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

FORM 10-K

(Mark One)

[X] **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2020

or

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

For the transition period from _____ to _____

Commission File Number: 001-36030

Marrone Bio Innovations, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**20-5137161**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

1540 Drew Avenue, Davis, California 95618
(Address of principal executive offices and zip code)

(530) 750-2800
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.00001 par value	MBII	Nasdaq Capital Market

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

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

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

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

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

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

Large accelerated filer	[ ]	Accelerated filer	[ ]
Non-accelerated filer	[X]	Smaller reporting company	[X]
Emerging growth company	[ ]		

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes [ ] No [X]

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

As of June 30, 2020, the last day of the registrant's most recently completed second quarter, the aggregate market value of the registrant's voting and non-voting common stock held by non-affiliates was $67,643,673 based upon the closing price of the common stock as reported on the Nasdaq Capital Market. This calculation excludes the shares of common stock held by each officer, director and holder of 5% or more of the outstanding common stock as of June 30, 2020. This calculation does not reflect a determination that such persons are affiliates for any other purposes.

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

Class	Shares Outstanding at March 16, 2021
Common Stock, $0.00001 par value	173,483,026

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for its 2021 Annual Meeting of Stockholders are incorporated by reference in Part III of this Annual Report on Form 10-K where indicated. Such proxy statement is expected to be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2020.

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Special Note Regarding Forward-Looking Statements and Trade Names

This Annual Report on Form 10-K includes a number of "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements involve many risks and uncertainties, and may be identified by the use of the words "would", "could", "will", "may", "expect", "believe", "should", "anticipate", "outlook", "if", "future", "intend", "plan", "estimate", "predict", "potential", "targets", "seek" or "continue" and similar words and phrases, including the negatives of these terms, or other variations of these terms, that denote future events. These forward-looking statements include: our beliefs with respect to the agricultural industry and related markets, including production levels, consolidation trends, and market opportunity; our plans and expectations regarding growth in our business, expansion to new markets, diversification of our product portfolio and strategic acquisitions and partnerships; our ability to effectively manage sales and marketing teams and distribution networks; our ability to integrate new products, technologies, and employee teams after any strategic acquisition; our expectations regarding revenues and sales, including potential growth in sales, changes to sales mix and expectations regarding seasonality and the impact of weather-related conditions; our expectations regarding discovering, developing, launching, commercializing and registering new products; our plans and expectations with regarding to manufacturing and production; our ability to protect our intellectual property in the United States and abroad; our ability to comply with ongoing and changing regulatory frameworks, including environmental, agricultural, and worker safety requirements, and to obtain product approvals; our ability to maintain a competitive position in our markets; our beliefs regarding our environmental, social, and governance leadership; our plans and expectations relating to our debt agreements; our ability to use carryforwards; our ability to influence customer perception of biological agricultural products; potential impact of the COVID-19 pandemic; our ability to maintain adequate cybersecurity measures to protect our information technology systems and infrastructure; our belief regarding our access to capital resources through equity offerings, debt financings, strategic collaborations or other means; our anticipated impact of certain accounting pronouncements; our expectations regarding market risk, including interest rate changes, foreign currency fluctuations and commodity price changes; and our expectations with respect to our future expenditures, available cash and other financial and operating results. These statements reflect our current views with respect to future events and our potential financial performance and are subject to risks and uncertainties that could cause our actual results and financial position to differ materially and adversely from what is projected or implied in any forward-looking statements included in this Annual Report on Form 10-K. These factors include, but are not limited to, the risks described under Part I–Item 1A—"Risk Factors," Part II–Item 7—"Management's Discussion and Analysis of Financial Condition and Results of Operations," elsewhere in this Annual Report on Form 10-K and those discussed in other documents we file with the U.S. Securities and Exchange Commission ("SEC"). We make these forward-looking statements based upon information available on the date of this Annual Report on Form 10-K, and we have no obligation (and expressly disclaim any such obligation) to update or alter any forward-looking statements, whether as a result of new information or otherwise except as otherwise required by securities regulations.

As used herein, "MBI", the "Company", "we", "our" and similar terms refer to Marrone Bio Innovations, Inc., together with its subsidiaries, including Pro Farm Technologies OY (or "Pro Farm"), unless the context indicates otherwise.

Except as context otherwise requires, references in this Annual Report on Form 10-K to our product lines, such as Regalia, refer collectively to all formulations of the respective product line, such as Regalia Maxx, Regalia Rx or Regalia SC, and all trade names under which our distributors sell such product lines internationally, such as Sakalia™. Our logos, Grandevo®, Regalia®, Venerate®, Zequanox®, Haven®, Majestene®, Stargus®, Zelto®, Amplitude®, Jet-Ag®, Jet Oxide®, UBP-110®, Foramin® and other trade names, trademarks or service marks of MBI appearing herein are the property of MBI. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply relationships with, or endorsement or sponsorship of us by, these other companies.

PART I

ITEM 1. BUSINESS

We are a growth-oriented agricultural company that supports environmentally sustainable farming practices through the discovery, development and sale of innovative biological products for crop protection, crop health and crop nutrition. Our products are sold through distributors and other commercial partners to growers around the world for use in integrated pest management and crop protection systems that improve efficacy and increase yields and quality while protecting the environment. Our products are often used in conjunction with or as an alternative to other agricultural solutions to control pests and enhance plant nutrition and health.

Our portfolio of 15 products helps customers operate more sustainably while increasing their return on investment. Our products are used globally, and can be applied as foliar treatments or as seed-and-soil treatments, either on their own or in combination with other agricultural products. Our end markets include row crops, such as corn and soybeans, fruits and vegetables, such as tomatoes, leafy greens and cucurbits, trees, nuts and vines, such as almonds and grapes, and greenhouse production, such as ornamentals and medicinal plants.

Our research and development program uses proprietary technologies to isolate and screen naturally occurring microorganisms and plant extracts to create new, environmentally sound solutions in agriculture. Our research has resulted in novel biological products that help the grower:

- Protect crops from diseases, insects and weeds;
- Promote plant health and improve the soil microbiome; and
- Enhance a crop's efficient use of nutrients.

Our products are supported by a robust portfolio of more than 500 issued and pending patents worldwide. Our products are approved by federal and state government agencies for use in organic and/or conventional farming systems. Most of our products are produced or packaged at our dedicated, state-of-the-art manufacturing plant in Bangor, Michigan. We also have a minority ownership in a third-party manufacturing facility in Vyborg, Russia.

Industry Overview

Biological agricultural products, or biologicals, include bioprotection products, biofertilizers (bionutrition) and biostimulants, and occupy a unique space in agriculture as emerging technologies that offer proven economic and environmental benefits to the consumer, the grower and the distributor.

For consumers, biologicals are part of the trend toward accessible, affordable, high-quality food produced in an environmentally sustainable manner. For growers and distributors, biologicals offer alternative solutions to farm in a way that not only enhances crop quality but also protects natural resources and reduces carbon footprint.

Farmers continually explore new options in crop production. Biologicals treatments give them innovative tools to increase yields and quality while protecting the safety of their operations and the health of their families, employees and land.

The global demand for alternative agricultural solutions drives the need for products that:

- Increase yield and crop quality;
- Improve soil health and nutrient utilization;
- Benefit the soil microbiome; and
- Provide greater convenience and flexibility in growing practices.

To meet these objectives, an increasing number of growers are implementing integrated pest management ("IPM") programs. Growers use IPM to produce crops by the most economical means, and with the least possible hazard to people, property, and the environment. Biological agricultural products and crop cultivating techniques such as crop rotation and low-or-no tillage are among the most commonly used IPM practices.

The market for biological products is highly fragmented. There are around 300 known biopesticide active substances and organisms, and this high degree of fragmentation makes it difficult for the distribution channel and growers to differentiate between products and suppliers. Channel access favors those who can be long-term trusted partners consistently delivering products that provide the highest level of performance and return on investment.

Biologicals are developed and sold by two groups of agricultural companies. First, major, diversified agricultural suppliers who also sell seeds, fertilizers and chemical treatments for pest and weed control. Second, smaller companies dedicated primarily to research, development and commercialization of biologically based products.

We believe recent acquisitions or partnerships by major agricultural enterprises of biologicals companies signal a trend toward further consolidation, underscoring the value of the sector in the broader agricultural industry landscape.

Biologicals are delivering double-digit growth industrywide, as compared with low-single-digit growth for conventional crop protection products. We believe the market opportunity is significant: the market for agricultural biologicals, estimated to be more than $7 billion for 2019, still only represented less than 15% of the total crop protection market for the same year, according to market research firms MarketandMarkets and Phillips McDougal, respectively.

Our Competitive Advantages

We are the leading pure-play, public company in the agricultural biologicals space, with a track record of revenue growth and gross margin expansion. To establish a leadership position in the biologicals space, we have spent significant time and resources advancing our product lines, expanding our portfolio through internal development and acquisitions, and building our infrastructure, plant capacity and global footprint. Our competitive advantages include:

Breadth and depth of experience –We have been a pioneer in the field of agricultural biological solutions, and have a track record of serving a full range of specialty and row crops for growers using conventional, organic or regenerative farming practices.

Unparalled product portfolio – We offer products across all three categories of biologicals: crop protection, crop health and crop nutrition. With 15 products to offer, we have size and scale that give us relevance within the agricultural distribution network and pull-through demand from growers.

Global commercial reach – We have partnerships with more than 15 distributors in more than 20 countries, and sell our novel, efficacious products to growers worldwide. We are reaping the benefits of the relationships we have built with partners in key growing regions outside the United States. We are becoming a less U.S.-centric company, with the potential to expand significantly in the large growing regions in Latin America and the European Union. We are rapidly diversifying our global mix, with a target to have our sales closer to an equal split between North America and the rest of the world by 2023.

Rapid integration of strategic acquisitions – We made two strategic acquisitions in the second half of 2019: Pro Farm and the Jet-Ag and Jet-Oxide product families. Both were rapidly integrated into our operations and were immediate contributors to revenue growth and margin expansion. Pro Farm afforded us rapid entry into the key row crop markets of Europe and the Commonwealth of Independent States, and is central to our expansion in South America, including Brazil and Argentina. Aggressive field trial programs

incorporating the Pro Farm crop nutrition products were conducted in 2020, often in combination with existing crop protection products in our historic portfolio. We anticipate the potential for further commercial synergies within distribution networks and product lines from this acquisition.

A robust, cost-efficient research and development pipeline – Our breakthrough research and development is based on a proprietary library of approximately 18,000 micro-organisms and 350 plant extracts. Our 10-year pipeline includes 20 potential product candidates, 7 of which are projected to launch through 2022. We are targeting approximately an additional $50 million in revenues from the launch of our pipeline products through 2026.

Speed to market – Discovery of new biologicals is cost effective: A new product can be brought to market at less than 5% of what it costs to develop a crop protection chemical, and in one-third of the time or less. We believe we have demonstrated our ability to develop and commercialize novel and effective products at commercially competitive rates and standards. We have continued to develop and refine these products, reducing manufacturing costs, producing new formulations, applying for expanded use labels and seeking new overseas markets, in each case at a cost of less than $11 million per product line.

Dedicated manufacturing capabilities – We operate two packaging and manufacturing facilities, one in Bangor, Michigan (Marrone Michigan Manufacturing, or MMM), and the other, a minority interest in third-party manufacturing in Vyborg, Russia. The MMM facility has made recent advances that have increased production yields and generally reduced cost of product revenues. This has been achieved through greater scale and improved utilization rates to increase volumes and yields while lowering overhead. The MMM manufacturing facility is preparing for an expansion that we believe will allow us to bring additional production in-house, improve gross margins and reduce working capital. We are currently investing more than $1 million in an upgrade of the facility with a projected two-year payback.

Regulatory expertise and patent positions – As an early developer of biological agricultural products, we have in-depth experience seeking approvals and registrations for our unique products in countries around the world. Our commercial efforts are supported by more than 500 issued and pending patents worldwide.

Our Growth Strategy

We have built a full-service biologicals organization with scope and capabilities across the spectrum of biological products in the market today. Our strategic objective is to capitalize on that position and emerge as a leader in the biologicals space with the financial and operational wherewithal to accelerate our path to profitability.

As we look forward, our goal is to leverage our base business, while accelerating our expansion plans and broadening our global reach. We are committed to launching the brand extensions and pipeline products that offer the greatest return on investment for our channel partners and grower customers. We anticipate that synergistic, value-creating acquisitions and partnerships will be part of our strategy. We believe we can continue to tuck in additional product lines as we build a larger commercial presence with a scalable platform.

Our success will be defined by:

The diversification of our portfolio, whether it be the products we sell, the crops we serve or the geographies we reach.

- In 2019, our sales were roughly one-third biofungicides, one-third bioinsecticides and bionematicides, and one-third seed-and-soil treatments. Over the next three years, as sales grow, we are targeting a shift in product mix to seed-and-soil treatments at approximately 43% and plant health products at approximately 14%, while maintaining a strong position in crop protection products at approximately 43%.
- Specialty crops were the foundation of our historical sales, but we also are making significant inroads into row crops, including soybeans and corn. We are targeting an increase in row crops to comprise half of our sales by 2023, up from roughly one-third of our applications mix in 2019.
- We are targeting roughly equal sales between North America and the rest of the world by 2023, which would be a major change from 2020 when more than 70% of our sales were in North America.

Commercial launch of novel, efficacious agricultural biological products through investments in high-priority research and development projects that can accelerate the time to market and revenue contributions.

- We believe our pipeline uniquely positions us as a leader in the research, development and commercialization of products within this rapidly growing sector of agriculture. We are focused on a robust set of options across the entire sector, and especially in the seed-and-soil treatment market. In addition, we have significant opportunity to build on our leadership position in bioprotection products, while making further inroads into major row crops globally.
- We have undertaken an in-depth review of our research and development pipeline to ensure it delivers the maximum value for all key stakeholders – including our grower customers, our distribution channel partners, and our stockholders.
- We believe this revamped research and development program is highly responsive to customer needs, while making the most efficient use of available resources to provide the greatest returns on investment. By our estimates, our pipeline has the potential to add approximately $50 million in incremental revenues in the 2026 timeframe, and over $100 million in incremental revenues by 2030. Near-term, we have identified 7 pipeline products that have a high-probability of reaching the market in 2021 and 2022. All are well understood in our pipeline and commercial portfolio, with clear lines of sight into addressable markets, crops and customer value propositions.

Strategic, accretive acquisitions, as well as investments in partners with complementary technologies that would strengthen our pipeline or commercial offerings.

We have proactively identified the criteria for our acquisition strategy. Ideal candidates should generally have:

- A proven portfolio of efficacious products;
- A solid suite of intellectual property and protection;
- A track record of commercial success and growth;
- The potential for meaningful synergies and cost savings; and
- Accretion to earnings within 24 months.

Any partnerships, mergers or acquisitions should immediately broaden our portfolio, as well as have the opportunity to explore new combinations between respective technologies and pipelines that will expand our ability to bring novel products to market through our distribution channel partners.

An unrelenting focus on being brilliant at the basics — driving operational and financial excellence, with a keen eye on net income, cash flow and a healthy balance sheet.

- We believe we have reached a turning point in our evolution as a commercial provider of sustainable, biological solutions. With four years of revenue growth at a 28% compounded annual growth rate and an annual gross profit margin greater than 50%, we have established a commercial base from which we can accelerate our velocity and expand our leadership position in the space.
- We are making progress on managing operating expenses relative to the growth of our revenues and gross profit. We will seek to maintain future operating expenses in line with 2020 levels, plus inflation. We believe this is a level of operating expenses that can still support our continued strong growth and accelerate our path to profitability.

- Warrant transactions in 2019 and early 2020 strengthened our balance sheet and reduced dilution in a cost effective manner to support our operational needs.

