nature were completed prior to December 31, 2021.

In certain transactions occurring in the third quarter of 2020, the Company sold grain to a processor with a commitment to provide consideration to the processor in exchange for the soybean meal resulting from the grain crushing activity. The Company determined the consideration payable to the processor was not in exchange for a distinct good or service, as the soybean meal was considered highly interrelated to the grain because they both possess Calyxt specific genetic traits, and the transactions were entered into in contemplation of one another, and therefore, were not considered to be distinct within the context of the contract. For these transactions, the Company recognized revenue from the sale of grain in the amount of the final net cash settlement with the processor, as the consideration payable to the processor was treated as a reduction of revenue.

Technology Licensing

The Company recognizes revenue from license agreements, which may consist of nonrefundable up-front payments, milestone payments, annual licensing fee payments, royalty payments, and payments for services.

Nonrefundable up-front payments are deferred and recognized as revenue over the term of the license agreement. If a license agreement is terminated before the original term of the agreement is fulfilled, all remaining deferred revenue is recognized at termination.

Annual licensing fee payments are generally associated with services in the contract and are recognized over time as the customer receives the benefits of the services. If necessary, the Company establishes and increases a contract asset as the revenue is recognized. For these types of payments, the Company recognizes revenue using an input method, such as the completed contract or time elapsed methods, or an output method, such as the work performed or units produced methods. The Company will apply each method of revenue recognition consistently for like contracts and assess any revenue estimates periodically for cumulative adjustments.

In certain instances, the receipt of payments in these arrangements are dependent upon the achievement of certain scientific, regulatory, commercial, or other milestones. The Company recognizes milestone payments when the triggering event has occurred, there are no further contingencies or services to be provided with respect to that event, and the counterparty has no right to refund of the payment.

Royalty revenues are expected to arise following the commercialization of products developed using the licensed technology by the counterparty to the license agreement. The royalties may be a percentage of sales or another measurement achieved by the licensee. Royalty revenues will be recognized at the later of (i) when the licensee is generating sales subject to royalty payments or (ii) the performance obligation to which the sales-based or usage-based royalties relates has been satisfied.

Product Development Agreements

The Company recognizes revenue from product development agreements, which may consist of nonrefundable up-front payments, milestone payments, annual payments, and payments for services.

Nonrefundable up-front payments are recognized as revenue over the term of the development agreement. If a development agreement is terminated before the original term of the agreement is fulfilled, all remaining deferred revenue is recognized at termination.

In certain instances, the receipt of payments in these arrangements are dependent upon the achievement of certain scientific, regulatory, commercial, or other milestones. Milestone payments are considered variable consideration which are evaluated against the Company’s performance obligations for determination of when it is appropriate to recognize revenue. For purposes of revenue recognition, the Company considers whether the performance obligation is achieved, which may be (i) when a triggering event has occurred, (ii) there are no further contingencies or services to be provided with respect to that event, and (iii) the customer has no right to require refund of their payment. The Company recognizes milestone payments as revenue when it is highly probable that any revenue recognized will not be subsequently reversed.

Annual payments are generally associated with services in the contract and are recognized over time as the customer receives the benefits of the services. If necessary, the Company establishes and increases a contract asset as the revenue is recognized. For these types of payments, the Company recognizes revenue using an input method, such as the completed contract or time elapsed methods, or an output method, such as the work performed or units produced methods. The Company will apply each method of revenue recognition consistently for like contracts and assess any revenue estimates periodically for cumulative adjustments.

Agreements for the performance of research and development services and cost reimbursements are recognized as revenue over time based on work performed.

Collaborative Arrangements

For arrangements that do not represent contracts with a customer, the Company analyzes the transaction to assess whether the arrangement involves joint operating activities performed by parties that are both active participants in the activities and exposed to significant risks and rewards that are dependent on the commercial success of such activities. The Company had no such arrangements as of December 31, 2021.

Advertising Costs

The Company expenses advertising costs as incurred.

Research and Development Expenses

The Company recognizes R&D expenses as incurred. These expenses consist of direct costs for R&D and R&D-related allocations of overhead costs such as facilities and information technology costs. Costs incurred in connection with customer-funded activities are expensed as incurred. Costs to acquire technologies that are utilized in R&D that have no alternative future use are expensed as incurred. Prior to the commercialization of the Company's soybean product, the Company expensed all grain costs as R&D.

Patents

The Company expenses patent costs, including related legal costs, as incurred. Costs to write and support the research for filing patents are recorded as R&D expenses in the statements of operations. Costs to maintain, in-license, and defend patents are recorded as SG&A expenses in the statements of operations.

Stock-Based Compensation

The Company generally measures the fair value of employee and nonemployee stock-based awards on their grant date and records compensation expense on a straight-line basis over the related service period of the award, which is generally the vesting period. The Company uses the Black-Scholes option pricing model to value its stock option awards. The Company generally measures compensation expense for grants of restricted stock units using the Company's share price on the date of grant. The Company uses a Monte Carlo simulation pricing model when estimating the fair values of performance stock units. The Company estimates fair values and accounts for employee and nonemployee awards in a similar manner.

Due to the Company's limited history, it does not always have sufficient historical stock option activity to make predictive assumptions based solely on its stock or stock option activity for the Black-Scholes option pricing model. As a result, the Company may need to use data from other comparable public companies or alternative calculation methods to make predictive assumptions.

The Company estimates its future stock price volatility using the weighted-average historical volatility calculated from a group of comparable public companies over the expected term of the option. The group of comparable public companies is determined by management on an annual basis. When selecting a comparable company, management considers relevant factors including industry and strategy, size, maturity, and financial leverage. The comparable companies used by management to calculate expected volatility may change from year-to-year because of changes in those factors and because a new comparable company may become publicly traded.

The expected term of stock options is estimated using the average of the vesting tranches and the contractual life of each grant for employee options, or the simplified method, as the Company has limited historical information to develop reasonable expectations about future exercise patterns and post-vesting employment termination behavior for its stock option grants.

Due to the limited historical experience of the Company's stock awards program, it has elected to account for forfeitures of awards as they occur. If an award is forfeited prior to vesting, the associated reduction in expense is reflected net in stock-based compensation expense in that period. Stock-based compensation expense is recorded in R&D and SG&A expenses in the Company's consolidated statements of operations.

Income Taxes

Current income taxes are recorded based on statutory obligations for the current operating period for the jurisdictions in which the Company has operations.

Deferred taxes are provided on an asset and liability method, whereby deferred tax assets are recognized for deductible temporary differences and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax basis. Deferred tax assets are reduced by a valuation allowance when the Company believes it is more likely than not that some portion or all the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment.

