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

# FORM 8-K

**CURRENT REPORT**
**Pursuant to Section 13 or 15(d)**
**of the Securities Exchange Act of 1934**

**Date of Report: (Date of earliest event reported): February 18, 2022 (February 17, 2022)**

# Calyxt, Inc.
**(Exact name of registrant as specified in its charter)**

| **Delaware** | **001-38161** | **27-1967997** |
|---|---|---|
| **(State or other jurisdiction of incorporation)** | **(Commission File Number)** | **(IRS Employer Identification No.)** |

**2800 Mount Ridge Road**
**Roseville, MN 55113-1127**
**(Address and zip code of principal executive offices)**

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

**Not Applicable**
**(Former name or former address, if changed since last report)**

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

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

| Title of each class | Trading Symbol(s) | Name of exchange on which registered |
|---|---|---|
| **Common Stock, par value $0.0001 per share** | **CLXT** | **The NASDAQ Global Market** |

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter). 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. ☐

**Item 2.02 Results of Operation and Financial Condition.**

On February 17, 2022, Calyxt, Inc. (the "Company") filed a preliminary prospectus supplement (the "Preliminary Prospectus Supplement") with the Securities and Exchange Commission (the "Commission") under Rule 424(b) under the Securities Act of 1933, as amended (the "Securities Act"), in connection with an SEC-registered offering (the "Offering") of its common stock and warrants to purchase its common stock pursuant to an effective shelf registration statement filed on Form S-3 (File No. 333-233231) with the Commission.

In the Preliminary Prospectus Supplement, the Company disclosed certain preliminary estimated financial information. In particular, the Company disclosed that as of December 31, 2021, the Company's cash and cash equivalents was $13.7 million, restricted cash was $0.6 million, total current liabilities were $4.1 million, and financing lease obligations, including current portion, were $17.9 million. As of December 31, 2021, Cellectis owned 61.8 percent of Calyxt's 38,773,994 outstanding shares of common stock.

This preliminary financial information is based on information available to the Company as of the date of this Current Report on Form 8-K and is subject to the completion of the Company's year-end financial closing procedures. The preliminary estimated information set forth above have not been audited and are subject to change pending completion of the Company's audited financial statements for the year ended December 31, 2021. It is possible that the Company or its independent registered public accounting firm may identify items that require them to make adjustments to the preliminary estimates set forth above and those changes could be material.

The information in Item 2.02 of this Form 8-K shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference into any filings made by the Company under the Securities Act of 1933, as amended, or the Exchange Act, regardless of any general incorporation language in any such filing, unless the Company expressly sets forth in such filing that such information is to be considered "filed" or incorporated by reference therein. The furnishing of this information will not be deemed an admission as to the materiality of any information contained herein.

**Item 8.01. Other Events.**

The Preliminary Prospectus contains an updated description of certain aspects of the Company's business and its risk factors

In connection with the Offering described under Item 2.02 above, the Company included an updated description of certain aspects of its business (the "Updated Business Disclosure") and updated the risk factor disclosure (the "Updated Risk Factor Disclosure") from the Company's prior filings with the Commission. Accordingly, the Company is filing the Updated Business Disclosure as Exhibit 99.1 to this Current Report on Form 8-K and the Updated Risk Factor Disclosure as Exhibit 99.2 to this Current Report on Form 8-K. Exhibits 99.1 and 99.2 are incorporated herein by reference, except for the preliminary financial information identified in Item 2.02, which shall not be deemed "filed" and are not incorporated herein by reference.

This Current Report on Form 8-K, including the exhibits hereto, shall not constitute an offer to sell or the solicitation of an offer to buy any securities of the Company, which is being made only by means of a written prospectus meeting the requirements of Section 10 of the Securities Act of 1933, nor shall there be any sale of the Company's securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of such jurisdiction.

This Current Report on Form 8-K contains "forward-looking statements" within the meaning of the federal securities laws, including Section 27A of the Securities Act and Section 21E of the Exchange Act. Calyxt has made these forward-looking statements in reliance on the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. In some cases, you can identify these statements by forward-looking words such as "estimates," "pending," "preliminary," and "subject to change" or the negative of these terms and other similar terminology. Forward-looking statements in this report include statements about the Company's preliminary financial information as of December 31, 2021.

**Item 9.01. Financial Statements and Exhibits.**

**(d) Exhibits**

| Exhibit Number | Description |
|---|---|
| 99.1 | Updated Business Disclosure |
| 99.2 | Updated Risk Factor Disclosure |
| 104 | Cover Page Interactive Data File (embedded within the Inline XBRL document) |

**SIGNATURES**

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

Dated: February 18, 2022

CALYXT, INC.

By: /s/ Michael A. Carr
Name: Michael A. Carr
Title: President and Chief Executive Officer

# 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 herein, 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. The development process is also designed to use an iterative learning mechanism through which accumulated knowledge is leveraged. As the Company expands and develops its AIML capabilities, Calyxt intends to utilize them throughout the balance of 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. 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.

- 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 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.

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. Because of the promise of AIML and the Company's focus on expanding its AIML capabilities, 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 hormone-free 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 and/or the application of hormones to facilitate growth. 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. Since activation of the pilot-scale bioreactor, the Company has successfully produced proof-of-concept compounds —ovalbumin, a plant-based protein, and betanin, a red colorant typically derived from beets. 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 the BioFactory's 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, 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 and each year thereafter.