Our Markets

Our biological product portfolio provides growers with comprehensive solutions from planting to harvest; increasing plant vigor and health; controlling pests and diseases; reducing crop stress; increasing yields; and improving plant nutrient use efficiency, all of which provide growers a better return on investment for their farming operations.

Biologicals Product Categories

Our product categories include products often referred to as biopesticides, bioinsecticides, bionematicides, biofungicides, biostimulants and bionutrition, among others.

Crop Protection: Our historical commercial strength has been in the crop protection arena – biological products that protect crops against fungus, insects and nematodes. These are either sprayed on the leaves of plants and trees at various points in the growing season, or used as seed- or soil-based treatments at planting. This is the heart of our portfolio, and we continue to leverage this leading position in the biological control market valued by market research firm DunhamTrimmer in their Global Biocontrol Report for 2019 at $3.8 billion globally. We have strengthened our competitive offerings through internal research that has resulted in next-generation advancements, as well as through the 2019 acquisition of the Jet-Ag and Jet-Oxide fungicides, bactericides and disinfectants.

Crop Health: For 2019, bioinsecticides represented $1.8 billion of the global biological control market according to DunhamTrimmer. These products reduce plant stresses or enhance the crop's tolerance to abiotic or external stresses, such as lack of water or excessive sunlight. This is a newer opportunity for us, and includes the 2021 launch of Pacesetter, a new product for plant health that is used in combination with conventional products to boost yields and improve the grower's return on investment.

Crop Nutrition: Our 2019 acquisition of Pro Farm allowed us to establish a global presence in the rapidly expanding biofertilizers market segment estimated at $2.3 billion for 2020 by MarketsandMarkets in their agricultural biologicals report. Crop nutrition products encourage better uptake of vital nutrients that allow the plant to withstand stresses and increase output. With the acquisition of Pro Farm, we added proprietary nutrient and biostimulant technology and products for seed and foliar treatments. This portfolio of products uses a proprietary mode of action to stimulate plant growth and improve plant health, resulting in improved yields and crop quality.

Pro Farm's proven technology is applied in seed and foliar treatments in the major row and specialty crops of corn, cereals, sunflowers, oilseed rape (canola), sugar beets and vegetables, with other crops in development. Pro Farm has distribution agreements servicing most of the major global agricultural production areas, with particular strength in Europe and the Commonwealth of Independent States (CIS), and expansion under way in Latin America, North America, Africa and Asia.

Product Applications

Foliar Applications: Foliar applications treat the plant by spraying the leaves to protect against pests, reduce stress or encourage plant health and is a broadly used technique in agriculture. Many of our products can be used as foliar treatments in specialty crops – such as tomatoes, lettuces and melons – and in trees, nuts and vines – including almonds and grapes. Foliar applications also are commonly used in row crops and in greenhouse settings.

Seed and Soil Applications: The seed and soil treatment side of our business has created the most significant change in our product mix. A strategic collaboration established in 2016 with a major U.S. distributor created the first combination of our products in a seed treatment platform for row crops. Seed treatments provide insurance for growers, as they proactively respond to abiotic (external, environmental) and biotic (living organisms) stresses that are present at the time of planting, informed by grower experience and known growing conditions. Performance, usage rates, price and compatibility all come into the buying decision. All else being equal, we believe distributors, seed companies and growers will continue to opt for biological treatments. We project that our seed and soil treatments could grow to 45% of our portfolio over the next three years.

BioUnite: The BioUnite strategy – which combines the power of biology with the performance of chemistry – remains a cornerstone of our ability to expand in new and existing markets. The BioUnite program provides growers with specific biological prescriptions for tank mixes of novel biological solutions with standard crop protection offerings. BioUnite is a powerful alternative in a grower's integrated pest management program that eliminates guesswork, enhances performance and yields, and thus increases the grower's return on investment. This proven approach has been tested over the past five years, in more than 200 trials for efficiency, safety, affordability and sustainability.

New partnerships will allow us to continue to expand our BioUnite offerings globally. We announced an agreement in 2020 with Vive Crop Protection, a leader in precision chemistry solutions and owner of the patented Allosperse® technology. We believe this partnership will provide a suite of ground-breaking products for U.S. growers by combining one of our leading biologicals with proven conventional chemistry using Vive's Allosperse Delivery System.

Our Products

The table below summarizes our current portfolio of commercially available product lines. On average, our bioprotection products progress through discovery, development, regulatory approvals, and market launch domestically and internationally within five years or less at a cost generally less than $11.0 million. We have continued to develop and refine these products, resulting in new formulations, expanded-use labels, and new markets.

All available formulations, with the exception of our Pro Farm product lines and Haven, are compliant with the U.S. Department of Agriculture's National Organic Program and certified by the Organic Materials Research Institute ("OMRI"). All of our products have a low-risk profile as they are exempt from food tolerance requirements (that is, there are no pesticide residue concerns), and have an excellent safety profile for workers and consumers. For growers and others whose who work on farms, our products require minimal personal protective equipment ("PPE"), and allow workers to re-enter treated areas within four-hours of application, and with zero-day pre-harvest intervals. Our products also are low risk to pollinators, beneficial insects and other non-target organisms. In addition, our nutritional products create conditions for improved soil microbiome and enhance the plant's efficient use of water and nutrients.

NAME	MARKET	USE	DESCRIPTION	STATUS
Emergen	Row Crops Nutrition	Foliar Fertilizer	Nutrient complex for increasing crop health, yield and quality	Domestic Expansion Efforts Under Way, Available Internationally Under a Different Brand Name
Foramin	Crop protection	Foliar Fertilizer	Nutrient complex for increasing crop health, yield and quality	Commercially Available Internationally, Domestic Expansion Efforts Under Way
Foramin ST	Crop protection	Nutritional Seed Treatment	Nutrient complex for increasing crop health, yield and quality	Commercially Available Internationally, Domestic Expansion Efforts Under Way
Grandevo	Crop Protection, Home and Garden, Turf and Ornamentals, Seed	Insects and Mites	Controls a broad range of sucking and chewing insects through feeding	Commercially Available Domestically and Internationally

	Treatment			
Haven	Crop Health, Home and Garden, Turf	Sun stress/Plant Crop Health/Quality	Reduces sun stress and dehydration and increases yields and quality	Commercially Available Domestically and Internationally
Jet-Ag	Crop Protection	Plant Disease; Sanitation	Stops mold and bacteria on plants and other surfaces	Commercially Available Domestically
Jet-Oxide	Post Harvest	Sanitation	Disinfects hard surfaces	Commercially Available Domestically
Majestene	Crop Protection, Turf and Ornamentals, Seed Treatment	Plant Parasitic Nematodes/Soil-Borne Insects	Controls soil-dwelling nematodes and certain soil borne insects.	Commercially Available Domestically, International Expansion Efforts Under Way
Pacesetter	Row Crop Health	Crop Health	Improves yields and quality	Commercially Available Domestically, International Expansion Under Way
Regalia	Crop Protection, Home and Garden, Turf and Ornamentals, Seed Treatment	Plant Disease/Crop Health	Protects against fungal and bacterial diseases and enhances yields/quality	Commercially Available Domestically and Internationally
Stargus	Crop Protection, Home and Garden, Turf and Ornamentals, Seed Treatment	Plant Disease/Crop Health	Protects against fungal and bacterial diseases and enhances yields	Commercially Available Domestically and Internationally
UBP	Crop Nutrition	Foliar Fertilizer	Nutrient complex for increasing crop health, yield and quality	Commercially Available Internationally, Domestic Expansion Efforts Under Way
UBP ST	Crop Nutrition	Nutritional Seed Treatment	Nutrient complex for increasing crop health, yield and quality	Commercially Available Internationally, Domestic Expansion Efforts Under Way
Venerate	Crop Protection, Home and Garden, Turf and Ornamentals, Seed Treatment	Insects and Mites	Controls sucking and chewing insects on contact	Commercially Available Domestically and Internationally
Zelto	Seed Treatment, Turf	Plant Parasitic Nematodes/Soil-Borne Insects	Controls soil-dwelling nematodes and certain soil borne insects	Commercially Available Domestically

Emergen

- Foliar Fertilizer
- Row Crops
- Domestic Expansion Efforts Under Way, Available Internationally Under a Different Brand Name

Emergen is a foliar fertilizer that provides additional nutrients to the plant. It optimizes abiotic stress tolerance and enhances conditions for higher yields and better return on investment, and can be used as a mixing partner for traditional fungicides and with Pacesetter for improved and consistent yield.

Foramin

- Foliar Fertilizer
- Crops
- Available Internationally, Domestic Expansion Efforts Under Way

Foramin is a foliar fertilizer that enhances conditions for higher yields and better return on investment. It delivers additional nutrients to the plant through the foliage and optimizes nutrient conditions for increased plant vigor.

Foramin's nutrient composition and novel nutrient delivery mechanism are designed to have an overall positive effect on the plant physiology, mitigating adverse effects of abiotic (external) stresses and improving both yield and quality, especially under less-than-favorable growing conditions.

Foramin ST

- Nutritional Seed Treatment
- Crops
- Available Internationally, Domestic Expansion Efforts Under Way

Foramin ST is a nutritional seed treatment that enhances conditions for increased yields and better return on investment. It improves conditions for nutrient uptake and root growth. Foramin ST is easy to apply and use and compatible with conventional seed treatments.

In the Foramin ST proprietary process, organic acids and biopolymers are combined with nutrients into a single organic molecular complex that allows plants to absorb up to 16 beneficial elements in a novel and more effective way (lower dose and lower cost).

Grandevo Bioinsecticide

- Bioinsecticide, Biomiticide and Bionematicide
- Crop Protection, Home and Garden, Turf and Ornamentals, Seed Treatment
- Available Domestically and Internationally

Grandevo Bioinsecticide is a water-dispersible granule based on a new species of microorganism, *Chromobacterium subtsugae*. It provides multiple modes of action to stop insect feeding and reproduction. Grandevo is particularly effective against certain chewing insects that destroy plant leaves (such as caterpillars), sucking insects that pierce plants and

remove sap (such as *Lygus*), and some flies whose larvae consume the plant's fruit (such as the spotted wing drosophila). Grandevo has also shown efficacy on corn rootworm, a major pest of corn, and other yield-robbing soil pests.

Haven Heat Stress Manager

- Crop Health
- Crops, Turf and Ornamentals
- Available Domestically and Internationally

Haven Heat Stress Manager is a crop health product that is applied to the leaves of plants to reduce sun stress. Haven reflects light and heat from leaves, which lowers plant temperatures, resulting in less stress to the crops and higher yields and quality. Haven also increases the plant's uptake of water and nutrients when it is under stress.

Haven is based on a technology of naturally derived, plant-based (coconut) compounds. Unlike competing products, Haven does not leave an undesirable deposit or residue on crops. Field trials over the last four years have demonstrated increased quality characteristics on citrus, watermelon, blackberries and grapes, and increased yields on walnuts, almonds, corn, and wheat, often equal to or better than the conventional commercial standard.

Jet-Ag

- Fungicide, Bactericide, and Sanitizer
- Crops, Turf, Structures, Hard Surfaces, and Pipes
- Available Domestically

Jet-Ag and Jet-Oxide are broad spectrum peroxyacetic acid sanitizers that prevent, suppress, eliminate, and control algae, fungi and bacterial diseases in agriculture and horticultural industries.

Jet-Ag can be used to treat crops and kill or control the growth of disease organisms on plants. It is also an effective soil treatment prior to planting and inoculation with beneficial microorganisms. Jet-Ag can be used in conjunction with our other products: for example, research has shown that using Jet-Ag and Regalia in a program can increase control of fire blight, and using Jet-Ag and Grandevo can decrease the population of spotted wing drosophila on berries.

Jet-Oxide

- Sanitizer and disinfectant
- Hard Surfaces, Fruit and Vegetable Water Treatment and Post-Harvest Treatment
- Available Domestically

Jet-Oxide is a fast-acting, easy-to-use post-harvest peroxyacetic acid ("PAA") sanitizer and industrial disinfectant that is used in post-harvest packing house sanitation, field equipment sanitation, industrial use, processed fruits and vegetables, and food and beverage sanitation. Jet-Oxide 15% has shown efficacy against E. coli, salmonella, listeria and Human Coronavirus Strain 229E.

Majestene Bionematicide

- Bionematicide and Bioinsecticide
- Crop Protection, Turf and Ornamentals, Seed Treatment
- Available Domestically, International Expansion Efforts Under Way

Majestene Bionematicide, also a soil insecticide, has been developed based on the microorganism *Burkholderia rinojensis*. This nematicide is active against a broad range of nematodes, wireworms and white grubs that damage crops such as soybean, corn, cotton, strawberries, turf, tomatoes, potatoes and sweet potatoes.

Our next-generation Majestene product – Majestene Pro – is currently in development and we believe it will be a promising new product. In 2019 and 2020, this version demonstrated high performance at substantially lower rates per acre than our current product for in-furrow applications on corn and soybeans, and for soil and foliar treatments of nematodes and insect pests.

Pacesetter

- Crop Health
- Row crops
- Available Domestically, International Expansion Efforts Under Way

Pacesetter, launched during 2021, is a bio-based plant health product for row crops such as corn, soybeans, cotton, and cereal grain. When used with conventional fungicides, Pacesetter improves root growth and chlorophyll production to deliver yield increases beyond what synthetic fungicides alone can generate.

Large demonstration trials in 2020 showed an average return on investment above six to one and numerous plant health benefits. For corn, longer and wider ear leaf size, increased number of corn kernel rows, and longer and healthier corn kernels were observed. Soybeans had healthier plants and more pods per plant.

Regalia Biofungicide

- Biofungicide

- Crop Protection, Home and Garden, Ornamentals, Seed Treatment
- Available Domestically and Internationally

Regalia Biofungicide is the master brand name for our product line of biofungicides and plant growth regulators that improve plant health and crop quality while preventing disease. Regalia's active ingredient is *Reynoutria sachalinensis*, made from an extract of the giant knotweed plant.

Regalia acts by turning on a plant's immune system, a process called induced systemic resistance. It improves overall stress tolerance and enhances the efficacy of conventional fungicides, making it an excellent tank mix or rotation partner for both organic and conventional IPM programs. Target diseases include powdery mildew and fire blight. Regalia also is effective when applied as a seed treatment for use in soybeans, corn and cotton.

Stargus Biofungicide

- Biofungicide
- Crop Protection, Home and Garden, Turf and Ornamentals, Seed Treatment
- Available Domestically and Internationally

Stargus Biofungicide is based on microbial fermentations of a newly identified *Bacillus amyloliquefaciens* strain isolated using our proprietary screening platform. We have identified different compounds, some of which are novel, produced by the microorganism in Stargus that control a broad range of plant diseases such as molds and down mildew.

UBP

- Foliar Fertilizer
- Crops
- Available Internationally, Domestic Expansion Efforts Under Way

UBP is a foliar biological fertilizer that enhances conditions for increased yield and crop quality. It delivers nutrients through the foliage and optimizes conditions for tolerance to abiotic stress. UBP is also easy to apply and use, and compatible with common agrochemicals.

Field trials demonstrate that UBP consistently outperforms standard organic and synthetic fertilizers, and nutrient products in terms of both crop yield and quality. By promoting plant vigor and health, trials also have demonstrated that crops treated with UBP recover more quickly from herbicide damage.

UBP ST

- Nutritional Seed Treatment
- Crops
- Available Internationally, Domestic Expansion Efforts Under Way

UBP ST is based on the same underlying technology as UBP. It uses renewable forestry industry byproducts to produce a molecular level complex that contains macro- and micro-nutrients that are more effectively and efficiently delivered to plants.