Foreign Currency Transactions

Transactions in foreign currencies are translated at the exchange rates effective on the transaction dates. Assets and liabilities denominated in foreign currencies are translated at the period-end exchange rate. Foreign currency gains and losses are recognized in non-operating expenses in the consolidated statements of operations.

Foreign currency fluctuations affect the Company's foreign currency cash flows related primarily to payments to Cellectis. The Company's principal foreign currency exposure is to the euro. The Company does not hedge these exposures, and it does not believe that the current level of foreign currency risk is significant to its operations.

Net Loss Per Share

Due to the Company's net loss position for the years ended December 31, 2021, 2020, and 2019, all its outstanding stock options, restricted stock units, and performance stock units are considered anti-dilutive and excluded from the calculation of net loss per share. Accordingly, the treasury method was not used in determining the number of anti-dilutive stock options and restricted stock units.

Recently Issued Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standard Update (ASU) No. 2016-02, “Leases (Topic 842)” (ASU 2016-02). Under ASU 2016-02, an entity will be required to recognize assets and liabilities for the rights and obligations created by leases on the entity’s balance sheet for both finance and operating leases. For leases with a term of 12 months or less, an entity can elect to not recognize lease assets and lease liabilities and expense the lease over a straight-line basis for the term of the lease. Because the Company is an emerging growth company, the Company adopted the new standard on January 1, 2022, using the cumulative effect upon adoption approach.

In June 2016, the FASB issued ASU No. 2016-13, “Financial Instruments – Credit Losses (Topic 326)” (ASU 2016-13). ASU 2016-13 creates 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. The Company is analyzing the impact of this standard on its results of operations and financial position.

2. GOING CONCERN

The Company has incurred losses since its inception and its net loss was $29.2 million for the year ended December 31, 2021, and it used $18.8 million of cash for operating activities for the year ended December 31, 2021. The Company's primary sources of liquidity are its cash and cash equivalents, with additional liquidity accessible, subject to market conditions and other factors, including limitations that may apply to the Company under applicable SEC regulations, from the capital markets, including under its ATM Facility.

As of December 31, 2021, the Company had $14.4 million of cash, cash equivalents, and restricted cash. The Company’s restricted cash is associated with its equipment financing leases and was $0.6 million as of December 31, 2021, with $0.5 million scheduled to be returned in December 2022. Current liabilities were $4.9 million as of December 31, 2021.

On February 23, 2022 (the February 2022 Offering), the Company issued 3,880,000 shares of its common stock, pre-funded warrants to purchase up to 3,880,000 shares of its common stock, and common warrants to purchase up to 7,760,000 shares of its common stock. In the aggregate, the Company received net proceeds of $10.0 million, after deducting approximately $0.9 million of underwriting discounts and estimated other offering expenses.

The Company has incurred losses since its inception and anticipates that it will continue to generate losses for the next several years. Over the longer term and until the Company can generate cash flows sufficient to support its operating capital requirements, it expects to finance a portion of future cash needs through (i) cash on hand, (ii) commercialization activities, which may result in various types of revenue streams from (a) future product development agreements and technology licenses, including upfront and milestone payments, annual license fees, and royalties; and (b) product sales from its proprietary BioFactory production system; (iii) government or other third-party funding, which the Company expects to be more readily available if Cellectis were to own less than 50 percent of the Company's common stock, (iv) public or private equity or debt financings, or (v) a combination of the foregoing. However, additional capital may not be available on reasonable terms, if at all.

For example, based on the Company's public float, as of the date of the filing of this Annual Report, the Company is only permitted to utilize a "shelf" registration statement, including the registration statement under which the Company's the ATM Facility, is operated, subject to Instruction I.B.6 to Form S-3, which is referred to as the "baby shelf" rules. For so long as the Company's public float is less than $75,000,000, it may not sell more than the equivalent of one-third of its public float during any 12 consecutive months pursuant to the baby shelf rules. Although alternative public and private transaction structures are expected to be available, these may require additional time and cost, may impose operational restrictions on the Company, and may not be available on attractive terms.

The Company's ability to continue as a going concern will depend on its ability to obtain additional public or private equity or debt financing, obtain government or private grants and other similar types of funding, attain further operating efficiencies, reduce or contain expenditures, and, ultimately, to generate revenue. The Company's cash, cash equivalents, and restricted cash as of December 31, 2021, considering its plan to continue to invest in the growth and scaling of its BioFactory production system and AIML capabilities and the $10.0 million of net proceeds from the February 2022 Offering, is sufficient to fund its operations into late 2022. The Company's management has concluded there is substantial doubt regarding its ability to continue as a going concern because it anticipates that it will need to raise additional capital to support this business plan for a period of 12 months or more from the date of this filing.

The accompanying financial statements have been prepared on a going concern basis, which contemplates the realization of assets and satisfaction of liabilities in the ordinary course of business. The financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of the uncertainties described above.

If the Company is unable to raise additional capital in a sufficient amount or on acceptable terms, management may be required to implement various cost reduction and other cash-focused measures to manage liquidity and the Company may have to significantly delay, scale back, or cease operations, in part or in full. If the Company raises additional funds through the issuance of additional debt or equity securities, it could result in dilution to its existing stockholders and increased fixed payment obligations, and these securities may have rights senior to those of the Company's shares of common stock. Any of these events could significantly harm the Company's business, financial condition, and prospects.

3. FINANCIAL INSTRUMENTS AND FAIR VALUE

Financial Instruments Measured at Fair Value and Financial Statement Presentation

Financial instruments including cash and cash equivalents, restricted cash, accounts receivable, accounts payable, and all other current liabilities have carrying values that approximate fair value. The Company measures 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.

Fair Value Measurements and Financial Statement Presentation

As of December 31, 2021, the Company had no financial instruments measured at fair value. The fair values of the Company's financial instruments measured at fair value and their respective levels in the fair value hierarchy as of December 31, 2020, were as follows:

	December 31, 2020				December 31, 2020			
	Fair Values of Assets				Fair Values of Liabilities			
In Thousands	**Level 1**	**Level 2**	**Level 3**	**Total**	**Level 1**	**Level 2**	**Level 3**	**Total**
Other items reported at fair value:								
Short-term investments	$ 11,698	$ —	$ —	$ 11,698	$ —	$ —	$ —	$ —
Commodity derivative contracts	467	—	—	467	—	—	—	—
Total	**$ 12,165**	**$ —**	**$ —**	**$ 12,165**	**$ —**	**$ —**	**$ —**	**$ —**

The non-current portion of the Company's financing lease obligations are also considered a financial instrument, which it measures at fair value for disclosure purposes on a non-recurring basis. It is a Level 2 liability and had a fair value of $14.5 million as of December 31, 2021, and a fair value of $15.2 million as of December 31, 2020.