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, 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.

**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.

# RISK FACTORS

## Risks Related to Calyxt's Business and 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 the Company's 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 the Company's 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 than the Company, and other competitive advantages over the Company, 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, the Company's 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 Company's 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 the Company's revenue growth from new pipeline products may be prevented or delayed, and the Company's business and operating results may be harmed.

In order for novel products from the Company's 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, the Company 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 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 the Company's 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 the Company's prior business models, which involved different areas of strategic 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, the Company 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, the Company's 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 expects that it will need to raise additional funding, 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.***

The Company has incurred losses since its inception. As of September 30, 2021, the Company had an accumulated deficit of $189.0 million. The Company's net losses were $22.1 million for the nine months ended September 30, 2021, and the Company used $14.7 million of cash for operating activities for the nine months ended September 30, 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 Open Market Sale Agreement℠ with Jefferies LLC (the ATM Facility).

As of December 31, 2021, the Company had $14.3 million of cash, cash equivalents, and restricted cash. The Company's restricted cash is associated with its equipment financing leases and was $1.0 million as of September 30, 2021 and $0.6 million as of December 31, 2021. Current liabilities were $5.1 million as of September 30, 2021 and $4.1 million as of December 31, 2021.

The Company 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, the Company currently expects that based on the Company's public float, as of the date of the filing of the Company's Annual Report for the year ended December 31, 2021, the Company will only permitted to utilize a "shelf" registration statement, including the registration statement under which the Company's ATM Facility is operated, subject to Instruction I.B.6 to Form S-3, which is referred to as the "baby shelf" rules. From the date of the filing of the Annual Report for the year ended December 31, 2021 and for so long as the Company's public float remains less than $75,000,000, it will not be permitted to 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 current operating plans reflect a modest level of payments from customers for commercial activities in 2022 and planned spending to support the further scale up of the production of the BioFactory production system. The Company will require additional liquidity through public or private equity or debt financings to continue operations under this business plan over the next 12 months.

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 discontinue its development or commercialization activities. Failure to receive additional funding could cause the Company to 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 "Business—Competition". Many of these competitors have substantially greater financial, technical, marketing, sales, distribution, and other resources than the Company. Many of the Company's 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 the Company 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 the Company's 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 the Company's 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 the Company's 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, the Company's 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, the Company 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 the Company's 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 partners commences work. As a

result, delays may occur, which could materially impact the Company's ability to meet desired development timelines, and 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, the Company's 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's ability to continue as a going concern will depend on its ability to obtain additional financing.***

The Company's primary sources of liquidity are its cash and cash equivalents, with additional liquidity accessible, subject to market conditions and other factors, from the capital markets. As of December 31, 2021, the Company had $14.3 million of cash, cash equivalents, and restricted cash. Current liabilities were $4.1 million as of December 31, 2021.

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, attain further operating efficiencies, reduce or contain expenditures, and, ultimately, to generate revenue. Even following the Company's offering announced on February 17, 2022, the Company expects that there will be substantial doubt about its ability to continue as a going concern. To finance the Company's continued operations under its current business plan over the next 12 months, the Company anticipates that it will need to raise additional capital. This estimate is based on assumptions that may prove to be wrong. Although management anticipates that can implement cost reduction and other cash-focused measures in order to manage liquidity to a certain extent, expenses could prove to be significantly higher than expected, leading to a more rapid consumption of the Company's existing resources.

If the Company is unable to continue as a going concern, it may have to liquidate its assets and may receive less than the value at which those assets are carried on its audited consolidated financial statements, and it is likely that investors will lose all or part of their investment. If the Company seeks additional financing to fund its business activities in the future and there is substantial doubt about the Company's ability to continue as a going concern, investors or other financing sources may be unwilling to provide additional funding to the Company on commercially reasonable terms or at all.

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

As of December 31, 2021, Calyxt 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, Calyxt may generate additional NOLs in future years. Calyxt 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.

Calyxt'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 5% 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 Calyxt 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 Calyxt involving the sale or issuance of Calyxt's 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, Calyxt 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 Calyxt 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 Calyxt's U.S. federal income taxes to be greater, or to be paid earlier, than they otherwise would be, and could cause some of Calyxt's 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 Calyxt's ability to use current or future NOLs to offset Calyxt's future federal income tax liabilities.

***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 herein.

**Risks Related to Calyxt's 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 Calyxt's 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 a 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 the Company's customers. If the regulatory burden and expense required for the utilization of the Company's products becomes too significant, the Company's 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 assure you 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 Calyxt'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 Calyxt'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;
- market perceptions regarding Calyxt's prospects and technologies; and
- changes in general economic, industry and market conditions affecting the Company, its competitors, or Cellectis; and
- the ongoing impacts of the COVID-19 pandemic and resulting impact on stock market performance.

Between January 1, 2021, and February 16, 2022, the closing sales price of Calyxt's common stock on the Nasdaq Global Market fluctuated from a high of $12.43 per share to a low of $1.38 per share.

These and other market and industry factors may cause the market price and demand for Calyxt's common stock to fluctuate substantially, regardless of Calyxt's actual operating performance, which may limit or prevent investors from readily selling their common stock at a favorable price or at all and may otherwise negatively affect the liquidity of Calyxt's common stock.

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 Calyxt'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 Global Market 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 Global Market. 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 Global Market 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 Global Market.

***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.

**Risks 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.