UBP ST is a nutritional seed treatment that improves conditions to aid nutrient uptake and root growth, and results in increased yield and crop quality. It is easy to apply and use, and compatible with conventional seed treatments.

Venerate Bioinsecticide

- Bioinsecticide and Biomiticide
- Crop Protection, Home and Garden, Turf and Ornamentals, Seed Treatment
- Available Domestically and Internationally

Venerate Bioinsecticide, a liquid formulation, is based on a microbial fermentation of a new bacterial species, *Burkholderia rinojensis*. Compounds produced by the microorganism control a broad range of chewing and sucking insects and mites, as well as flies and plant parasitic nematodes. Venerate Bioinsecticide has also shown positive results when applied both in-furrow or as a seed treatment against soil insects in corn, wheat, and soybeans.

Zelto Bionematicide

- Bionematicide
- Turf
- Available Domestically

Zelto Bionematicide protects turf, including golf course fairways and greens, and promotes turf health by improving plant and root health.

Zelto Bionematicide is used for the control of plant parasitic nematodes and soil dwelling pests. It works by reducing the nematode population while encouraging rapid plant regeneration. This results in increased turf density and overall improved plant and root health.

Product Pipeline

Our product pipeline is a significant contributor to our growth strategy. We have expanded the focus of our research and development pipeline based on the strengths of our proprietary product lines of crop protection, plant health and biological fertilizers, our research and development infrastructure and manufacturing capabilities; and our market access and global footprint. Our pipeline consists of products in three categories: bioprotection, seed and soil health, and plant health. These products are further categorized in terms of their time to market launch: near-term (2021/2022), mid-term (2023/2024) and long-term (2025 and beyond). We have implemented a pipeline prioritization strategy that establishes commercial target goals as each pipeline product advances through product development, regulatory reviews, market research assessments and risk adjusted financial projections.

Bioprotection:

- Bioinsecticides: MBI-206 G2 and Grandevo XC
- Biofungicides: MBI-110 G2
- Bioherbicide: MBI-015

The bioprotection product category is comprised of a wide spectrum of products – including insecticides, fungicides, and herbicides – targeted for mid- to long-term market launches. These products advance our current commercial products and build on our unique understanding of and experience with agricultural biologicals from both a scientific and commercial perspective. These products address some of the most significant and challenging unmet market needs, including weed control, pest resistance management, or integrated pest management practices.

Greater penetration in existing markets and expansion to new markets – such as row crops – and uses – such as seed treatments – are the key commercial objectives for these products:

- MBI-206 G2 is the advanced version of Venerate. Our 2020 field research established targeted reduction of product usage from current 64 fl. oz./acre to a significantly lower 5 10 fl. oz./acre, a roughly tenfold reduction in rate of application with comparable efficacy.
- Grandevo XC is the liquid version of the existing dry Grandevo product with better customer acceptance and improved field efficacy.
- MBI-015 is a post-emergence herbicide (sprayed on the weeds after they emerge) for use against a range of weeds, including palmer amaranth and water hemp, that are developing resistance to leading conventional chemical herbicide. MBI-015 is extension of MBI-014 and is targeted for use in conventional row crops.

Seed and Soil:

- Seed : MBI-306 ST, MBI-307, MBI-5P16
- Soil: MBI-305 G2, MBI-306 Premix, MBI-601,

This is the highest growth category in our pipeline, and builds on our strengths in biological crop protection and fertilizer. The majority of these products are targeted for use worldwide in row crops, such as corn, soybeans, rice and cereals, and in such high-value crops as tree nuts, grapes and leafy vegetable.

A key product for crop protection is MBI-306 and its variants (MBI-305 G2, MBI-306 Premix and MBI-307). MBI-306 is an enhanced version of our current seed and soil applied product, and significantly improves the level of efficacy against target pests. Based on our 2020 field research, we are targeting six-fold reduction in the amount of seed treatment applied, which is a competitive rate compared with to conventional treatments. For soil uses, such as in-furrow applications, our 2020 field research also supports a targeted six-fold reduction in rate of application, while providing the same control of corn rootworms, wireworms, lesion nematodes and seed corn maggots. Our ability to provide additional insect control coupled with nematode control gives us greater access to the corn, soybean and cotton soil-applied in-furrow markets. MBI-306 requires a new submission to the U.S. Environmental Protection Agency ("EPA"). We are currently concluding our toxicology studies, fermentation and formulation work in order to prepare for the new submission.

Our pipeline of novel seed applied plant nutrition products that are designed for industrial seed treatment but can also be used in downstream seed treatment include: New breakthrough formulations with UBP-technology, out of which MBI-5P16 is the first one to be introduced to the market for row crops (corn, soybeans and OSR) in the United States and EU. Most of these products are also in compliance with new harmonized EU Biostimulant regulation scheduled for 2022 (European parliament, Regulation (EC) No. 2019/1009), which will allow for pan-European market access for our plant health products.

Plant Health

- Foliar (Zn Foliar), Reyzox, and seed applied (Optima, Takla, Ympact) plant health products
- Row crops
- North America, European Union and Latin America

- Zn Foliar is foliar-applied product targeted for the Latin American row crop market to address zinc deficiency. Positive field trial results in 2020 will be expanded upon with broader testing in 2021.
- We have partnered with Vive Crop Protection to combine Regalia with proven conventional chemistry (azoxystrobin) using Vive's unique Allosperse Delivery System. The combination product Reyzox will be targeted to the fruits and vegetables market.
- Ympact is a unique plant health product designed for cereals as a seed treatment
  Optima is a second-generation product, optimized product for hybrid crops.
- Takla is a specialty seed treatment product under development for severe and specific conditions for the European market. Most of these products are scheduled for short-term market entry.

We are continually investigating new research and development pipeline projects, whether through internal product development, in collaboration with other companies, or as a new product concept. We have established a stage gate process to evaluate and further advance our research and development pipeline. Overall, we estimate the current pipeline will add incremental risk – adjusted revenue growth of approximately $50 million in the long-term timeframe and approximately $100 million by 2030.

Sales, Marketing and Distribution

In the United States, we sell our products through our internal sales force, which consists of 29 employees focused on managing distributor relationships and creating grower demand for our products. In addition, a dedicated team of 8 employees provide technical service support to both our customers and sales representatives on the use of our products in IPM and crop production programs, both for conventional growers as well as for an expanding number of organic growers. Our sales force covers all major regions in the United States, including California and the Pacific Northwest, the Southeast, the Northeast, the Mid-Atlantic and the Great Lakes regions, with an emphasis on high-value specialty crops (fruits, nuts and vegetables). We currently sell our crop protection product lines through leading agricultural distributors, such as Albaugh, Aligned Ag, Helena Chemical, Nutrien Ag, Simplot, and Wilbur Ellis. These are the same distribution partners that most major agrichemical companies use for delivering solutions to growers across the country.

We sell our Foramin and UBP products through selected distributors in Europe, Asia and Latin America. In 2020 Pro Farm entered into a distribution agreement with PGG Wrightson Seed for Pro Farm seed treatment in Uruguay. Pro Farm is also working with numerous companies to improve its biological offerings, such Rizobacter in South America and Ruchi Hi Rich in India. With Pro Farm, we expect to expand our global distribution network. We are hiring sales managers for our Pro Farm products in key territories to help achieve our growth goals and provide support to our seed and distribution customers.

With respect to sales of Marrone products outside of the United States, we have exclusive legacy international distribution agreements with major international distributors such as FMC (for certain markets in Latin America) and Syngenta (for specialty crop markets in Europe). Our current strategy is to work with regional distributors and distributors in key countries who have brand recognition, established customer bases, who can effectively conduct field trials and grower demonstrations with biopesticides and lead or assist in regulatory processes and market development. As such, we have signed a number of distribution agreements with: Agristar, Nufarm, Jocanima, Elephant Vert and Kenya Biologics, Hoptri, Lidorr, AMC/Agrimatco, Disagro and Kyung Nong Corporation.

We believe we can leverage our existing sales, marketing and distribution network, finding synergies between operations for our products, to bring in additional revenues, while enhancing our overall product portfolio.

We derived approximately 85% and 91% of our total revenues from Regalia, Grandevo, Venerate and UBP ST product families for the years ended December 31, 2020 and 2019, respectively. We currently rely, and expect to continue to rely, on a limited number of distributors for a significant portion of our revenues since we sell through highly concentrated, traditional distribution channels. For the year ended December 31, 2020, our top three distributors accounted for 48% of our total revenues. For the year ended December 31, 2020, approximately 77% of our business was from the U.S. markets. In 2021, however, we expect our product mix to shift significantly due to both sales generated through our Pro Farm subsidiary, sales of our Pro Farm products and continued progress on registrations of our collective product lines in new countries.

While the biopesticide industry has been growing, customers in the crop production sectors often require on-farm demonstrations of pest management or plant health products, and based on their novel modes of action compared to chemical products, require education on their use. We are implementing the following strategies to accelerate adoption rates and promote sales of our biological pest management and plant health products:

Maintain a focused and effective sales and marketing team that shares our values. We believe after several years of investment we have been able to build an improved sales and marketing team. In addition, we are now more effectively organizing the data and educational material that we have amassed over years of operations on our bio-based products as well as organic and sustainable agricultural practices in order to train and equip our sales staff to communicate and educate distributors and growers. We believe that hiring and training sales and marketing staff with a high level of technical expertise and knowledge regarding the capabilities of our bio-based products, and unwavering belief in the potential and value of biologicals for crop production, is essential to expanding adoption of our products by growers and sales to distributors. In addition, we have invested in our field development team to include more technical service activities to support sales. These concerted efforts to build and train our sales and marketing teams are yielding positive results, including growth in sales.

Develop an extensive demonstration program. We believe that for growers to be convinced that a biological pest management, plant nutrition or plant health product work, they often must see it for themselves. Growers risk their crop each time they try a new product, and often produce only one crop per year on any given plot of land. Further, bio-based pesticide and plant health products are often applied differently and at different times than conventional chemical products and so may be used incorrectly by an inexperienced grower or advisor, decreasing efficacy. We typically conduct on-farm demonstrations with growers in the first year of association, a grower will then in the second year, try one of our products on smaller plots of land and on one crop to ensure successful application, and then progress continued use of our products in future years across more acres, more crops and more products from our product portfolio. In addition, we work with distributors to determine which crops to emphasize in a given year and which area to maximize the effectiveness of our demonstration program.

Target early adopters of new pest management technologies. For our biological pest management, plant nutrition and plant health products, we target both distributors and growers, who generally set industry standards through more widespread adoption of new pest management technologies they initially test on smaller portions of their crops. We also target organic growers, who are more willing to take risks on new products as they have had few alternatives and great demand for increased yields. We plan to continue to recruit these growers and their consultants to participate in demonstrations and field trials, enabling them to become familiar with our biological pest management and plant health products, to experience their benefits firsthand and to promote the use of our products with other growers in their regions.

Educate growers about the benefits of our biological pest management products. Education is critical to best use of biologicals, which often have different modes of action than chemical products. We will continue to perform on-farm demonstrations and provide field data packages to support and validate our product claims. We will also continue to participate in trade shows and conferences to educate growers and their licensed pest control advisors about the benefits of our biological pest management, plant nutrition and plant health products. We have provided instructional videos, blogposts, webinars, podcasts, teach-ins, by-line articles and an online course on biological pest management products, which can be taken by growers for continuing education credit to maintain crop protection product applicator licenses.

Develop and leverage relationships with key industry influencers. We will continue to develop relationships early in the product development process with influential members within our target markets, including large innovative growers, technical experts at leading agricultural universities, licensed pest control advisors, wineries, food processors, produce packers, and retailers. We believe that educating industry influencers about the benefits of biologicals and our products increases the likelihood that they will recommend our products to our distributors and end users. In addition, food companies and retailers are driven by consumers to require more sustainability and transparency from their grower-suppliers. This consumer-pushed trend is driving awareness with both the grower and food channel of the benefits of biologicals to soil health, the new movements in regenerative agriculture and sustainable crop production programs in general.

Leverage the synergies of our sales teams and businesses domestically and internationally. Because of the concentration of large growers in the United States, we can access these customers through our own sales force. For our specialty crop products and seed treatments we have distribution agreements with national and regional distributors in North America, Europe, Uruguay and Latin America. We believe we can leverage these existing relationships to expand sales of our Foramin and UBP product lines through our U.S.-based sales team and distributors and likewise expand sales of our legacy Marrone products through existing Pro Farm product distributors. For future products, distribution agreements will be developed with regional and national distributors or large multinationals on a case-by-case basis, depending on their expertise in the regions. For the fast-growing medicinal plant and hemp market, we have set up several specialty distributors who can benefit from our products.

Manufacturing

Our manufacturing processes for our Marrone products are developed in-house at our Davis, California research and development facilities and transferred to our Bangor, Michigan facility, or to our manufacturing partners. Biopesticide formulation, microbial fermentation and product packaging are among the facility's core competencies. We believe in-house manufacturing enhances control and flexibility in production, ensuring quality, strengthening intellectual property security and lowered manufacturing costs over time to achieve desired margins. The facility has room for expansion to install larger drying capacity and fermenters to accommodate production of multiple products at significantly higher volumes. In 2018 we purchased a packaging line, which was placed into service in the first half of 2018 and in 2021, we expect to invest approximately $1 million to be able to achieve increased in-house manufacturing of our products.

We currently ferment our Grandevo product in our manufacturing facility but continue to use a third-party contractor for formulating it into spray-dried powder. The facility also accommodates full-scale production of Regalia. While we have the ability to produce the majority of our products using our own manufacturing capacity, we currently use third parties to manufacture Venerate and Majestene/Zelto as a result of regulatory requirements for the microorganism that underlies their technology. In 2020, we secured the necessary federal and state approvals to begin Burkholderia rinojenis production at our Michigan facility. Stargus/Amplitude is also made at a third-party vendor because the

Bacillus bacteria produce spores that are hard to contain and could pose contamination risks in the manufacturing of our other products. We intend to have fermentation of Bacillus at our facility but will require a separate facility from our other products. Haven has been produced using a third party, however recently we successfully validated the production at our Michigan facility and plan to bring the manufacturing of the product in-house. We anticipate ramping up production volumes as we expand the facility in the future. We expect to continue to utilize third-party manufactures in North America and the EU for supplemental production capacity to meet excess seasonal demand. As needed, we will also use our own facility or third parties to package and label products.

The active ingredient in our Regalia product line is derived from the giant knotweed plant, which is a food and medicinal plant native to China and Japan. We have scaled production of Regalia using a reliable, single supplier that acquires raw knotweed from numerous regional sources and performs an extraction process on this plant, following our specification. The resulting dried extract is shipped to our manufacturing plant for formulations, production and packaging. We do not maintain a long-term supply contract with this supplier, but we have worked with them for ten years. While there can be no assurance that we will continue to be able to obtain dried giant knotweed plant extract from our supplier in China at a competitive price point, we estimate that our current supply of the ingredient will be sufficient to manufacture product to meet the next 10 to 12 months' demand. Should we elect or be required to do so, we have identified and received quality knotweed from a number of possible alternative suppliers, including one from outside China in the event additional inventory or diversified sourcing is necessary.

A majority of the production of our Pro Farm product lines, as well as associated raw materials, is conducted at a third-party manufacturing facility in Russia in which we have a 12% ownership stake. A large-scale paper and pulp manufacturing site in close proximity to this plant is the main supplier of the wood waste by-product material we use in production. For our Pro Farm products we take source custom made bespoke micronutrient mixes formulations from a European third-party supplier and have multiple third-party postproduction facilities in Europe. Our Jet products are manufactured by a third party located in the United States.