As of December 31, 2021, the Company held no short-term investments. All of the Company's short-term investments as of December 31, 2020, were in corporate debt securities.

Commodity Price Risk

Under the Company's former go-to-market strategy for its soybean product line, it entered into hedging contracts to convert fixed price grain inventories and fixed price grain production agreements to floating prices, consistent with how the grain was sold. These hedging contracts allowed the counterparty to fix their sales prices at various times as defined in the contract. As a result of the continued wind-down of the soybean product line, the Company held no commodity derivative contracts as of December 31, 2021. As of December 31, 2020, the Company held commodity contracts with a notional amount of $12.8 million. The Company had no unrealized losses as of December 31, 2021, and $2.0 million of unrealized losses as of December 31, 2020.

4. RELATED-PARTY TRANSACTIONS

During the year ended December 31, 2020, Cellectis purchased 1,250,000 shares of common stock in the Company’s follow-on offering at the public offering price of $4.00 per share

The Company is party to several agreements that govern its relationship with Cellectis, some of which require the Company to make payments to Cellectis. The Company incurred nominal management fees in 2021 and 2020 as services previously provided by Cellectis were internalized in 2019. For the year ended December 31, 2019, management fees were $1.3 million.

Cellectis has also guaranteed the lease agreement for the Company's headquarters. Cellectis’ guarantee of the Company's obligations under the lease will terminate at the end of the second consecutive calendar year in which the Company's tangible net worth exceeds $300 million. At a point when Cellectis owns 50 percent or less of the Company's outstanding common stock, the Company has agreed to indemnify Cellectis for any obligations incurred by Cellectis under its guaranty of the obligations under the lease.

TALEN® is the Company's primary gene editing technology. TALEN® technology was invented by researchers at the University of Minnesota and Iowa State University and exclusively licensed to Cellectis. The Company obtained an exclusive license for the TALEN® technology for commercial use in plants from Cellectis. The Company also licenses other technology from Cellectis. Cellectis is entitled to royalties on any revenue the Company generates from sales of products less certain amounts as defined in the license agreement, royalties on certain cumulative revenue thresholds, and a percentage of any sublicense revenues. The Company has incurred nominal license and royalty fees for the years ended December 31, 2021, 2020, and 2019.

5. STOCKHOLDERS’ EQUITY

Preferred Stock

Preferred stock of 50.0 million shares, with a $0.0001 par value, is authorized but unissued.

Follow-on Public Offerings

On February 23, 2022, the Company completed a follow-on offering of its common stock and warrants. It issued 3,880,000 shares of its common stock, pre-funded warrants to purchase up to 3,880,000 shares of its common stock, and common warrants to purchase up to 7,760,000 shares of its common stock, all at a price of $1.41 per share. In the aggregate, the Company received net proceeds of $10.0 million, after deducting approximately $0.9 million of underwriting discounts and estimated other offering expenses.

On October 20, 2020, the Company completed a follow-on offering of its common stock. It sold an aggregate of 3,750,000 shares of common stock at a price of $4.00 per share. In the aggregate, the Company received net proceeds from the follow-on offering of $14.0 million, after deducting $1.0 million of placement and agent fees and other offering expenses. As part of the follow-on offering, Cellectis purchased 1,250,000 shares of common stock for a value of $5.0 million, the proceeds of which are included in the net proceeds of $14.0 million.

ATM Facility

On September 21, 2021, the Company entered into an ATM Facility with Jefferies, who is acting as sole selling agent for the ATM Facility. Under the terms of the ATM Facility, the Company may, from time-to-time, issue common stock having an aggregate offering value of up to $50.0 million. At its discretion, the Company determines the timing and number of shares to be issued under the ATM Facility.

As of December 31, 2021, the Company had issued approximately 1.4 million shares of common stock under the ATM Facility. The Company's balance of cash and cash equivalents includes $3.9 million of net proceeds from those sales, and another $0.2 million of cash was received in early January 2022 following the settlement of those sales with the broker. As of the date of this filing, the Company has not issued any additional shares under the ATM Facility.

Share Repurchases

The Company repurchased $0.8 million of common stock in 2019.

6. STOCK-BASED COMPENSATION

The Company uses 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 its shareholders. The Company has also granted equity-based awards to directors, nonemployees, and certain employees of Cellectis.

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

On February 19, 2021, James Blome ceased serving as the Company's Chief Executive Officer. The Company recorded a benefit to earnings from a $2.5 million recapture of non-cash stock compensation expense from the forfeiture of Mr. Blome’s unvested stock options, restricted stock units, and performance stock units.

On July 16, 2021, the Company filed a Registration Statement on Form S-8 with the SEC which registered an additional 4,299,904 shares of common stock that may be issued or delivered and sold pursuant to the 2017 Plan and 600,000 shares of common stock that may be issued or delivered and sold pursuant to the Calyxt, Inc. Employee Inducement Incentive Plan (the Inducement Plan). Shares of common stock are issuable under the Inducement Plan upon the settlement of performance stock units which were granted to Mr. Michael A. Carr in July 2021 as a material inducement to accept employment as the Company's President and Chief Executive Officer.

As of December 31, 2021, 5,508,797 shares were registered and available for grant under effective registration statements, while 5,642,247 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 and the Inducement Plan. No further awards will be granted under either the 2014 Plan or the Inducement Plan.

Stock Options

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

	Year ended December 31,		
	2021	**2020**	**2019**
Estimated fair values of stock options granted	**$ 3.61**	$ 3.24	$ 10.18
Assumptions:			
Risk-free interest rate	**0.6% - 1.2%**	0.3% - 1.7%	1.7% - 2.5%
Expected volatility	**80.1% - 91.0%**	77.4% - 81.2%	52.6% - 78.9%
Expected term (in years)	**5.5 - 6.5**	6.0 - 10.0	6.8 - 10.0

The Company estimates 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 it to make predictive assumptions regarding employee exercise behavior, future stock price volatility, and dividend yield. The Company estimates the risk-free interest rate based on the United States Treasury zero-coupon yield curve at the date of grant for the expected term of the option. The Company estimates its future stock price volatility using the historical volatility of comparable public companies over the expected term of the option. The Company's expected term represents the period that options granted are expected to be outstanding determined using the simplified method. The Company does not, nor does it expect to, pay dividends.

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, 2020	2,347,665	$ 10.15	4,621,173	$ 10.30
Granted			774,959	5.20
Exercised			(61,372)	3.70
Forfeited or expired			(676,335)	10.75
Balance as of December 31, 2021	**2,789,110**	**$ 10.23**	**4,658,425**	**$ 9.47**

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

	Year ended December 31,		
In Thousands	**2021**	**2020**	**2019**
Stock-based compensation expenses	**$ 1,850**	$ 3,371	$ 6,035

As of December 31, 2021, options outstanding and exercisable had no aggregate intrinsic value and the weighted average remaining contractual term was 5.6 years as of that date.

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:

	Year ended December 31,		
In Thousands	**2021**	**2020**	**2019**
Net cash proceeds	**$ 227**	$ 212	$ 344
Intrinsic value of options exercised	**$ 344**	$ 179	$ 905

As of December 31, 2021, unrecognized compensation expense related to non-vested stock options was $5.2 million. This expense will be recognized over 24 months on average.

Restricted Stock Units

The Company grants restricted stock units which generally vest over three to five years after the date of grant. 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, 2020	547,807	$ 9.49
Granted	406,981	4.59
Vested	(193,857)	7.68
Cancelled	(189,628)	10.91
Unvested balance at December 31, 2021	**571,303**	**$ 6.15**

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

	Year ended December 31,		
In Thousands	**2021**	**2020**	**2019**
Grant-date fair value	**$ 1,489**	$ 3,122	$ 3,141

Information on the weighted average grant date fair value of restricted stock units issued was as follows:

	Year ended December 31,		
In Thousands	**2021**	**2020**	**2019**
Weighted average grant date fair value	**$ 4.59**	$ 6.54	$ 12.48

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

	Year ended December 31,		
In Thousands	**2021**	**2020**	**2019**
Stock-based compensation expenses	**$ 224**	$ 1,155	$ 2,910

As of December 31, 2021, unrecognized compensation expense related to restricted stock units was $1.7 million. This expense will be recognized over 22 months on average.

The Company accounts for stock-based compensation awards granted to employees of Cellectis as deemed dividends. The Company recorded deemed dividends as follows:

	Year ended December 31,		
In Thousands	**2021**	**2020**	**2019**
Deemed dividends from grants to Cellectis employees	**$ (289)**	$ 1,168	$ 1,358

Performance Stock Units

From time-to-time, the Company issues performance stock units to certain individuals in management in order to align their objectives with stockholders of the Company. The Company uses a Monte Carlo simulation pricing model when estimating the fair values of these awards.

2021 Grant

In July 2021, the Company granted 600,000 performance stock units under the Inducement Plan to Mr. Carr. The performance stock units will vest if the Company's stock remains above three specified price levels for 30 calendar days over the three-year performance period. The performance stock units will be settled in unrestricted shares of the Company's common stock on the vesting date.

The estimated fair values of performance stock units granted in 2021, and the assumptions used were as follows:

Estimated fair values of performance stock units granted:		
At least $12 per share	**$**	**2.16**
At least $15 per share	**$**	**1.89**
At least $20 per share	**$**	**1.55**
Assumptions:		
Expected term (in years)		**3.0**
Expected volatility		**90.0 %**
Risk-free interest rate		**0.4 %**

The Company estimated the fair value of each tranche of the performance stock units on the grant date using the Monte Carlo simulation pricing model, which required it to make predictive assumptions as to the expected term of the grant, future stock price volatility, and dividend yield. The expected term represents the expected service period of the performance stock units granted. Expected volatility was based on the historical volatility of the Company's common stock over the expected term. The Company estimates the risk-free interest rate based on the United States Treasury zero-coupon yield curve at the date of grant for the expected term of the option.

2019 Grant

In June 2019, the Company granted 311,667 performance stock units under the 2017 Plan to three executive officers. The performance stock units will vest at 50 percent, 100 percent, or 120 percent of the shares under the award at the end of a three-year performance period based upon increases in the value of the Company's common stock from the grant price of $12.48. 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. During 2021, the Company recognized a benefit from the forfeiture of 166,667 performance stock units held by Mr. Blome, its former Chief Executive Officer.

The estimated fair values of performance stock units granted, and the assumptions used were as follows:

Estimated fair values of performance stock units granted	**$**	**7.06**
Assumptions:		
Expected term (in years)		**3.0**
Expected volatility		**75.0 %**
Risk-free interest rate		**1.71 %**

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

	Year ended December 31,		
In Thousands	**2021**	**2020**	**2019**
Stock-based compensation expenses	**$ 16**	$ 445	$ 225

As of December 31, 2021, unrecognized compensation expense related to performance stock units was $1.5 million and will be recognized over 30 months.

Cellectis Equity Incentive Plan

Prior to 2018, Cellectis granted stock options to the Company's employees. Compensation costs related to these grants have been recognized in the statements of operations with a corresponding credit to stockholders' equity, representing the Cellectis' capital contribution to the Company. The fair value of each stock option was estimated at the grant date using the Black-Scholes option pricing model.

The Company recognized stock-based compensation expense related to its Cellectis' grants. Expenses in 2019 were immaterial and as of December 31, 2019, all expenses related to these awards had been recognized.

7. INCOME TAXES

The following table reconciles the United States statutory income tax rate to the Company's effective income tax rate:

	Year ended December 31,		
	2021	**2020**	**2019**
United States statutory rate	**21.0 %**	21.0 %	21.0 %
State tax, net of federal benefit	**1.0 %**	4.2 %	1.0 %
Stock-based compensation	**(0.7 %)**	(0.5 %)	(1.6 %)
Officer compensation	**1.5 %**	(1.0 %)	(1.3 %)
Deferred rate change	**— %**	— %	— %
R&D credit	**1.4 %**	0.8 %	1.8 %
PPP Loan	**1.1 %**	— %	— %
Other	**0.1 %**	(0.1)%	0.3 %
Change in valuation allowance	**(25.4 %)**	(24.4 %)	(21.2 %)
Effective income tax rate	**— %**	— %	— %

Deferred assets and liabilities consist of the following:

	December 31,		
In Thousands	**2021**	**2020**	**2019**
Net operating losses	**$ 38,671**	$ 33,392	$ 24,852
Stock-based compensation	**2,724**	2,531	3,637
Financing lease obligations	**3,820**	4,574	4,640
Tax credit carry forwards	**3,210**	2,577	2,106
Compensation	**514**	339	97
Derivative liability	**—**	703	—
Other	**143**	391	307
Gross deferred tax assets	**49,082**	44,507	35,639
Less valuation allowance	**(45,369)**	(39,898)	(30,888)
Net deferred tax assets	**3,713**	4,609	4,751
Fixed assets	**(3,667)**	(4,609)	(4,746)
Other	**(46)**	—	(5)
Gross deferred tax liabilities	**(3,713)**	(4,609)	(4,751)
Net deferred tax asset or liability	**$ —**	$ —	$ —

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

The Company has $228.5 million of tax loss carryforwards. Of this amount, $55.2 million are state operating loss carryforwards and $173.3 million are federal operating loss carryforwards. The federal carryforward periods are as follows: $131.3 million do not expire and $41.9 million expire between 2032 and 2037. The state net operating losses will expire between 2027 and 2041, with some amounts having indefinite carryover. The Company also has federal and state R&D credit carryovers of $2.3 million and $1.1 million, which will expire between 2028 and 2041.