Research and Development

We have leveraged an innovative and market-focused discovery process to generate a robust product line and pipeline. This has included isolating approximately 18,000 microorganisms, testing more than 16,000 of them against multiple pest targets and testing a subset of them for plant health and nutrient uptake enhancement. We have then developed more than one product line based on the same active technology. Developing multiple products based on the same microbe allows for a more efficient use of research, development and manufacturing resources and enables us to leverage capital invested in existing technologies.

At this time, we are prioritizing our research and development on supporting our existing products and focusing on our pipeline projects as discussed above. These pipeline products combine our legacy and acquired collective technologies and are targeted for broader categories or bioprotection, plant health and seed and soil health.

As of December 31, 2020, we had 50 full-time equivalent employees dedicated to research and development and patent related activities, 7 of whom hold Ph.D. degrees or doctorates, plus 8 field development personnel who focus on technical support and demonstration and research field trials. Our research and development team has technical expertise in microbiology, molecular biology, natural product, formulation and analytical chemistry, biochemistry, fermentation, entomology, nematology, weed science, plant physiology, plant pathology. Our research and development activities include discovery, product development, product support, regulatory, patent and field trial activities, which are principally conducted at our Davis, California facility as well as by our field development specialists on crops in their respective regions. We have made, and will continue to make, substantial investments in research and development such as increasing the number and locations of field trials and toxicology and regulatory consultants for new products and international expansion, but our Davis research and development headcount has remained relatively flat for several years. Our research and development expenses, including patent, regulatory and field trial expenses, were $11.3 million and $14.0 million for the years ended December 31, 2020 and 2019, respectively.

Intellectual Property Rights

We rely on patents and other proprietary right protections, including trade secrets and proprietary know-how, to preserve our competitive position. As of December 31, 2020, we had 60 issued U.S. patents and 421 issued foreign patents 17 pending U.S. provisional and non-provisional patent applications, and 93 pending foreign patent applications relating to microorganisms and natural product compounds, uses and related technologies. As of December 31, 2020, we have received 8 copyright registrations. As of December 31, 2020, we had received 25 U.S. trademark registrations and had 25 trademark applications pending in the United States. As of December 31, 2020, we also had received 167 trademark registrations and had 41 trademark applications pending in various other countries.

When we find a microbial product in our screen that kills or inhibits one or more pests or pathogens in at least three replicated tests and identify the microorganism and its associated chemistry, we file a patent application claiming any one or more of the following:

- the microorganism, its DNA products, as well as mutations and other derivatives;
- the use of the microorganism for pest management;
- novel natural product compounds, their analogs and unique mixtures of compounds produced by the microorganism;
- the new use of known natural product compounds for pest management;
- formulations of the microorganism or compounds; and
- synergistic mixtures of the microorganism or compounds with conventional chemical or other pesticides.

One of our commercially available products and certain of our lead product candidates are based on microbes we have identified using our proprietary discovery process, including Venerate, Majestene/Zelto and MBI-015, which are based on a *Burkholderia* bacterium, with respect to which we have 58 issued patents and 16 pending patent applications (both U.S. and foreign), and MBI-110, which are based on a *Bacillus* strain, with respect to which we have 29 issued patents and 3 pending patent applications (both U.S. and foreign). Foramin and UBP products are based on technology developed by Pro Farm scientists for producing organic molecular complexes that facilitate nutrient absorption, and are protected by 3 issued U.S. patents, one issued Canadian patent, and 14 pending patent applications (both U.S. and foreign) comprising issued method of use patents and pending applications for method of manufacture.

We have also entered into in-license and research and development agreements with respect to the use and commercialization of Grandevo and Haven, as well as certain products under development. Under the licensing arrangements for our commercially available products, we are obligated to pay royalty fees in the mid-single digit of net sales of these products. The exclusivity and royalty provisions of these agreements are generally tied to the expiration of underlying patents. In addition, the in-licensed U.S. patent for Grandevo is expected to expire in or around 2024, but we have issued U.S. patents and pending U.S. patent applications relating to Grandevo that could expire later than 2024, and we have also filed separate patent applications for Grandevo of which 11 have been issued in the U.S. on a novel compound and insecticidal uses for nematodes, corn rootworm and a variety of insects, as well as new formulations and other uses. Additionally, we have filed separate patent applications with respect to Regalia and have been issued 6 U.S. patents.

While third parties thereafter may develop products using the technology under the expired patents, we do not believe that they can produce competitive products without infringing other aspects of our proprietary technology, and we therefore do not expect the expiration of the patents or the related exclusivity obligations to have a significant

adverse financial or operational impact on our business.

Regulatory Considerations

Our activities are subject to extensive federal, state, local and foreign governmental regulations. These regulations may prevent us or our collaborators from developing or commercializing products in a timely manner or under technically or commercially feasible conditions and may impose expenses, delays and other impediments to our product development and registration efforts. In the United States, the EPA regulates our bio-based pest management products under the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), the Federal Food, Drug and Cosmetics Act ("FFDCA") and the Food Quality Protection Act ("FQPA"). In addition, some of our plant health products are regulated as fertilizers, auxiliary plant substances, soil amendments, beneficial substances and/or biostimulants in each of the fifty states.

In 2004, the United States Congress passed the Pesticide Registration Improvement Renewal Act, which was reauthorized in 2007 and 2012, a result of efforts from an industry coalition of pesticide companies and environmental groups, to codify pesticide approval times in return for user fees. This law facilitates faster approval times for biopesticides, with EPA approvals typically received within 16 to 24 months, compared with 36 months or longer for conventional chemical pesticides. Registration processes for state and foreign governments vary between jurisdictions and can take up to 12 months for state governments, such as California and New York, and up to 36 months or more for foreign governments. In some instances, California and Canada will conduct joint reviews with the EPA, which allows some pesticides to receive concurrent approvals in California, Canada and the United States. However, in most instances, most foreign government submissions will not occur until after a U.S. registration has been secured. To register a crop protection product with the EPA, companies must demonstrate the product is safe to mammals, non-target organisms, endangered species and the environment. To demonstrate the biological pest management product's safety, required studies must be conducted that evaluate mammalian toxicology, toxicological effects to non-target organisms in the environment (ecotoxicological exposures) and physical and chemical properties of the product. The registration dossier is subject to both scientific and administrative reviews by EPA scientists and management before registration approval. The scientific review involves thorough evaluation of submitted data and completion of risk assessments for human dietary and ecotoxicological exposures. Upon completion of this process, the registration package, including the proposed label, is sent to the Office of General Council for legal review. The final step in the registration process is administrative sign-off by the EPA director of the Biopesticides and Pollution Prevention Division.

In addition to EPA approval, we are required to obtain regulatory approval from the appropriate state regulatory authority in individual states and foreign regulatory authorities before we can market or sell any pest management product in those jurisdictions. Foreign governments typically require up to two seasons of locally generated field efficacy data on crop-pest combinations before a product dossier can be submitted for review. California and foreign jurisdictions also require us to submit product efficacy data, which the EPA historically has not required, but may request.

We also generally pursue organic certification, including USDA National Organic Program, Organic Materials Review Institute ("OMRI"), EcoCert and Control Union, for our product portfolio. These certifications often entail a two to four-month review process and, in many instances, require annual or semi-annual audits.

While these regulations substantially increase the time and cost associated with bringing our products to market, we believe that our management team's significant experience in bringing our and other companies' technologies through EPA, state and foreign regulatory approval, efficient development process and ability to leverage our strategic collaborations to assist with registrations, particularly in Europe and Latin America, have and will continue to enable us to overcome these challenges.

Around the globe, the regulatory process for biostimulants and bionutrients (biofertilizers) is significantly accelerated compared to that for biopesticides. In the United States, if plant health products are not used to control pests or do not act as plant (growth) regulators, they currently fall outside the legal scope of FIFRA, FFDCA and FQPA and, therefore, we do not need to submit applications for EPA registrations for such products. However, we must still submit state registrations for our plant health products, including Haven and our Pro Farm products. Products containing microbes of foreign origin may also need to be "deregulated" (or determined not to be a plant pest) under the Plant Protection Act by the USDA Animal and Plant Health Inspection Service prior to use in field trials or for large scale release. Europe and the United States have industry coalitions that have developed more formal definitions of "biostimulant" and made recommendations for possible streamlined regulatory frameworks. The 2018 Farm Bill for the first time proposed a federal definition of biostimulants. As mandated by U. S. Congress in the 2018 Farm Bill, in December 2019, the Secretary of Agriculture submitted a study to Congress recommending options for the official definition and regulation of biostimulants in the United States. Joint federal, state and industry discussions are now underway to review those options and to recommend a suitable path forward and policy framework for the regulation of biostimulants in the United States.

All of our biopesticide product lines are EPA-approved. However, as with any pesticide, our pest management products will continue to be subject to review by the EPA and state regulatory agencies. The EPA has the authority to revoke the registration or impose limitations on the use of any of our pest management products if we do not comply with the regulatory requirements, if unexpected problems occur with a product or if the EPA receives other newly discovered adverse information. See Part I-Item 1A-"Risk Factors—Risks Relating to Our Business and Strategy—Our inability to obtain regulatory approvals, or to comply with ongoing and changing regulatory requirements, could delay or prevent sales of the products we are developing and commercializing." Our research and development activities are also subject to federal, state and local worker safety, air pollution, water pollution and solid and hazardous waste regulatory programs and periodic inspection. We believe that our facilities are in substantial compliance with all applicable environmental regulatory requirements.

Competition

For agricultural products, performance and value are critical competitive factors. To compete against manufacturers of conventional chemical pesticides, chemical fertilizers and genetically modified crops, we need to demonstrate the advantages of our products over these more established products. Many large agrichemical companies are developing, and have introduced, new conventional chemical pesticides and genetically modified products that they believe are safer and more environmentally friendly than older conventional chemical products.

The pest management market is very competitive and is dominated by multinational chemical and life sciences companies such as Syngenta Crop Protection, Bayer Crop Science, BASF, Corteva Agriscience, UPL, FMC and Sumitomo Corporation. Additionally, universities, research institutes and government agencies may also conduct research, seek patent protection and, through collaborations, develop competitive pest management products. Other companies, including bio-specialized biopesticide businesses such as Certis USA (owned by Mitsui & Co), Novozymes and Valent Biosciences (subsidiary of Sumitomo Chemical) may prove to be significant competitors in the biological pest management and plant health market. Due to the lower regulatory barriers than for crop protection products, the market for bionutrition and biostimulant products is very fragmented and includes larger players like Valagro (recently acquired by Syngenta Crop Protection), UPL and Acadian Seaplants and startups such as Indigo, Bioconsortia, New Leaf Symbiotics and Pivot Bio.

In many instances, agrichemical companies have substantially greater financial, technical, development, distribution and sales and marketing resources than we do. Moreover, these companies may have greater brand recognition and may offer greater discounts as a competitive tactic. There can be no assurance that our competitors will not succeed in developing pest management products that are more effective or less expensive than our products or that would render our products obsolete or less competitive. Our success will depend in large part on our ability to maintain a competitive position with our technologies and products.

Environmental Social and Governance

In our actions and engagement with stakeholders, we are committed to being a responsible corporate citizen. We aim to be a leader in the movement toward a more sustainable world through the discovery, development and promotion of biological solutions for pest management and plant health. We operate our business with a consistent focus on

protecting the environment, safeguarding the health and safety of our employees, supporting our local communities, and operating with ethics and integrity. As reflected in our values, we are committed to aligning with environmental, social and governance ("ESG") best practices and standards:.

- We believe in sustainable business practices – that are economically viable, socially equitable and environmentally responsible.
- We strive to conduct all business dealings with integrity, treating all stakeholders, collaborators and trade partners with respect, fairness and honesty at all times, and we expect the same in return.
- We promote a culture of accountability, continuous learning, diversity to bring about better decision-making.

We believe the environmental benefits of our products and our promotion of environmental stewardship, social responsibility and good governance through our leadership in the sustainable agriculture movement puts us in a strong market position as customers, strategic partners, investors and other stakeholders continue to assess ESG factors in their decision making.

Environmental

Our business revolves around producing environmentally responsible products for pest management, plant nutrition and plant health. All of our product families for crop protection are EPA-registered as biopesticides and our biological products enable customers to mitigate environmental concerns associated with conventional chemical pesticide products.

In general, our products are:

- Fermented microbes or extracted from plants (knotweed and coconuts) and use agricultural or other biological raw materials in these fermentation or plant extraction processes, resulting in lower fossil fuel usage.
- Assessed by the U.S. EPA, and other regulators, as having the lowest pesticide residue risk levels for pesticidal products, known legally as being "exempt from the requirement of a food tolerance."
- Lower risk to pollinators and other non-target organisms.
- Biodegradable, breaking down quickly into carbon, hydrogen and oxygen.
- Designed to increase soil health by supporting or increasing microbial diversity in the soil.

We are also proud of the results of a study we conducted in cooperation with the UC-Davis Graduate School of Management showing that switching from conventional chemical pesticide products to our Regalia, Grandevo, Venerate and Majestene product lines could, potentially, result in average net reductions of greenhouse gas emissions of 69% to 91% (or 39 to 46 kilograms of CO_2 equivalents per acre per year).

Social

Ensuring the safety, health and well-being of our employees, growers and farm workers and the public at large is central to our vision for our business. Within our workplace, safety is both an individual and shared responsibility including periodic internal safety audits and safety trainings. In the wake of COVID-19 we have implemented the Centers for Disease Control and Prevention guidelines including masks and social distancing at both our corporate headquarters and our manufacturing plant, restricting all commercial travel by employees, requiring daily temperature checks, scaling down our operations including at our manufacturing plant, and frequent communications of our safety plans in light of COVID-19. We take a holistic approach to employee health and well-being by offering wellness programs that promote and incentivize healthy habits, such as physical fitness, smoking cessation and weight loss.

We are also proud to support employees at all levels who are interested in making a difference in their local communities through nonprofit board service, donations and volunteer time. Our recent and current partnerships and projects include:

- Partnering with the fire department, high school science department and various community nonprofits in Bangor, Michigan, where our manufacturing facility is located;
- Supporting local programs in Yolo County, California, where our headquarters is located, including adopting families in need for Christmas through the Short Term Emergency Aid Committee, serving on the board of Empower Yolo and donating fresh produce from our research farm to the local food bank; and
- Being actively involved in the national chapter and Sacramento Valley chapters of the Association for Women in Science, as well as supporting several STEM education initiatives in the region.

Our high-performing, biological solutions are safe to manufacture and generally safer for our customers and their workers to handle and use than conventional chemicals-based products, and inherently safer for consumers as well from the perspective of product residue. We launched our cultivated garden (CG) versions of three of our products to enable access to our products to the general public at competitive prices.

Governance and Ethics

Our board of directors has direct oversight of our ESG strategy, which is implemented internally by our cross-functional ESG steering committee led by the Company's Chief Sustainability Officer, who also serves as our Senior Vice President of Regulatory and Government Affairs. Four of our eight directors possess directly relevant sustainability experience, including two directors with large-farm experience. For example, Dr. Pam Marrone, a member of our Board of Directors and our founder, received the Steward of Sustainable Agriculture Award by the Ecological Farming Association in January 2019 in recognition of her long-term, significant contributions to the well-being of agriculture and the planet.

Our Code of Business Conduct and Ethics promotes honest and ethical conduct; full, fair, accurate, timely and understandable disclosures; compliance with applicable governmental laws, rules and regulations; protection of Company assets; fair dealing practices; prompt reporting of Code violations to the appropriate person; and accountability for adherence to the Code. All employees are required to acknowledge our Code of Business Conduct and Ethics, which we make publicly available on our company website along with our Whistleblower Policy and Board of Directors Committee Charters. Finally, we adhere to the governance requirements established by federal and state law, the Securities and Exchange Commission and Nasdaq.