The Company is subject to federal income taxes in the United States as well as various state and local jurisdictions. The Company has reviewed its tax positions and concluded that no liability for uncertain tax positions is required as of December 31, 2021. The Company will classify any future interest and penalties as a component of income tax expense if incurred.

The Company does not expect the amount of uncertain tax positions to change significantly in the next twelve months. The Company's major taxing jurisdictions are in the United States, at both the federal and state levels. The number of years open for examination varies depending on the tax jurisdiction but are generally from 3 to 5 years.

8. LEASES, OTHER COMMITMENTS, AND CONTINGENCIES

Litigation and Claims

The Company is not currently a party to any material pending legal proceeding.

Leases

The Company leases comprise of its headquarters facility, office equipment, and other items. The Company's 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.

Sale-Leaseback of Headquarters and Lab Facility

In September 2017, the Company consummated a sale-leaseback transaction with a third party for its corporate headquarters and lab facility.

The Company's headquarters facility is comprised of a 44,000 square-foot office and lab building, the first pilot BioFactory production system, greenhouses, and outdoor research plots. The Company was deemed the owner for accounting purposes. The lease has a term of twenty years with four options to extend its term for five years each subject to there being no default under the lease terms beyond any cure period and the Company occupying the property at the time of extension. In 2017, the Company received $7.0 million in connection with the sale of the land and uncompleted facility.

The lease commenced in May 2018. Under the lease, the Company pays an annual base rent of eight percent of the total project cost with scheduled increases in rent of 7.5 percent on the sixth, eleventh, and sixteenth anniversaries of the start of the lease commencement as well as on the first day of each renewal term. Currently, the Company pays an annual base rent of $1.4 million.

The Company is also responsible for all operating costs and expenses associated with the property. If the landlord decides to sell the property, the Company has a right of first refusal to purchase the property on the same terms offered to any third party.

Concurrent with entering the lease, Cellectis guaranteed all of the Company's obligations under the lease agreement. Cellectis' guarantee of the Company's obligations will terminate at the end of the second consecutive calendar year in which its tangible net worth exceeds $300 million, as determined in accordance with generally accepted accounting principles. At a point when Cellectis owns 50 percent or less of the Company's outstanding common stock, the Company has agreed to indemnify Cellectis for any obligations incurred by Cellectis under its guaranty of the obligations under the lease.

Sale-Leaseback of Equipment

The Company also has an equipment financing arrangement that is considered a financing lease. As of December 31, 2021, this arrangement requires aggregate payments of $0.6 million over the next 21 months. The Company was required to deposit cash and cash equivalent amounts equal to the future rent payments as required under the Company's equipment lease facility. As of December 31, 2021, this restricted cash totaled $0.6 million, and a portion may be requested to be returned in each of December 2022 and December 2023.

Operating Leases

As a lessee, the Company leases a vehicle and office equipment under various operating leases.

Rent expense from all operating leases was as follows:

	Year ended December 31,		
In Thousands	**2021**	**2020**	**2019**
Rent expense from operating leases	**$ 46**	**$ 83**	$ 117

Noncancelable future lease commitments are as follows:

In Thousands	Operating Leases	Capital Leases
2022	$ 12	$ 1,708
2023	—	1,552
2024	—	1,487
2025	—	1,487
2026	—	1,481
After fiscal 2027	—	18,470
Total noncancelable future lease commitments	**$ 12**	**$ 26,185**

9. EMPLOYEE BENEFIT PLAN

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

	Year ended December 31,		
In Thousands	**2021**	**2020**	**2019**
Employee benefit plan expenses	**$ 274**	$ 309	$ 228

10. SUPPLEMENTAL INFORMATION

Certain balance sheet amounts are as follows:

	December 31,	
In Thousands	**2021**	**2020**
Accounts Receivable:		
Accounts receivable	**$ —**	$ 4,317
Receivables from growers	**—**	570
Allowance for doubtful accounts	**—**	—
Total	**$ —**	$ 4,887

	December 31,	
In Thousands	**2021**	**2020**
Inventory:		
Raw materials	**$ —**	$ 1,383
Total	**$ —**	$ 1,383

In Thousands	December 31, 2021	2020
Land, buildings, and equipment:		
Land under capital lease	$ 5,690	$ 5,690
Buildings	804	650
Buildings under capital lease	3,812	3,812
Leasehold improvements	215	160
Leasehold improvements under capital lease	10,023	10,023
Office furniture and equipment	5,409	4,813
Office furniture and equipment under capital lease	1,788	1,788
Computer equipment and software	831	83
Construction in progress	849	1,329
Vehicles	38	58
Total land, buildings, and equipment	29,459	28,406
Less accumulated depreciation and amortization	(7,728)	(5,546)
Total	$ 21,731	$ 22,860

Certain statements of operations amounts are as follows:

In Thousands	Year Ended December 31, 2021	2020	2019
Revenue:			
Soybean grain	$ 25,930	$ 12,976	$ —
Soybean meal	—	8,628	5,604
Soybean oil	—	2,220	1,685
Other	57	27	7
Total	$ 25,987	$ 23,851	$ 7,296

In Thousands	Year Ended December 31, 2021	2020	2019
Stock-based compensation expense:			
Research and development	$ 1,465	$ 1,132	$ 2,190
Selling, general, and administrative	625	3,839	6,985
Total	$ 2,090	$ 4,971	$ 9,175

In Thousands	Year Ended December 31, 2021	2020	2019
Interest, net:			
Interest expense	$ (1,431)	$ (1,435)	$ (1,490)
Interest income	17	557	1,600
Total	$ (1,414)	$ (878)	$ 110

Certain statements of cash flows amounts are as follows:

In Thousands	Year Ended December 31, 2021	2020	2019
Cash, cash equivalents, restricted cash, and short-term investments:			
Cash and cash equivalents	$ 13,823	$ 17,299	$ 58,610
Restricted cash	499	393	388
Non-current restricted cash	99	597	1,040
Cash, cash equivalents, and restricted cash	14,421	18,289	60,038
Short-term investments	—	11,698	—
Total	$ 14,421	$ 29,987	$ 60,038

In Thousands	Year Ended December 31, 2021	2020	2019
Supplemental investing and financing transactions:			
Receivable from Jefferies for shares issued under ATM Facility	**$ 260**	$ —	$ —
Interest paid	**$ 1,425**	$ 1,455	$ 1,472
Non-cash additions to land, buildings, and equipment	**$ 691**	$ —	$ 414

11. SEGMENT INFORMATION

The Company operates in a single reportable segment, the development and commercialization of products derived from plant cells. The chief operating decision maker is the Company's Chief Executive Officer, who makes resource allocation decisions and assesses business performance based on financial information presented on a consolidated basis. There are no segment managers who are held accountable by the chief operating decision maker, or anyone else, for operations, operating results, and planning for levels or components below the consolidated unit level. Accordingly, the Company has determined that it operates in a single reportable segment, the development and commercialization of products derived from plant cells. The Company's current commercial focus is North America, and all revenue in 2021 was recognized in the United States.

12. LONG-TERM DEBT

The Company's long-term debt was comprised of a $1.5 million promissory note pursuant to the Paycheck Protection Program (the PPP loan) established by the Coronavirus Aid, Relief, and Economic Security Act (the CARES Act) implemented by the U.S. Small Business Administration (SBA). The Company received the funds under the PPP loan on April 19, 2020. Subject to certain conditions, the PPP loan and accrued interest were eligible to 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 PPP loan were required to 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 percent of the amount applied to non-payroll costs.

The Company applied the proceeds from the PPP loan toward qualifying expenses. On October 21, 2020, as modified December 29, 2020, the Company applied for forgiveness of the full principal amount and all accrued interest. On April 8, 2021, the Company was notified by the SBA that the full principal amount and all accrued interest of the PPP loan had been forgiven. Accordingly, the Company recognized a gain upon the extinguishment of the PPP loan for $1.5 million during the second quarter of 2021.

13. RESTRUCTURING COSTS

On August 4, 2020, the Company approved a move to a streamlined go-to-market strategy for its soybean product line. The impact of the action included staffing adjustments related to soybean processing and product sales, as well as the gradual exit of all supply chain contractual commitments that were not associated with the soybean go-to-market strategy. In the twelve months ended December 31, 2020, the Company recorded $0.7 million of restructuring costs for severance and other related payments, and also recorded a $0.9 million recapture benefit of non-cash stock compensation expense from the forfeiture or modification of unvested stock awards. The Company did not incur any other material costs from the disposal of any assets or contractual terminations in the years ended December 31, 2021, and 2020. As of December 31, 2020, all severance and transitional expenses were recorded, with $0.4 million to be paid during 2021. As of December 31, 2021, all amounts related to the restructuring had been paid.

Exhibit 10.39

January 5, 2022

Re: Separation and Release Agreement

Dear Sarah,

This letter (this "Agreement") describes our agreement regarding the separation of your employment with Calyxt, Inc. (the "Company") effective January 5, 2022, and specifies the terms of the release you are obligated to provide in order to receive the severance and other benefits described in the Calyxt, Inc. 2021 Executive Severance Plan ("Executive Plan").

1. Separation of Employment and Payments. Your employment with the Company ends effective January 5, 2022 without further action by either you or the Company. For purposes of the Executive Plan, the separation of your employment effective January 5, 2022 will be considered a Qualifying Termination pursuant to Section 2.1(w)(ii) of the Executive Plan. The Company will pay you, in accordance with its policies and applicable laws, all earned base salary, accrued and unused vacation time in the amount of 20 days ($23,076.92), and all reimbursable expenses. As of your termination, you have no authority to act on behalf of the Company.

2. Severance and Benefits. The Company will pay you the severance and provide the other benefits described in the Executive Plan if you: (a) sign and deliver, after your employment ends on January 5th but on or before the 30th day thereafter (*i.e.*, February 4, 2022) this Agreement and the Release attached hereto as Exhibit A ("Release"); (b) are complying and continue to comply with the obligations set forth in the Executive Plan and your Employment Agreement (as defined in the Executive Plan); and (c) you do not rescind or revoke any part of the Release. If you meet these requirements, you will receive the following payments pursuant to the Executive Plan ("Severance Pay"), payable as set forth below:

a. $300,000.00, which amount is equal to 12 months of your base pay, payable over a period of 12 months in accordance with the Company's usual payroll procedures;

b. the amount earned by you under the Company's annual cash incentive plan for 2021, which shall be determined based on actual performance by the Compensation Committee and approved by the Board of Directors and shall be paid on or before March 15, 2022;

c. $1,643.84, which amount is your 2022 Annual Performance Bonus on a pro-rata basis, payable in a lump sum payment; and

d. $25,828.11, which amount is the total monthly premiums for medical and dental coverage under COBRA as of January 5, 2022 based on your medical and dental coverage in effect immediately prior to today, for 12 months, payable in a lump sum payment.

Payment of your Severance Pay will commence with the Company's first regularly scheduled payroll following the date of expiration of any right you have to rescind or revoke the properly executed, delivered, and accepted Release. Severance Pay is subject to taxes withholding.

3. Incentive Awards. Pursuant to the terms of the Company 2017 Omnibus Incentive Plan ("Omnibus Plan"), you entered into a Stock Option Agreement with a Date of Grant of November 17, 2020, two Stock Option Agreements with a Date of Grant of March 12, 2021, and two Stock Option Agreements with Date of Grant of June 8, 2021 (collectively, "Option Agreements"); and a Restricted Stock Unit Agreement with a Date of Grant of March 12, 2021 and a second Restricted Stock Unit Agreement with a Date of Grant of June 8, 2021 (collectively, "RSU Agreements"). In accordance with the Option Agreements and the RSU Agreements, you were granted and are vested in the incentive awards set forth on Schedule A, which incentive awards are vested and exercisable at the exercise price set forth therein. The manner and method of exercise shall be pursuant to the terms in the applicable Option Agreement and the exercise price shall be as set forth on Schedule A hereto.

4. Consideration Period. You may review this Agreement with an attorney of your choosing and are hereby advised to do so. Pursuant to the Executive Plan, you have 30 calendar days from the date you receive this Agreement to consider whether you wish to sign it. You acknowledge that if you sign this Agreement before the end of the 30 calendar day period, it is your voluntary decision to do so, and you waive the remainder of the 30 calendar day period.