Human Capital

Our support of our employees extends to ensuring they are compensated fairly for their work. We believe we provide employees with a competitive and comprehensive pay and benefits package including both cash and non-cash compensation, health benefits and paid time off to name a few. Our commitment to pay equity is shared by Company leaders. For example, the compensation of our Chief Executive Officer and other senior managers is generally less than 10 times that of our lowest-paid full-time employee.

We believe our human capital is one of our many great assets, so strive for a workplace that realizes the potential of our people:

- We believe entrepreneurial attitudes, agility, and out of the box thinking and creativity are the lifeblood of innovation.

- We demand open and honest communication and respect for the views of others, and seek to minimize internal politics and value the input of all employees in the Company's strategy, goal setting and decision-making.
- We believe that a diverse workforce, with diverse opinions, working together in teams leads to better decision-making and actively try to enhance diversity in our workforce.
- We promote a culture of accountability, continuous learning, coaching, and mentoring for personal and professional growth.

As of December 31, 2020, we had 145 full-time equivalent employees, of whom 15 hold Ph.D. degrees or doctorates. Approximately 50 employees are engaged in research and development and patent related activities, 30 in sales and marketing (including 8 sales and field development personnel who focus on technical support and demonstration and research field trials), 36 in operations, including manufacturing, supply chain and quality assurance, and 30 in management, accounting/finance and administration.

We take pride in the diversity of our workforce and being an equal opportunity provider. As a growing company focused on innovation, we strive to foster diversity and inclusion, with women representing approximately 49% of all employees (and 22% of senior management and 59% of our research and development team) and racial or ethnic minorities representing approximately 42% of employees (and 33% of senior management).

Our corporate policies provide employees opportunities grow by offering tuition reimbursements, Company-sponsored third party web-based learnings, and time for community involvement.

None of our employees are represented by a labor union.

Corporate Information

We were originally incorporated in the State of Delaware in June 2006 as Marrone Organic Innovations, Inc. Our principal executive offices are located at 1540 Drew Avenue, Davis, CA 95618. Our telephone number is (530) 750-2800. Our website address is www.marronebioinnovations.com.

ITEM 1A. RISK FACTORS

Our operations and financial results are subject to various risks and uncertainties, including those described below, which could adversely affect our business, financial condition, results of operations, cash flows, growth prospects and the trading price of our common stock.

Risks Relating to Our Financial Position

We have incurred significant losses to date and anticipate continuing to incur losses in the future. Unless we significantly increase sales, we may not achieve or maintain profitability and our business may fail.

We have incurred operating losses since our inception in June 2006, we expect to continue to incur operating losses for the foreseeable future and we may never become profitable. As of December 31, 2020, we had an accumulated deficit of $340.8 million, and for the years ended December 31, 2020 and 2019, we had a net loss attributable to common stockholders of $20.2 million and $37.2 million, respectively. Our future success depends on our ability to market and sell in significantly larger volume not only our legacy Marrone products Grandevo, Regalia and Venerate, from which we have derived substantially all of our revenues until our September 2019 acquisition of Pro Farm, but our other products, including UBP, Foramin, Haven, Jet-Ag, Jet-Oxide, Majestene/Zelto and Stargus, as well as our ability to successfully introduce new products like Pacesetter.

While we have and plan to continue to invest considerable resources in the sale and launch of our products, various factors have impeded higher growth in sales of these products. For example, we believe adverse conditions globally, including low commodity prices, may have reduced demand for our products. Delays in regulatory approvals of certain of our products in Europe, Latin America and other jurisdictions have and may continue to slow international growth, and any delay in a product launch that causes us to miss a growing season may require us to wait a year to enter that market. Extended drought in some markets and excessive rain in other markets reduced demand for our products as fewer acres are planted, recent changes in weather patterns have resulted in a shortened bloom cycle in different markets in different years and resulted in fewer pesticide and plant health products being used, and certain of our strategic collaborations have not resulted in the significant increases in sales we expected both inside and outside of the Unites States.

Lower than expected sales growth as a result of these and other factors may adversely affect our financial results in several ways, including increases in write-offs and inventory obsolescence, higher proportional operating expense levels and increases in our cost of product revenues and decreases in product margins. Further, if we are unable to achieve our planned operating results and increase sales of our commercialized products, our available cash and ability to raise additional capital will decrease, we or our auditors may in future periods conclude that substantial doubt may exist as to our ability to continue as a going concern, which could cause the market price of our common stock to decline, and our business may fail.

We expect to require additional financing in the future to maintain and expand our business, and to service our debt. Such capital raising may be costly, difficult or not possible to obtain and, if obtained, could significantly dilute current stockholders' equity interests, and we may be unable to repay our secured indebtedness.

We expect to continue to incur significant losses until we are able to significantly increase our revenue. Accordingly, we expect to need significant additional financing to maintain and expand our business, including, for example, working capital associated with increased sales, costs associated with increased headcount, potential capital expenditures to grow capacity at our Bangor manufacturing facility and potential acquisitions of complementary technologies, and businesses and other strategic opportunities as well as to meet the financial covenants of and pay the principal and interest under our debt agreements.

As of March 16, 2021, we have outstanding warrants with certain of our shareholders to purchase approximately 4.9 million shares of our common stock at $0.75 per share, 3.6 million shares of our common stock at $1.00 per share which, if all exercised in cash, would result in an aggregate of $7.2 million in proceeds to us and would significantly reduce our need for additional financing. However, there can be no assurances that any of these warrants will be exercised when we require funds or at all, particularly if our common stock trades at prices below the applicable exercise price. Any exercise of our outstanding warrants will dilute the ownership of our other stockholders.

We may also seek additional funds from public or private equity offerings, debt financings, and strategic collaborations involving up-front cash payments or other means. However, additional capital may not be available on terms acceptable to us, or at all. Any additional equity financing we do raise will be significantly dilutive to stockholders or, in some cases, require us to seek stockholder approval for the financing or result in antidilution adjustments to the prices of our outstanding warrants, reducing potential proceeds from their exercise. Any debt financing, if available, may include restrictive covenants and bear high rates of interest. In addition, our existing loan agreements contain certain restrictive covenants that either limit our ability to or require a mandatory prepayment if we incur additional indebtedness and liens and enter into various specified transactions. We therefore may not be able to engage in any of the foregoing transactions unless we obtain the consent of our lenders or prepay the outstanding amounts under the debt agreements, which could require us to pay additional prepayment penalties. In addition, we may incur substantial costs in pursuing future capital financing, including investment banking fees, legal fees, accounting fees and other costs. We also may be required to recognize non-cash expenses in connection with certain securities we issue, such as warrants, which may adversely impact our financial results.

Certain of our debt agreements also contain financial covenants, including maintaining minimum current, debt-to-worth and loan-to-value ratios and provisions providing for an event of default if there is a material adverse change in our financial condition or if we are in default under certain of our other agreements. We are not in compliance with certain of these covenants and have received waivers from our lenders, none whom have previously declared an event of default on our indebtedness. Breach of covenants included in our debt agreements, which could result in the lenders demanding payment of the unpaid principal and interest balances. If we fail to pay any principal or interest under our indebtedness when due, or are otherwise in violation of certain covenants under our debt agreements, this may result in the acceleration of our indebtedness, which would have a material adverse effect upon our business and would likely require us to seek to renegotiate these debt arrangements with the lenders, as we may not have sufficient funds to repay that indebtedness.

If we cannot raise more money when needed, or are unable to use our future working capital, borrowings or equity financing to repay or refinance the amounts outstanding under our debt agreements or to renegotiate our debt arrangements with lenders, we may have to reduce our capital expenditures, scale-back our development of new products, reduce our workforce or license to others products that we otherwise would seek to commercialize ourselves. Any of these eventualities would likely have a material adverse impact on our value and the value of our equity.

Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.

As of December 31, 2020, we had net operating loss carryforwards of $104.2 million. The net operating loss carryforwards for federal and state purposes were reduced as a result of the effect of an ownership change as defined under Internal Revenue Code ("IRC") Section 382, the change related to the February 5, 2018 previously disclosed financing transactions. The federal and state reductions were $176.4 million and $119.1 million, respectively. The federal net operating loss generated after 2017 in the amount of $65.1 million will not expire. In addition, as of December 31, 2020, we had federal research and development tax credit carryforwards of $0.6 million, which begin to expire in 2038, and state research and development tax credit carryforwards of $3.1 million, which have no expiration date. The federal research and development tax credit carryforwards were also reduced by the Section 382 ownership change of $2.3 million. It is possible that we will not generate taxable income to use these loss carryforwards in cases where they are subject to expiration or where they are able to be carried forward indefinitely. Additionally, while we believe that foreign loss carryforwards in connection with our acquisition of Pro Farm have been retained, there can no assurance the initial position will not be reversed in future periods by the foreign taxing authorities.

Risks Relating to Our Business and Strategy

We will need to continue expanding our sales and marketing infrastructure.

We currently have limited sales and marketing experience and capabilities. As of December 31, 2020, we employed 29 full-time equivalent sales and marketing personnel, 8 of whom focus on technical support and demonstration and conducting field trials and 5 of which focus on marketing. The majority of these sales personnel were hired in 2018 and thereafter. New personnel require significant training to attain a high level of technical expertise and knowledge regarding the capabilities of our biological products compared with conventional chemical pest management products and techniques in order to educate growers and independent distributors on the uses and benefits of our products. We will need to further develop our sales and marketing capabilities and find partners in order to successfully increase sales of our commercially available products and to commercialize other products we are developing, which may involve substantial costs. There can be no assurance that our field development specialists and other members of our sales and marketing team will successfully compete against the sales and marketing teams of our current and future competitors, many of which may have more established relationships with distributors and growers. Our inability to recruit, train and retain sales and marketing personnel, or their inability to effectively market and sell the products we are developing, could impair our ability to gain market acceptance of our products and cause our sales to suffer.

If we are unable to maintain and further establish successful relations with the third-party distributors that are our principal customers, or they do not focus adequate resources on selling our products or are unsuccessful in selling them to end users, sales of our products will be adversely affected.

In the United States, we rely on independent distributors of agrichemicals to distribute and assist us with the marketing and sale of our current product portfolio and other products we are developing. These distributors are our principal customers, and revenue growth will depend in large part on our success in establishing and maintaining this sales and distribution channel. However, there can be no assurance that our distributors will be successful in selling our products to end users, or will focus adequate resources on selling them, and they may not continue to purchase or market our products for a number of reasons.

For example, many distributors lack experience in marketing biological agricultural products, which generally must be used differently than conventional chemical products. In addition, many of our distributors are in the business of distributing and manufacturing other, possibly competing, biological agricultural products, including internally developed and commercialized biological products as well as biological products developed by larger agrichemical companies that negotiate to "bundle" such specialty products with other high demand products. For example, a portion of our sales of Venerate are tied to Albaugh's promotion, sales and services related to products under its BIOST platform, in addition to the effectiveness of their proprietary blend, which while containing Venerate, is developed by Albaugh and not by us. To the extent our distributors are unsuccessful in selling our products to end users, or in marketing their own products that incorporate our products, they may purchase lower volumes from us, which could have a material adverse effect on our business. In addition, our distributors may earn higher margins by selling competing products or combinations of competing products. If we are unable to establish or maintain successful relationships with independent distributors, we need to further develop our own sales and demand creation capabilities, which would be expensive and time-consuming, the success of which would be uncertain.

We depend on a limited number of distributors.

Our current revenues are derived from a limited number of key customers, each of which serves as a third-party distributor to our products' end users. For the years ended December 31, 2020 and 2019, our top three distributors accounted for 48% and 49% of our total revenues, respectively. We expect a limited number of distributors to continue to account for a significant portion of our total revenues for the foreseeable future. This customer concentration increases the risk of quarterly fluctuations in our revenues and operating results. The loss or reduction of business from one or a combination of our significant distributors could materially adversely affect our revenues, financial condition and results of operations.

The high level of competition in the market for biological agricultural products may result in pricing pressure, reduced margins or the inability of our products to achieve market acceptance.

The markets for biological agricultural products are intensely competitive, rapidly changing and undergoing consolidation. We may be unable to compete successfully against our current and future competitors, which may result in price reductions, reduced margins and the inability to achieve market acceptance for our products.

Many entities are engaged in developing biological agricultural products. Our competitors include major multinational agrichemical companies, some of which have developed biological products for our target markets, as well as specialized biological agricultural businesses such as Certis USA (owned by Mitsui & Co), Novozymes and Valent Biosciences (subsidiary of Sumitomo Chemical). Many of these organizations have longer operating histories, significantly greater resources, greater brand recognition and a larger base of customers than we do. As a result, they may be able to devote greater resources to the manufacture, promotion or sale of their products, receive greater resources and support from independent distributors, initiate or withstand substantial price competition or more readily take advantage of acquisition or other opportunities. Further, many of the large agrichemical companies have a more diversified product offering, which may give these companies an advantage in meeting customers' needs by enabling them to offer a broader range of crop protection, plant nutrition and plant health solutions. In addition, we could face competition in the future from new, well-financed start-up companies.

The product candidates we select for development and commercialization may fail to generate significant revenues.

Our internal development efforts are focused on a number of product candidates including in the near term Grandevo XC, Reyzox, Zn Foliar, Optima, Takla, and Ympact. Simultaneously, we are seeking collaborations with third parties to develop and commercialize early stage candidates on which we have elected not to expend significant internal resources.

Successful development of product candidates will require significant additional investment, including costs associated with research and development, completing field trials and obtaining regulatory approval, as well as the ability to manufacture our products in large quantities at acceptable costs while also preserving high product quality. Difficulties often encountered in scaling up production include problems involving production yields, quality control and assurance, shortage of qualified personnel, production costs and process controls. In addition, we are subject to inherent risks associated with new products and technologies. These risks include the possibility that any product candidate may:

- be found unsafe;
- be harmful to consumers, growers, farm workers, animals, beneficial insects or the environment;
- be harmful to crops when used in connection with conventional chemical pesticides;
- cause a major crop failure;
- be ineffective or less effective than anticipated;
- be displaced by new technologies;
- fail to receive or take longer to receive necessary regulatory approvals;
- be difficult to competitively price relative to alternative pest management solutions;
- be difficult or impossible to manufacture on an economically viable scale;
- be subject to supply chain constraints for raw materials;
- fail to be developed and accepted by the market prior to the successful marketing of similar products by competitors;
- be impossible to market because it infringes on the proprietary rights of third parties; or
- be too expensive for commercial use.

Our decisions regarding which product candidates to pursue may cause us to fail to capitalize on product candidates that could have given rise to viable commercial products and profitable market opportunities.

Our product sales are subject to weather conditions and other factors beyond our control, which may cause our operating results to fluctuate significantly quarterly and annually.

In recent years, we have increasingly had higher sales during the first half of the year than the second half, and expect this trend to continue. However, the level of seasonality in our business may change due to a number of factors, including our expansion into new geographical territories, the introduction of new products, the timing of introductions of new formulations and products, the addition or changes to distributors or distributor programs and the impact of weather and climate change. It is possible that our business may become more seasonal, or experience seasonality in different periods.

Notwithstanding any such seasonality, we expect substantial fluctuation in sales year over year and quarter over quarter as a result of a number of variables on which sales of our products are dependent. Weather conditions, natural disasters and other factors affect planting and growing seasons and incidence of pests and plant disease, and accordingly affect decisions by our distributors, direct customers and end users about the types and amounts of pest management and plant health products to purchase and the timing of use of such products. In addition, disruptions that cause delays by growers in harvesting or planting can result in the movement of orders to a future quarter, which would negatively affect the quarter and cause fluctuations in our operating results. Customers also may purchase large quantities of our products in a particular quarter to store and use over long periods of time or time their purchases to manage their inventories, which may cause significant fluctuations in our operating results for a particular quarter or year.