5. Severability. In the event that any provision of this Agreement is found to be illegal or unenforceable, such provision shall be severed or modified to the extent necessary to make it enforceable, and as so severed or modified, the remainder of this Agreement shall remain in full force and effect. This Agreement shall be governed and construed in accordance with laws of the state of Minnesota, other than its law dealing with conflicts of law.

6. Amendments. No amendment or modification of this Agreement will be effective unless made in writing and signed by you and the Company. This Agreement and the Release, Executive Plan, Omnibus Plan, Option Agreements, RSU Agreements, Employment Agreement, and employee benefit plans sponsored by the Company in which you are a participant, are intended to define the full extent of the legally enforceable undertakings of the parties, and no promises or representations, written or oral, that are not set forth or referenced explicitly in this Agreement, such other agreements, or such other plans are intended by either party to be legally binding. You are not eligible for any other payment or benefits except for those expressly described in this Agreement, provided that you sign this Agreement and the Release and do not rescind any portion of the Release.

By signing this Agreement, you acknowledge that you have read this Agreement and the Release. By signing, you also acknowledge and agree that you have entered into this Agreement knowingly and voluntarily and knew that you could consult with any attorney regarding this Agreement.

If you agree to the terms and conditions of this Agreement, please sign and return the signed Agreement and signed Release to me, keeping a copy for yourself.

Sincerely,

Calyxt, Inc.

/**s/ Michael A. Carr**
Michael A. Carr
President and Chief Executive Officer

I, Sarah Reiter, have read and understand and agree to the terms and conditions set forth above and have signed this Agreement voluntarily and with full knowledge and understanding of its meaning.

Dated the 19th day of January, 2022

/s/ **Sarah Reiter**
Sarah Reiter

EXHIBIT A
RELEASE BY SARAH REITER

In consideration of the Benefits (as defined below) provided and to be provided to me by Calyxt, Inc. (referred to herein as the "Company" or "Calyxt") pursuant to the Calyxt, Inc. 2021 Executive Severance Plan (the "Plan") and in connection with the termination of my employment, I agree to the following general release (the "Release"):

1. On behalf of myself, my heirs, executors, administrators, successors, and assigns, I hereby fully and forever generally release and discharge the Company and its current, former and future parents, subsidiaries, affiliated companies, related entities, employee benefit plans, and, in such capacities, their fiduciaries, predecessors, successors, officers, directors, shareholders, agents, employees and assigns from any and all claims, causes of action, and liabilities up through the date of my execution of the Release whether known or unknown. The claims subject to this release include, but are not limited to, those relating to my employment with Calyxt (and/or its subsidiary or with any predecessor of Calyxt or its subsidiary) or the termination of such employment. All such claims (including related attorneys' fees and costs) are barred without regard to whether those claims are based in law or equity, or arise under statute, contract, or tort. This expressly includes waiver and release of any rights and claims arising under any and all laws, rules, regulations, and ordinances, including, but not limited to: the Minnesota Human Rights Act; the California Fair Employment and Housing Act; the California Family Rights Act; the California Unruh Act; the California Labor Code, including §98.6, §132a, §226, §1102,5, et seq., and §12698, et seq.; the California Private Attorneys General Act; Title VII of the Civil Rights Act of 1964; the Older Workers Benefit Protection Act; the Americans With Disabilities Act; the Age Discrimination in Employment Act; the Fair Labor Standards Act; the National Labor Relations Act; the Family and Medical Leave Act; the Employee Retirement Income Security Act of 1974; the Workers Adjustment and Retraining Notification Act; and the Equal Pay Act of 1963; in each case, as amended, and any similar law of any other state or governmental entity. The parties agree to apply Minnesota law in interpreting this Release.

   Waiver of California Civil Code Section 1542: I understand that I may later discover claims or facts that may be different than, or in addition to, those which I now know or believe to exist with regard to the subject matter of this Agreement, and which, if known at the time of signing this Agreement, may have materially affected this Agreement or my decision to enter into it. Nevertheless, I hereby waive any right or claim that might arise as a result of such different or additional claims or facts. I have been made aware of, and understand the provisions of California Civil Code Section 1542 and hereby expressly waive any and all rights, benefits and protections of the statute, which provides:

   "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, AND THAT IF KNOWN BY HIM OR HER WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY."

   This Release does not extend to, and has no effect upon, any benefits that have accrued or equity that has vested or is eligible for vesting post-employment, under any employee benefit or equity plan, program, policy or grant sponsored or maintained by the Company, or to my right to indemnification and reimbursement of expenses by the Company, and coverage under the Company's director's and officer's insurance policy.

2. In understanding the terms of the Release and my rights, I have been advised to consult with an attorney of my choice prior to executing the Release. I understand that nothing in the Release shall prohibit me

from exercising legal rights that are, as a matter of law, not subject to waiver such as: (a) my rights under applicable workers' compensation laws; (b) my right, if any, to seek unemployment benefits; (c) my right to file a charge or complaint with a government agency such as but not limited to the Equal Employment Opportunity Commission, the National Labor Relations Board, the Department of Labor; or (d) making disclosures that are protected under the whistleblower provisions of state and federal law or regulation.

3. I understand and agree that Calyxt will not provide me with the Benefits unless I execute the Release. I also understand that I have received or will receive, regardless of the execution of the Release, all wages owed to me, less applicable withholdings and deductions, earned through my termination date.

4. As part of my existing and continuing obligations to the Company, I have returned to the Company all Company documents (and all copies thereof) and other Company property that I have had in my possession at any time, including but not limited to Company files, notes, drawings, records, business plans and forecasts, financial information, specification, computer-recorded information, tangible property (including, but not limited to, computers, laptops, pagers, etc.), credit cards, entry cards, identification badges and keys; and any materials of any kind which contain or embody any proprietary or confidential information of the Company (and all reproductions thereof, except as otherwise I am entitled to retain under any agreement with the Company). I understand that, even if I did not sign the Release, I am still bound by the Calyxt Employee Agreement or any and all other confidential/proprietary/trade secret information, non-disclosure and inventions assignment agreement(s) signed by me in connection with my employment with the Company (and/or its subsidiary or with any predecessor of the Company or its subsidiary) pursuant to the terms of such agreement(s).

5. I represent and warrant that I am the sole owner of all claims relating to my employment with the Company (and/or its subsidiary or with any predecessor of the Company or its subsidiary), and that I have not assigned or transferred any claims relating to my employment to any other person or entity.

6. I understand and agree that the Release shall not be construed at any time as an admission of liability or wrongdoing by either the Company or myself.