Our expense levels are based in part on our expectations regarding future sales. As a result, any shortfall in sales relative to our expectations could cause significant fluctuations in our operating results from quarter to quarter, which could result in uncertainty surrounding our level of earnings and possibly a decrease in our stock price.

Biological crop protection and plant health products are not well understood, which necessitates investment in customer education and makes effectively marketing and selling our products difficult.

The market for biological agricultural products is underdeveloped when compared to conventional products. Customers in the crop production sector are generally cautious in their adoption of new products and technologies. Growers often require on-farm demonstrations of a given crop protection or plant health product. Initial purchases of the product tend to be conservative, with the grower testing on a small portion of their overall crop. As the product is proven, growers incorporate the product into their rotational programs and deploy it on a greater percentage of their operations. As a result, large scale adoption generally takes several growing seasons.

Customers have historically perceived biological agricultural products as more expensive and less effective than conventional products. To succeed, we will need to continue to change that perception. To the extent that the market for biological agricultural products does not further develop or customers elect to continue to purchase and rely on conventional chemical products, our market opportunity will be limited.

If we or our third-party manufacturers are unable to produce our products at a satisfactory quality, in a timely manner, in sufficient quantities or at an acceptable cost, our business could be negatively impacted.

We have transitioned a significant amount of our manufacturing processes in-house to our facility in Bangor, Michigan. If severe weather, a fire or natural disaster occurs, a contaminant grows in our fermentations, or a mechanical or labor problem leads to a reduced capacity or shutdown of our fermenters or other equipment, we may not be successful in producing the amount and quality of product we anticipate in the facility and our results of operations may suffer as a result.

We also continue to rely on third parties to produce or in the process for manufacturing our products and from time to time, including the 12% minority interest in a Russian manufacturing facility and we expect to use third-party manufacturers for supplemental production capacity to meet excess seasonal demand and some packaging. Our reliance on third parties to manufacture our products presents significant risks to us, including the following:

- Pushed out or canceled delivery due to tariff restrictions or infectious disease quarantines including COVID-19;

- reduced control over delivery schedules, yields and product reliability;
- price increases;
- manufacturing deviations from internal and regulatory specifications, including contaminations;
- the failure of a key manufacturer to perform its obligations to us for technical, market or other reasons;
- challenges presented by introducing our fermentation processes to new manufacturers or deploying them in new facilities, including contaminations;

- difficulties in establishing additional manufacturers if we are presented with the need to transfer our manufacturing process technologies to them;
- misappropriation of our intellectual property; and
- other risks in potentially meeting our product commercialization schedule or satisfying the requirements of our distributors, direct customers and end users.

We have not entered into any long-term manufacturing or supply agreements for any of our products, and we may need to enter into additional agreements for the commercial development, manufacturing and sale of our products. There can be no assurance that we can do so on favorable terms, if at all.

Our products have been produced in quantities, and on timelines, sufficient to meet commercial demand and for us to satisfy our delivery schedules. However, our dependence upon others for the production of a portion of our products, or for a portion of the manufacturing process, particularly for drying and for all our production of Venerate, may adversely affect our ability to satisfy demand, support agriculture retailers and distributors operating shifting to "just-in-time" inventory approach and meet delivery obligations, as well as to develop and commercialize new products, on a timely and competitive basis. If manufacturing capacity is reduced or eliminated at one or more of our third-party manufacturers' facilities, we could have difficulties fulfilling our customer orders, which could adversely affect customer relationships, and our net revenues and results of operations could decline.

We must accurately forecast demand for our products to obtain adequate and cost-effective capacity from our third-party manufacturers and to purchase certain of the raw materials used in our products at cost-effective rates. Our third-party manufacturers are not required to supply us products until we place, and they accept, our purchase orders, which generally occurs approximately three months prior to the anticipated product delivery date to customers based on our own rolling forecasts. Our purchase orders may not be accepted and our third-party manufacturers may not be willing to provide us with additional products on a timely basis if they prioritize orders placed by other companies, many of whom are more established than us and order larger volumes of products. In addition, while raw material orders are generally placed one month in advance of suppliers' orders, because certain of the raw materials used in our products are in short supply or are subject to capacity demands, we place some raw material orders approximately six months in advance to avoid paying higher prices. Accordingly, if we inaccurately forecast demand for our products, we may be unable to meet our customers' delivery requirements, or we may accumulate excess inventories of products and raw materials.

Failure to achieve expected manufacturing yields and pesticidal activity or contamination of our production runs could negatively impact our operating results.

We do not know whether a yield problem exists until our products are manufactured. When a yield issue is identified, the product is analyzed and tested to determine the cause. As a result, yield deficiencies may not be identified until well into the production process. We may experience inability to ramp up yields in our own manufacturing facility or third-party manufacturers. In the event that we continue to rely on third-party manufacturers, resolution of yield problems requires cooperation among, and communication between, us and our manufacturers. Third-party manufacturers as well as our own plant in Michigan may contaminate the runs of our products while in process, causing a run failure and causing us to miss sales opportunities or a season. We will not succeed if we cannot maintain or decrease our production costs and effectively scale our technology and manufacturing processes with the desired yields and pesticidal activity and without contaminations.

We rely on a single supplier based in China for a key ingredient of Regalia.

The active ingredient in our Regalia product line is derived from the giant knotweed plant, which we obtain from China. Our single supplier acquires raw knotweed from numerous regional sources and performs an extraction process on this plant, following our specifications, thus creating a dried extract that is shipped to our manufacturing facility in Bangor, Michigan. Although we have identified additional sources of knotweed at competitive prices that appear to be reliable and of appropriate quality, there can be no assurance that we will continue to be able to obtain dried extract from China at a competitive price point, including due to impact of any deterioration in the trade relationship between the United States and China such as tariffs placed on Chinese goods exported to the United States, unusual and significant deterioration status of supplier resources due to the outbreak of COVID-19, changes in the exchange rate between the U.S. Dollar and the Renminbi and potential actions taken by regulators in China. We endeavor to keep at least 10 - 12 months of knotweed extract on hand at any given time.

Any decline in U.S. agricultural production could have a material adverse effect on the market for pesticides and on our results of operations and financial position.

Conditions in the U.S. agricultural industry significantly impact our operating results. The U.S. agricultural industry has contracted in recent periods, and can be affected by a number of factors, including weather patterns and field conditions, current and projected grain inventories and prices, domestic and international demand for U.S. agricultural products and U.S. and foreign policies regarding trade in agricultural products. State and federal governmental policies, including farm subsidies and commodity support programs, as well as the prices of fertilizer products and the prices at which produce may be sold, may also directly or indirectly influence the number of acres planted, the mix of crops planted and the use of pesticides for particular agricultural applications.

We have acquired, and may in the future acquire, other companies, employee teams, products or technologies, which could divert our management's attention, result in additional dilution to our stockholders, and otherwise disrupt our operations and adversely affect our operating results.

We have acquired, and we may in the future acquire, other companies, employee teams, or technologies to further complement or expand our product portfolio, enhance our technical capabilities, obtain personnel, or otherwise offer growth opportunities. For example, in September 2019, we completed our acquisition of Pro Farm, which added proprietary nutrient and plant health technology and products for seed and foliar treatments to our product portfolio, and also in September 2019, we completed the purchase of substantially all rights and assets related to our Jet products. The pursuit of acquisitions may divert the attention of management and cause us to incur various expenses in identifying, investigating, and pursuing suitable acquisitions, whether or not they are consummated, and if an acquired business fails to meet our expectations, or the costs associated with the acquisition outweigh the benefits, our business, operating results, and financial position may suffer.

We may not be able effectively manage the integration of acquired personnel, operations, and technologies successfully, or effectively manage the combined operations following any acquisition, which may prevent us from achieving anticipated benefits from an acquisition. We also may not achieve the anticipated benefits from an acquisition, including the Pro Farm acquisition, due to a number of other factors, including:

- acquisition related costs, liabilities, or tax impacts, some of which may be unanticipated;
- ineffective or inadequate controls, procedures, or policies at the acquired company;
- multiple product lines or service offerings, as a result of our acquisitions, that are offered, priced, and supported differently;
- potential unknown liabilities or risks associated with the acquired businesses, including those arising from existing contractual obligations or litigation matters;
- adverse effects on our existing business relationships with business partners and customers as a result of the acquisition;
- potential write-offs of acquired assets and potential financial and credit risks associated with acquired customers;
- inability to maintain relationships with key customers, suppliers, and partners of the acquired business;
- difficulty in predicting and controlling the effect of integrating multiple acquisitions concurrently;
- lack of experience in new markets, products, or technologies;
- diversion of management's attention from other business concerns;
- use of resources that are needed in other parts of our business; and
- use of substantial portions of our available cash to consummate the acquisition.

A significant portion of the purchase price of companies or technologies we acquire may be allocated to acquired goodwill and other intangible assets, which must be assessed for impairment at least annually. In the future, if our acquisitions do not yield expected returns, we may be required to take charges to our operating results based on this impairment assessment process, which could adversely affect our operating results. Further, even if integration of acquired businesses is successful, we may be required to expend additional legal, accounting and other administrative costs with respect to managing subsidiaries in multiple international jurisdictions, including compliance with local laws and filing applicable tax returns.

We are subject to risks associated with our international sales and operations.

We expect sales to our international customers to account for an increasing portion of our sales in future fiscal years, including as a result of the Pro Farm acquisition and its formation as a subsidiary of the Company, through which we now sell directly to certain of our customers in Europe and South America. As a result of having global operations, the sudden disruption of sales caused by events outside of our control could impact our results of operations.

Our international operations are subject to inherent risks, and our future results could be adversely affected by a variety of factors, many of which are outside of our control, including:

- greater difficulty in collecting accounts receivable and longer collection periods;
- difficulties of managing manufacturing, infrastructure and legal compliance costs associated with producing products internationally;
- political, social and economic instability, including wars, terrorism, political unrest, boycotts, public health emergencies, curtailment of trade and other business restrictions;
- tariff and trade barriers and other regulatory requirements or contractual limitations on our ability to sell or develop our products in certain foreign markets;
- less effective protection of intellectual property than is afforded to us in the United States or other developed countries;
- potentially adverse tax consequences;
- effects of changes in currency exchange rates, particularly relative increases in the exchange rate of the U.S. dollar versus other currencies that could negatively affect our financial results and cash flows; and
- changes in governmental trade policies can lead to the imposition of new duties, tariffs or quotas affecting agricultural commodities, fertilizer or industrial products. These can alter trade flows, access to supplies or demand, and regional balances for our products.

Because of the importance of international sales, sourcing and manufacturing to our business, our financial condition and results of operations could be significantly harmed if any of the risks described above were to occur or if we are otherwise unsuccessful in managing our increasingly global business.

Our intellectual property is integral to our business. If we are unable to protect our patents and proprietary rights in the United States and foreign countries, our business could be adversely affected.

Our success depends in part on our ability to obtain and maintain patent and other proprietary rights protection for our technologies and products in the United States and other countries. If we are unable to obtain or maintain these protections, we may not be able to prevent third parties from using our proprietary rights. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. As of December 31, 2020, we had 60 issued U.S. patents and 421 issued foreign patents, 17 pending provisional and non-provisional U.S. patent applications and 93 pending foreign patent applications.

The patent position of biotechnology and biochemical companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our pending and future patent applications may not result in patents being issued which protect our technology or products, in whole or in part, or which effectively prevent others from commercializing competitive technologies and products. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. For example, the U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition, recent changes to the patent laws of the United States provide additional procedures for third parties to challenge the validity of issued patents, some of which allow a lower evidentiary standard to hold a patent claim invalid. The laws of some foreign countries do not protect proprietary rights to the same extent as the laws of the United States, and we may encounter significant problems and costs in protecting our proprietary rights in these foreign countries.

Our patents, and those patents for which we have license rights, may be challenged, narrowed, invalidated or circumvented. In addition, our issued patents may not contain claims sufficiently broad to protect us against third parties with similar technologies or products or provide us with any competitive advantage. We are not certain that our pending patent applications will be issued. Moreover, our competitors could challenge or circumvent our patents or pending patent applications. It is also not possible to patent and protect all knowledge and know-how associated with our products, so there may be areas that are not protected such as certain formulations and manufacturing processes. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

For certain of our products, we hold co-exclusive licenses to certain of the intellectual property related to these products. Although our products that are derived from intellectual property licensed to us on a co-exclusive basis also include our own proprietary technology, the third parties with whom we share co-exclusive rights may develop products based on the same underlying intellectual property. This could adversely affect the sale of our products.

Significant disruptions of information technology systems or breaches of data security could adversely affect our business.

We are dependent on information technology systems and infrastructure, some which are hosted by third party vendors or suppliers, to operate our business. Despite our security measures, potential vulnerabilities can be exploited from inadvertent or intentional actions of our employees, third-party vendors, business partners, or by malicious third parties. Attacks of this nature are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives (including, but not limited to, industrial espionage) and expertise, including organized criminal groups, “hacktivists,” nation states and others. In addition to the extraction of sensitive information, such attacks could include the deployment of harmful malware, ransomware, denial-of-service attacks, phishing attacks social engineering and other means to affect service reliability. While we have incurred no material cyber-attacks or security breaches to date, any material cyber-related incident, including unauthorized access, disclosure or other loss of information, could result in legal claims or proceedings, investigations by law enforcement or regulatory bodies, liability under laws that protect the confidentiality of personal information, regulatory penalties, could disrupt our operations, could compromise our ability to protect our intellectual property rights, could damage our reputation, which could adversely affect our business, financial condition, and operating results, and could negatively impact our stock price.

Our business is subject to risks arising from the COVID-19 illness.

The outbreak of COVID-19 and the resulting public health crisis continues to have a widespread impact on our business, our customers, and our business environment, as well as the economic climate in the United States and globally. The initial wave of the COVID-19 outbreak caused disruption to our business activities, as state and local authorities mandated shutdown, which led us to scale down our headquarters and manufacturing facilities. For the safety of our workforce, employees were encouraged to work from home if it was not absolutely essential to complete their responsibilities at the physical workspace. Since the initial shutdown orders, we continued to operate certain aspects of our business at a scaled down level and although generally many geographic locations have reopened with limitations, we cannot determine when our operations will revert to the productivity levels we had in early- and mid- March 2020. For example, while we cannot directly determine the value of the impact, we generally believe that scaling down our operations at our manufacturing plant for safety measures impacted our manufacturing levels and contributed to the higher idle capacity expense recognized for the year ended December 31, 2020

when compared to December 31, 2019. Additionally, the continued spread of COVID-19 and the mitigation measures taken by various governments of countries affected, could disrupt the supply chain for, the manufacture or shipment of, and the demand for our products and adversely impact our business, financial condition or results of operations. The COVID-19 outbreak and mitigation measures may also have an adverse impact on global economic conditions, which could have an adverse effect on our business and financial condition, including by limiting our ability to obtain financing or to rely on our existing financing facilities. Although we presently expect continued revenue growth in 2021 despite the impact of COVID-19, the extent to which the COVID-19 outbreak impacts our results will depend on future developments that are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of the virus and the actions to contain its impact. For example, our commercial efforts may include on-site farmer demonstrations and attendance at trade shows and conferences, some of which were either limited by travel restrictions we imposed on our employees or due to capacity restrictions imposed by governmental agencies, were deferred or cancelled altogether during 2020.

Risks Relating to Product Development and Regulatory Matters

If our ongoing or future field trials are unsuccessful, we may be unable to obtain regulatory approval of, or commercialize, our products on a timely basis.