7. The Company and I will refer prospective employers or others seeking verification of my employment to the Company's Human Resources department, which will verify my dates of employment and job title only. Additionally, and at my request and direction, my salary can be verified.

8. I acknowledge that, except as expressly provided in this Release, I will not receive any additional compensation or benefits after the date of my termination of employment with the Company. Thus, for any Company-sponsored employee benefits not referenced in this Release (including, but not limited to, the Company's 401(k), life insurance, and long-term disability insurance plans), I will be treated as a terminated employee as of the date of my termination of employment.

9. I agree that, by no later than ten (10) days after the date of my termination of employment, I will submit my final documented expense reimbursement statement reflecting all business expenses I incurred through the date of my termination of employment, if any, for which I seek reimbursement. The Company will reimburse me for these expenses (if any) pursuant to its regular business practice. If the Company determines that personal expenses have been charged with the Company credit card, and those expenses are outstanding, I agree that the Company may deduct any such personal expenses from the Benefits.

10. I understand by law that I have twenty-one (21) days from the date I receive this Release to consider whether I wish to sign it. I acknowledge that if I sign this Release before the end of the 21 day period, it is my voluntary decision to do so, and I waive the remainder of the 21 day period.

I understand that pursuant to the Plan, the offer of the Benefits and the Release shall expire on the thirty-first (31st) calendar day after my employment termination date if I have not accepted it by that time (unless the Company notifies me in writing that the offer will expire on a later date pursuant to Section 6.2 of the Plan).

I acknowledge that I have a right to revoke this Release within seven (7) calendar days of signing this Release to reinstate federal claims under the Age Discrimination in Employment Act. I also acknowledge that I have the right to rescind my waiver of claims under the Minnesota Human Rights Act within fifteen (15) calendar days of signing this Release. In order to be effective, the revocation or rescission must be in writing and delivered to Calyxt, Inc., Attn: General Counsel, 2800 Mount Ridge Road, Roseville, MN 55113 by hand or by certified mail return receipt requested within the required period.

This Release will become effective upon the expiration of the 15 calendar day period (the "Effective Date") without revocation or rescission of this Release. I understand that if I exercise my right to revoke or rescind as provided above, this Release will be canceled and I will not receive the Benefits. I understand that the Benefits will become available to me only after the Effective Date in accordance with the terms of the Plan.

11. In executing the Release, I acknowledge that I have not relied upon any statement made by the Company, or any of its representatives or employees, with regard to the Release unless the representation is specifically included herein. Furthermore, the Release contains our entire understanding regarding eligibility for Benefits and supersedes any or all prior representation and agreement regarding the subject matter of the Release. However, the Release does not modify, amend or supersede written Company agreements that are consistent with enforceable provisions of this Release such as the Calyxt Employee Agreement and any written stock incentive award agreements between the Company and me. Once effective and enforceable, this agreement can be changed only by another written agreement signed by me and an authorized representative of the Company.

12. Should any provision of the Release be determined by an arbitrator, court of competent jurisdiction, or government agency to be wholly or partially invalid or unenforceable, the legality, validity and enforceability of the remaining parts, terms, or provisions are intended to remain in full force and effect. Specifically, should a court, arbitrator, or agency conclude that a particular claim may not be released as a matter of law, it is the intention of the parties that the general release and the waiver of unknown claims above shall otherwise remain effective to release any and all other claims. I acknowledge that I have obtained sufficient information to intelligently exercise my own judgment regarding the terms of the Release before executing the Release.

13. The "Benefits" provided and to be provided to me by the Company consist of the benefits and payments in accordance with the Calyxt, Inc. 2021 Executive Severance Plan, as set forth in that certain Letter Agreement from Calyxt to me dated January 5, 2022.

*** * * * ***

Employee's Acceptance of Release

Before signing my name to this Release, I state the following: I have read this Release, I understand it and I know that I am giving up important rights. I have obtained sufficient information to intelligently exercise my own judgment. I have been advised that I should consult with an attorney before signing it, and I have signed the release knowingly and voluntarily.

Executed this 19 day of January 2022.

/s/ **Sarah Reiter**
Your Signature

Sarah Reiter
Your Name (Please Print)

Accepted and Agreed:
Calyxt, Inc.

By: Michael A. Carr
Its: CEO
Date: January 20, 2022

SCHEDULE A

Grant Type	Grant Date	Strike Price	Total	Unvested	Vested
Options (ISO)	11/17/2020	$3.42	75,000	50,000	25,000
Options (NQ)	3/12/2021	$8.05	5,730	2,865	2,865*
Options (ISO)	3/12/2021	$8.05	8,270	4,135	4,135*
Options (NQ)	6/8/2021	$4.54	11,048	11,048	0
Options (ISO)	6/8/2021	$4.54	5,525	5,525	0
RSUs	3/12/2021	N/A	9,500	4,750	4,750*
RSUs	6/8/2021	N/A	11,601	11,601	0

* The vested portion of the equity awards with a Date of Grant of March 12, 2021 are vesting pursuant to the accelerated vesting provision in connection with a Qualifying Termination as set forth in the applicable Option Agreement and RSU Agreement.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

(1) Registration Statement (Form S-8 No. 333-257972) pertaining to the Calyxt, Inc. 2017 Omnibus Incentive Plan and 2021 Employee Inducement Incentive Plan,

(2) Registration Statement (Form S-3 No. 333-233231) of Calyxt, Inc.,

(3) Registration Statement (Form S-8 No. 333-231336) pertaining to the Calyxt, Inc. 2017 Omnibus Incentive Plan of Calyxt, Inc., and

(4) Registration Statement (Form S-8 No. 333-219382) pertaining to the Calyxt, Inc. 2017 Omnibus Incentive Plan and the Calyxt, Inc. Equity Incentive Plan of Calyxt, Inc.

of our report dated March 3, 2022, with respect to the consolidated financial statements of Calyxt, Inc. included in this Annual Report (Form 10-K) for the year ended December 31, 2021.

/s/ Ernst & Young LLP

Minneapolis, Minnesota

March 3, 2022

Exhibit 31.1

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

I, Michael A. Carr, certify that:

1. I have reviewed this Annual Report on Form 10-K 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(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) 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: March 3, 2022

/s/ Michael A. Carr
Michael A. Carr
President and Chief Executive Officer

Exhibit 31.2

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 Annual Report on Form 10-K 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(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) 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: March 3, 2022

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

Exhibit 32

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 Annual Report of Calyxt, Inc. (the "Company") on Form 10-K for the period ended December 31, 2021, 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: March 3, 2022

/s/ Michael A. Carr
Michael A. Carr
President and Chief Executive Officer

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