The successful completion of multiple field trials in domestic and foreign locations on various crops is critical to the success of our product development and marketing efforts. If our ongoing or future field trials are unsuccessful or produce inconsistent results or unanticipated adverse side effects on crops or on non-target organisms, or if we are unable to collect reliable data, regulatory approval of our products could be delayed, or we may be unable to commercialize our products. In addition, more than one growing or treatment season may be required to collect sufficient data and we may need to collect data from different geographies to prove performance for customer adoption. Although we have conducted successful field trials on a broad range of crops, we cannot be certain that additional field trials conducted on a greater number of acres, or on crops for which we have not yet conducted field trials, will be successful. Moreover, the results of our ongoing and future field trials are subject to a number of conditions beyond our control, including weather-related events such as drought or floods, severe heat or frost, hail, tornadoes and hurricanes, or low or no natural occurrence of the pests intended for testing. Generally, we pay third parties, such as growers, consultants and universities, to conduct field tests on our behalf. Incompatible crop treatment practices or misapplication of our products by these third parties or lack of sufficient occurrence of the identified pests in nature for a particular trial could impair the success of our field trials.

Our inability to obtain regulatory approvals, or to comply with ongoing and changing regulatory requirements, could delay or prevent sales of the products we are developing and commercializing.

The field testing, manufacture, sale and use of crop protection, plant health and plant nutrition products are extensively regulated by the EPA and other state, local and foreign governmental authorities. These regulations substantially increase the time and cost associated with bringing our products to market. If we do not receive the necessary governmental approvals to test, manufacture and market our products, or if regulatory authorities revoke our approvals, do not grant approvals in a timely manner or grant approvals subject to restrictions on their use, we may be unable to sell our products in the United States or other jurisdictions, which could result in a reduction in our future revenues.

As we introduce new formulations of and applications for our products, we may need to seek EPA approval prior to commercial sale. For any such approval, the EPA may require us to fulfill certain conditions within a specified period of time following initial approval. We are also required to obtain regulatory approval from other state and foreign regulatory authorities before we market our products in their jurisdictions, some of which have taken, and may take, longer than anticipated.

Some of these states and foreign countries may apply different criteria than the EPA in their approval processes. Although federal pesticide law preempts separate state and local pesticide registration requirements to some extent, state and local governments retain authority to control pesticide use within their borders.

There can be no assurance that we will be able to obtain regulatory approval for marketing our additional products or new product formulations and applications we are developing. Although the EPA has in place a registration procedure for biopesticides there can be no assurance that all of our products or product extensions will be eligible for this streamlined procedure or that additional requirements will not be mandated by the EPA that could make the procedure more time consuming and costly for our future products.

Additionally, for certain state registration and registration in jurisdictions outside of the United States, all products need to be proven efficacious for each proposed crop-pest combination, which can require costly field trial testing, and a favorable result is not assured. Because many of the products that may be sold by us must be registered with one or more government agencies, the registration process can be time consuming and expensive, and there is no guarantee that the product will obtain all required registrations. We have intentionally obtained registration in some jurisdictions and not in others. California is one of the largest and most important producers of agricultural products in the world. As such, we view California as one of the most natural and attractive markets for our products, but it is also very stringent in its regulations, generally requiring more time and effort, and lacking legally mandated deadlines for its reviews of reduced-risk biopesticides. Therefore, gaining concurrent approvals with the EPA, other states and other countries may not always be achievable. Even if we obtain all necessary regulatory approvals to market and sell our products, they will be subject to continuing review and extensive regulatory requirements, including periodic re-registrations. The EPA, as well as state and foreign regulatory authorities, could withdraw a previously approved product from the market upon receipt of newly discovered information, including an inability to comply with their regulatory requirements or the occurrence of unanticipated problems with our products, or for other reasons.

We use hazardous materials in our business and are subject to potential liability under environmental laws. Any claims relating to improper handling, storage or disposal of hazardous materials could be time consuming and costly to resolve.

We are subject to federal, state and local laws and regulations governing the use, manufacture, storage, handling, disposal and release of hazardous materials and certain waste products. Our research and development and manufacturing activities involve the controlled use of hazardous materials and/or biological waste. Some of these materials may be novel, including bacteria with novel properties and bacteria that produce biologically active compounds. We cannot eliminate the risk of accidental contamination or discharge and any injury resulting from these materials. In addition, although we have not currently identified any environmental liabilities, our manufacturing facility may have existing environmental liabilities associated with it that may also result in successor liabilities for us, and we will be subject to increased exposure to potential environmental liabilities as we manufacture our products on a larger scale. We may also be held liable for hazardous materials brought onto the premises of our manufacturing facility before we acquired title, without regard for fault for, or knowledge of, the presence of such substances, as well as for hazardous materials that may be discovered after we no longer own the property if we sell it in the future. In the event of an accident, or if any hazardous materials are found within our operations or on the premises of our manufacturing facility in violation of the law at any time, we may be liable for all cleanup costs, fines, penalties and other costs. This liability could exceed our resources, and, if significant losses arise from hazardous substance contamination, our financial viability may be substantially and adversely affected.

In addition, we may have to incur significant costs to comply with future environmental laws and regulations. We cannot predict the impact of new governmental regulations that might have an adverse effect on the research, development, production and marketing of our products. We may be required to incur significant costs to comply with current or future laws or regulations. Our business may be harmed by the cost of compliance.

Our collaborators may use hazardous materials in connection with our collaborative efforts. To our knowledge, their work is performed in accordance with applicable biosafety regulations. In the event of a lawsuit or investigation, however, we could be held responsible for any injury caused to persons or property by exposure to, or release of, hazardous materials used by these parties. Further, we may be required to indemnify our collaborators against all damages and other liabilities arising out of our development activities or products produced in connection with these collaborations.

Inability to comply with regulations applicable to our facilities and procedures could delay, limit or prevent our research and development or manufacturing activities.

Our research and development and manufacturing facilities and procedures are subject to continual review and periodic inspection. We must spend funds, time and effort in the areas of production, safety and quality control and assurance to ensure full technical compliance with the regulations applicable to these facilities and procedures. If the EPA or another regulatory body determines that we are not in compliance with these regulations, regulatory approval of our products could be delayed, or we may be required to limit or cease our research and development or manufacturing activities or pay a monetary fine. If we are required to limit or cease our research and development activities, our ability to develop new products would be impaired. In addition, if we are required to limit or cease our manufacturing activities, our ability to produce our products in commercial quantities would be impaired or prohibited, which would harm our business.

Our business is subject to various governmental regulations, and compliance with these regulations may cause us to incur significant expenses. If we fail to maintain compliance with applicable regulations, we may be forced to recall products and cease their manufacture and distribution, which could subject us to civil or criminal penalties.

The complex legal and regulatory environment exposes us to compliance and litigation costs and risks that could materially affect our operations and financial results. These laws and regulations may change, sometimes significantly, as a result of political or economic events. They include environmental laws and regulations, tax laws and regulations, import and export laws and regulations, government contracting laws and regulations, labor and employment laws and regulations, securities and exchange laws and regulations, and other laws such as the Foreign Corrupt Practices Act. In addition, proposed laws and regulations in these and other areas could affect the cost of our business operations. We face the risk of changes in both domestic and foreign laws regarding trade, potential loss of proprietary information due to piracy, misappropriation or foreign laws that may be less protective of our intellectual property rights. Violations of any of these laws and regulations could subject us to criminal or civil enforcement actions, any of which could have a material adverse effect on our business, financial condition or results of operations.

Risks Related to Ownership of Our Common Stock

Our principal stockholders have significant voting power and may take actions that may not be in the best interest of other stockholders.

As of March 16, 2021, our executive officers and directors and their affiliates, including Ospraie Ag Science LLC ("Ospraie"), beneficially owned or controlled (i.e., directly or indirectly and including exercisable warrants), an aggregate of approximately 79.2 million shares, or 44.6% of our common stock, including 39.5% of our currently outstanding shares. In addition, affiliates of Waddell & Reed Financial, Inc. ("Waddell"), beneficially own 16.0% of our common stock and 15.7% of our currently outstanding shares, Ardsley Advisory Partners ("Ardsley") beneficially owns 9.9% of our common stock and 9.6% of our currently outstanding shares, and Van Herk Investments B.V. beneficially own 6.0% of our common stock and 4.0% of our currently outstanding shares. These principal stockholders collectively beneficially owned or controlled, directly or indirectly an aggregate of 134.8 million shares or 68.9% of our total common stock outstanding and if all of these security holders act together, or exercise their warrants, they will be able to exert significant control over our management and affairs, which could result in some corporate actions that our other stockholders do not view as beneficial such as failure to approve change of control transactions that could offer holders of our common stock a premium over the market value of our company. As a result, the market price of our common stock could be adversely affected.

Our common stock may experience extreme price and volume fluctuations, and you may not be able to resell shares of our common stock at or above the price you paid.

We have had a history of losses, and our business, financial results and stock price have been adversely affected by operating results. Since shares of our common stock were sold in our initial public offering in August 2013 at a price of $12.00 per share, our stock price has ranged between $0.60 and $20.00 through December 31, 2020. The trading price of our common stock will likely continue to be highly volatile and could be subject to wide fluctuations in price in response to various factors, some of which are beyond our control. These factors include

- our public float relative to the total number of shares of common stock that are issued and outstanding;
- quarterly variations in our results of operations, those of our competitors or those of our customers;
- announcements of technological innovations, new products or services or new commercial relationships by us or our competitors;
- our ability to develop and market new products on a timely basis;
- disruption to our operations;
- media reports and publications about our financials or about pest management products;
- announcements concerning our competitors or the pest management industry in general;
- our entry into, modification of or termination of key license, research and development or collaborative agreements;
- new regulatory pronouncements and changes in regulatory guidelines or the status of our regulatory approvals;
- general and industry-specific economic conditions, such as the recent uncertainty in the global economy caused by the COVID-19 pandemic;
- any major change in our board of directors or management;
- the commencement of, or our involvement in, litigation;
- changes in financial estimates, including our ability to meet our future net revenues and operating profit or loss projections; and
- changes in earnings estimates or recommendations by securities analysts.

Substantial future sales of our common stock, or the perception in the public markets that these sales may occur, may depress our stock price.

Sales of substantial amounts of our common stock in the public market, or the perception that such sales could occur, could adversely affect the market price of our common stock. As of March 16, 2021, we had approximately 173.5 million shares of common stock outstanding, 68.6 million which were held by our directors and officers and their affiliates and an additional 50.9 million shares which were held by other beneficial holders of 5% or more of our common stock. Although these shares are subject in some cases to volume and manner of sale restrictions of Rule 144 of the Securities Act, any determination by holders of a substantial number of such shares to sell our stock, or the perception that such sales may occur, could cause our stock price to decline.

In addition, as of March 16, 2021, we had 9.5 million shares of our common stock available to be awarded under our equity incentive plans, 4.7 million shares of our common stock issuable upon the settlement of outstanding restricted stock units, 13.7 million shares of our common stock issuable upon the exercise of outstanding options with a weighted average exercise price of $2.30 per share and 8.6 million shares of our common stock issuable upon the exercise of outstanding warrants with a weighted average exercise price of $0.91 per share. These shares may be sold in the public market upon issuance.

We are a "smaller reporting company" and we cannot be certain if the reduced disclosure requirements applicable to smaller reporting companies will make our common stock less attractive to investors.

We are a "smaller reporting company" as defined by the Securities and Exchange Commission. For as long as we continue to be a smaller reporting company, we may choose to take advantage of certain scaled disclosures from various reporting requirements applicable to other public companies but not to smaller reporting companies, which include, among other things:

- reduced disclosure obligations related to Management's Discussion and Analysis of Financial Conditions and Results of Operations;
- reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements;
- reduced income statement, cash flow, and changes in stockholders' equity statements from three years to two years.

We cannot predict if investors will find our common stock less attractive if we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

We have in the past identified material weaknesses, and if we fail to establish and maintain proper and effective internal controls, our ability to produce accurate financial statements on a timely basis could be impaired, which could adversely affect our consolidated operating results, our ability to operate our business, our stock price and investors' views of us.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to ensure that information regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with GAAP, but in the past, we have identified material weaknesses in these controls. While we believe we have appropriately remediated previous material weaknesses in our internal control over financial reporting, we can provide no assurances that other material weaknesses in our internal control over financial reporting, will not be identified in the future. Remediation of any material weaknesses requires substantial management time and attention, and ensuring that we have adequate internal control over financial reporting and procedures in place to produce accurate financial statements on a timely basis will continue to be a costly and time-consuming effort.

Any failure to implement effective internal control over financial reporting or to complete and maintain the remediation of our identified control deficiencies may result in errors, material misstatements or delays in our financial reporting, failure to meet our financial reporting obligations or failure to avoid or detect fraud in our financial reporting. This in turn would have a material adverse effect on our business and results of operations and could have a substantial adverse impact on the trading price of our common stock and our relationships with customers and suppliers.

Our management does not expect that our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within the Company will have been detected.

Unforeseen problems with the maintenance of our information systems, or failure to design and operate effective internal controls over information systems, could have an adverse effect on our operations and could result in ineffective internal control over our financial reporting.

As we add functionality and increase the use of our enterprise risk planning or other key information systems, we may incur additional costs and problems could arise that we have not foreseen, including interruptions in service, loss of data, or reduced functionality. Such problems could adversely impact our ability to run our business in an efficient and timely manner.

In addition, we do not have extensive experience with implementing controls over our current information systems. While we believe we have designed the appropriate controls around our information systems, if we have not designed controls within or around these systems that are effective at preventing and detecting unreliable data, or if we are unable to design or operate controls within or around these systems to provide effective control around program changes and access to the systems, we may be at risk for future material weaknesses. This in turn would have a material adverse effect on our business and results of operations and could have a substantial adverse impact on the trading price of our common stock and our relationships with customers and suppliers.

Provisions in our charter documents and under Delaware law could discourage a takeover that stockholders may consider favorable.

Provisions in our amended and restated certificate of incorporation and bylaws may have the effect of delaying or preventing a change of control or changes in our management. These provisions include the following:

- the right of our board of directors to elect directors to fill a vacancy created by the expansion of our board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- the establishment of a classified board of directors requiring that only a subset of the members of our board of directors be elected at each annual meeting of stockholders;

- the prohibition of cumulative voting in our election of directors, which would otherwise allow less than a majority of stockholders to elect director candidates;
- the requirement that stockholders provide advance notice to nominate individuals for election to our board of directors or to propose matters that can be acted upon at a stockholders' meeting. These provisions may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company;
- the ability of our board of directors to issue, without stockholder approval, shares of undesignated preferred stock with terms set by the board of directors, which rights could be senior to those of our common stock. The ability to authorize undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to acquire us;
- the ability of our board of directors to alter our bylaws without obtaining stockholder approval;
- the inability of our stockholders to call a special meeting of stockholders and to take action by written consent in lieu of a meeting;
- the required approval of the holders of at least two-thirds of the shares entitled to vote at an election of directors to adopt, amend or repeal our bylaws;
- the required approval of the holders of at least two-thirds of the shares entitled to vote at an election of directors to repeal or adopt any provision of our certificate of incorporation regarding the election of directors;
- the required approval of the holders of at least 80% of such shares to amend or repeal the provisions of our bylaws regarding the election and classification of directors; and
- the required approval of the holders of at least two-thirds of the shares entitled to vote at an election of directors to remove directors without cause.

As a Delaware corporation, we are also subject to certain Delaware anti-takeover provisions. Under Delaware law, a corporation may not engage in a business combination with any holder of 15% or more of its common stock unless the holder has held the stock for three years or, among other things, the board of directors has approved the transaction. Our board of directors could rely on Delaware law to prevent or delay an acquisition of us.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2. PROPERTIES

Our headquarters are located at 1540 Drew Avenue in Davis, California, in a facility consisting of approximately 27,300 square feet of office, laboratory and greenhouse space under a lease entered into in September 2013. This facility accommodates our research, development, sales, marketing, operations, finance and administrative activities. The facility includes a new, state-of-the-art fermentation lab and pilot plant, an expanded formulation lab and pilot with spray drying and granulation capabilities, an insectary, a plant pathology and nematology lab and a plant and weed sciences lab, among others. The initial term of the lease was for a period of 60 months. In November 2018, we exercised the first lease extension option, extending the lease term for an additional 60 months, as discussed in Note 3 of our consolidated financial statements.

We own an 11,400 square-foot manufacturing facility in Bangor, Michigan for the manufacturing of our products.

We currently lease an office space in Finland for use by our Finland subsidiary as their headquarters. The original lease expired on August 31, 2018, and the lease is now on a month to month arrangement and requires a three-month written notice prior to termination.

We believe that our leased facilities and our manufacturing facility are adequate to meet our needs.

ITEM 3. LEGAL PROCEEDINGS

Not applicable.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information for Common Stock

Our common stock has been listed on the NASDAQ Global Market under the symbol "MBII" from August 2, 2013 through September 5, 2016. Since September 6, 2016, our common stock has been listed on the Nasdaq Capital Market.

Holders of Record

As of December 31, 2020, there were 70 stockholders of record of our common stock, and the closing price of our common stock was $1.25 per share as reported on the Nasdaq Capital Market. Because some of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividend Policy

We have never declared or paid any cash dividend on our common stock. We intend to retain any future earnings and do not expect to pay dividends in the foreseeable future.

Equity Compensation Plan Information

Information regarding equity compensation plans approved and not approved by stockholders is summarized in the following table as of December 31, 2020:

PLAN CATEGORY	NUMBER OF SECURITIES TO BE ISSUED UPON CONVERSION OF RESTRICTED STOCK UNITS AND EXERCISE OF OUTSTANDING OPTIONS, WARRANTS AND RIGHTS (a)	WEIGHTED-AVERAGE EXERCISE PRICE OF OUTSTANDING OPTIONS, WARRANTS AND RIGHTS (b)	NUMBER OF SECURITIES REMAINING AVAILABLE FOR FUTURE ISSUANCE UNDER EQUITY COMPENSATION PLANS (EXCLUDING SECURITIES REFLECTED IN COLUMN (a)[1]
Equity compensation plans approved by stockholders	17,986,498	$ 2.01	4,409,938
Equity compensation plans not approved by stockholders	—	—	—
Total	17,986,498	$ 2.01	4,409,938

(1) Consists of shares available for issuance under our 2013 Stock Incentive Plan.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion of our financial condition and results of operations in connection with our consolidated financial statements and the related notes included in Part II-Item 8- "Financial Statements and Supplementary Data" in this Annual Report on Form 10-K. Additional information regarding the Company is also available in our other reports filed with the Securities and Exchange Commission, which are also available on our investor relations website, investors.marronebio.com, which we also use, together with our corporate Twitter account, @Marronebio, as a means of disclosing material non-public information and for complying with our disclosure obligations under Regulation FD. We encourage our investors to monitor and review the information we make public in these locations. The information contained in the foregoing locations are not incorporated by reference into this filing, and the Company's references to website URLs are intended to be inactive textual references only. In addition to our historical consolidated financial information, the following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our

actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Annual Report on Form 10-K, particularly in Part I-Item 1A-"Risk Factors."

We are a growth-oriented agricultural company that supports environmentally sustainable farming practices through the discovery, development and sale of innovative biological products for crop protection, crop health and crop nutrition. Our products are sold through distributors and other commercial partners to growers around the world for use in integrated pest management systems that improve efficacy and increase yields while protecting the environment. Our products are often used in conjunction with or as an alternative to other agricultural solutions to control pests and enhance plant nutrition and health.

Our portfolio of 15 products helps customers operate more sustainably while increasing their return on investment. Our products are used globally, and can be applied as foliar treatments or as seed-and-soil treatments, either on their own or in combination with other agricultural products. We target the major markets that use conventional chemical pesticides and fertilizers where our biological products are used as alternatives or mixed with, conventional chemical products. We also target new markets for which there are no available conventional chemical products, the use of conventional chemical products may not be desirable (including for organically certified crops) or permissible either because of health and environmental concerns or because the development of pest resistance has reduced the efficacy of conventional chemical pesticides. We sell our products through distributors and other commercial partners to growers who use our bioprotection products to manage pests and plant diseases, our plant health products to reduce crop stress and both our plant health and bionutrition products to increase yields and quality.

2020 Highlights

The following are the more significant financial results for the fiscal year ending December 31, 2020:

- Revenues grew to $38.4 million in 2020, a 30.6% increase compared with $29.4 million in 2019, as sales of the portfolio of products expanded with current customers, as well as new customers, across new crops and geographies, and in particular, as a result of sales of our Pro Farm products.
- Gross margins expanded to 59.6% in 2020, compared with 54.9% in 2019, reflecting a favorable mix effect from higher sales of the Venerate, Regalia and sales of UBP ST product families.
- Full-year operating expenses were $40.1 million in 2020, compared to $44.1 million in operating expenses in 2019, which, however, includes a $1.4 million decrease from a fully forgiven Payment Protection Program Loan.
- Net loss decreased by $17.0 million to a loss of $20.2 million, or ($0.14) per share, reflecting full year Pro Farm operating results. Net income for the fiscal year ending December 31, 2019 included Pro Farm acquisition costs of $3.1 million.
- Obtained $22.1 million in connection with exercises under outstanding warrants, including exercises in connection with amendments to warrant arrangements set to previously expire at December 31, 2020.

The following are the more significant business highlights for the fiscal year ending December 31, 2020:

- We completed our Chief Executive Officer search, with Kevin Helash joining us on August 2, 2020.
- We executed distribution agreements with PGG Wrightson Seeds to distribute our Pro Farm UBP Seed Treatment products in Uruguay, with UPL for Regalia Maxx in the Republic of South Africa, and with Anasac Chile S.A for Grandevo and Venerate in Chile
- We entered into strategic alliances with Rizobacter to deploy novel plant health and crop nutrition technology in South America and with Vive Crop Protection to bring next-generation crop protection solutions to growers
- Our Jet-Oxide 15% Sanitizer product was allowed by the U.S. EPA for use on industrial hard surfaces for human coronaviruses
- Regalia and Stargus were approved by the U.S. EPA for use on hemp, and Regalia Maxx received first approval in Canada for use on cannabis and hemp
- We increased the experience and diversity of our Board of Directors with the addition of Lara L. Lee, who also became a member of our Audit Committee and Compensation Committee.
- We announced our succession planning with the departure of Chief Financial Officer, Jim Boyd, replaced by Sue Cheung in February 2021.

Business Strategy

We have built a full-service biologicals organization with scope and capabilities across the spectrum of biological products in the market today. Our strategic objective is to capitalize on that position and emerge as the clear leader in the biologicals space with the financial and operational wherewithal to accelerate our path to profitability.

As we look forward, our goal is to leverage our base business, while accelerating our expansion plans and broadening our global reach. We are committed to launching the brand extensions and pipeline products that offer the greatest return on investment for our channel partners and grower customers. We anticipate that synergistic, value-creating acquisitions and partnerships will be part of our strategy. We believe we can continue to tuck in additional product lines as we build a larger commercial presence with a scalable platform.

Our strategy for the current long-term period includes the diversification of our portfolio which includes expanding our reach globally moving away from having sales concentrated in the United States continued research and development efforts to accelerate the time to market and revenue contributions of our pipeline products and continued focus on our current operations to continue our growth, profitability and enhance stockholder value.

Financial Overview

Our total revenues were $38.4 million and $29.4 million for the years ended December 31, 2020 and 2019, respectively, and have risen as growers have adopted our products and have used our products on an expanded number of crops. We generate our revenues primarily from product sales, which are principally attributable to sales of our Regalia, Grandevo and Venerate product lines for the year ended December 31, 2019, including sales of our Pro Farm products for the year ended December 31, 2020, but also sales of our other products. For the year ended December 31, 2020, 76% of our business has been primarily driven by the U.S. market, which has been our historical trends for geographic revenues. In 2021, we expect a larger portion of our business to be driven by international markets with our Pro Farm products and our continued focus on commercialization progress of our products in new countries. Going forward, we also believe our revenues will largely be impacted by weather, trade tariffs, natural disasters, infectious diseases, and other factors affecting planting and growing seasons and incidence of pests and plant disease, and, accordingly, the decisions by our distributors, direct customers and end users about the types and amounts of crop protection and plant health products to purchase and the timing of use of such products.

We currently rely, and expect to continue to rely, on a limited number of distributors for a significant portion of our revenues since we sell through highly concentrated, traditional distribution channels. Distributors to which 10% or more of our total revenues are attributable for any one of the periods presented consist of the following:

	CUSTOMER			
DECEMBER 31,	A	B	C	D
2020	22%	13%	13%	8%
2019	30%	9%	0%	10%

While we expect product sales to a limited number of distributors to continue to be our primary source of revenues, as we continue to develop our pipeline and introduce new products to the marketplace, we anticipate that our revenue stream will be diversified over a broader product portfolio and customer base, including as a result of our Pro Farm products and customers.

Since 2011, we have also recognized revenues from our strategic collaboration and distribution agreements, which amounted to $0.5 million for each of the years ended December 31, 2020 and 2019.

Our cost of product revenues was $15.5 million and $13.3 million for the years ended December 31, 2020 and 2019, respectively. Cost of product revenues consists principally of the cost of inventory, which includes the cost of raw materials, and third-party services and allocation of operating expenses of our manufacturing plant related to procuring, processing, formulating, packaging and shipping our products. Cost of product revenues also include charges recorded for write-downs of inventory and idle capacity at our manufacturing plant. We expect our cost of product revenues related to the cost of inventory to increase and cost of product revenues relating to write-downs of inventory and idle capacity of our manufacturing plant to decrease as we expand sales and increase production of our existing commercial products. We expect to see a gradual increase in gross margin over the life cycle of each of our products as we improve production processes, gain efficiencies and increase product yields. These increases may be offset by additional charges for inventory write-downs and idle capacity at our manufacturing plant until overall volume in the plant increases significantly, however we are expecting these charges to decrease over time.

Our research, development and patent expenses have historically comprised a significant portion of our operating expenses, amounting to $11.3 million and $14.0 million for the years ended December 31, 2020 and 2019, respectively. For the year ended December 31, 2020, our expenses for research, development and patent expenses were reduced by $0.7 million in connection with receipt of Paycheck Protection Program ("PPP") funds. We are seeking collaborations with third parties to develop and commercialize more early stage candidates, on which we have elected not to expend significant resources given our efforts on cost containment.

Selling, general and administrative expenses incurred to establish and build our market presence and business infrastructure have generally comprised the remainder of our operating expenses, amounting to $28.7 million and $30.1 million for the years ended December 31, 2020 and 2019, respectively. For the year ended December 31, 2020, our selling, general and administrative expenses were reduced by $0.7 million in connection with receipt of PPP funds. For the year ended December 31, 2019, this also included amounts of $4.3 million related to our acquisition strategy and $1.9 million related to our previously reported litigation settlement. We have been building a sales and marketing organization that provides for increased training and a better ability to educate and support customers and for our product development staff to undertake responsibility for technical sales support, field trials and demonstrations to promote sales growth.

Historically, we have funded our operations from the issuance of shares of common stock, preferred stock, warrants and convertible notes, the issuance of debt and entry into financing arrangements, product sales, payments under strategic collaboration and distribution agreements and government grants, but we have experienced significant losses as we invested heavily in our acquisition strategy and research and development. We expect to incur additional losses related to our investment in these endeavors including continued development, expansion and marketing of our product portfolio.

In August 2019, we entered into a warrant amendment and plan of reorganization agreement, which we refer to as the Warrant Facility. Under the Warrant Facility, for certain holders of warrants issued in connection with the February 2018 Financing Transactions (the "February 2018 Warrants"), their warrant expiration date was extended from December 2020 to December 2021, and these warrant holders agreed, at any time the Company's stock trades above $1.00, upon request by the Company, to exercise up to 36,600,000 shares under their respective February 2018 Warrants, in consideration for the delivery of (x) the shares subject to the February 2018 Warrants so exercised and (y) the delivery of new warrants ("August 2019 Warrants") to purchase such additional number of shares of common stock equal to the amount of shares so exercised and delivered under February 2018 Warrants. During 2019, a total exercise of 16,000,000 shares of certain outstanding warrants at $1.00 per share occurred. Included in our net loss results, for the fiscal year ended December 31, 2019 is a non-cash charge of $1.6 million related to the incremental fair value of the February 2018 Warrants prior to the August 2019 Warrant amendments due to a modification allowing us to call the warrants as needed to fund our operations, as well as a non-cash charge of $6.1 million related to the fair value of the August 2019 Warrants issued.

In April 2020, we entered into a Warrant Exchange Agreement (the "Warrant Exchange Agreement") with a group of historical investors (the "Investors"). Pursuant to the Warrant Exchange Agreement, the Investors have exchanged certain previously issued and outstanding warrants to purchase an aggregate of up to 45,977,809 shares of the Company's common stock, for new warrants (the "New Warrants") to purchase an aggregate of up to 29,881,855 shares of Common Stock (the "Warrant Shares"). All of the New Warrants were issued to the Investors upon execution of the Warrant Exchange Agreement.

The New Warrants all have an exercise price of $0.75 per share, and expire in five tranches. As of December 31, 2020, a total of 19,133,465 Warrant Shares were exercised prior to the first, second, and third tranche expiration dates of May 1, 2020, September 15, 2020, and December 15, 2020. Prior to March 15, 2021 the fourth tranche with respect to 5,862,380 was exercised by the warrant holder for a total of $4.4 million. The next and final warrant expiration date is December 15, 2021 with respect to 4,885,317 Warrant Shares. There can be no assurance that the Investors will exercise the remaining New Warrants prior to their respective expiration date on or prior to December15, 2021. (Refer to Note 9 of our consolidated financial statements).

In December 2020, we entered into an amendment (the "Warrant Amendment") to its previously outstanding warrant to purchase 5,333,333 shares of our common stock issued to a historical warrant holder on February 5, 2018. Pursuant to the Warrant Amendment, in exchange for the holder's agreement to exercise the warrant on December 29, 2020 with respect to 1,777,778 shares at the warrant's exercise price of $0.96 per share we agreed to partially extend the warrant's expiration date by allowing the holder to exercise (i) 1,777,778 of the subject shares at $1.00 per share by March 25, 2021, and (ii) the remaining 1,777,777 shares at $1.04 per share by December 15, 2021. There can be no assurance that the holder will exercise the warrant prior to its respective expiration dates. (Refer to Note 9 of our consolidated financial statements)

Key Components of Our Results of Operations

Product Revenues

Product revenues consist of revenues generated primarily from sales to distributors, net of rebates and cash discounts. Product revenues constituted 99% and 98%, of our total revenues for the years ended December 31, 2020 and 2019, respectively. Product revenues in the United States constituted 77% and 88% of our total revenues for the years ended December 31, 2020 and 2019, respectively.

The Company accounts for all revenues under Accounting Standards Codification ("ASC") 606, *Revenue from contracts with Customers ("ASC 606")* in which revenue recognition criteria for distributor sales are satisfied at the time title and risk of loss passes to the distributor.

License Revenues

License revenues generally consist of revenues recognized under our strategic collaboration and distribution agreements for exclusive distribution rights, either for Regalia, for other commercial products, or for our broader pipeline of products, for certain geographic markets or for market segments that we are not addressing directly through our internal sales force. Our strategic collaboration and distribution agreements generally outline overall business plans and include payments we receive at signing and for the achievement of certain testing validation, regulatory progress and commercialization events. As these activities and payments are associated with exclusive rights that we provide over the term of

the strategic collaboration and distribution agreements, revenues related to the payments received are deferred and recognized as revenues over the term of the exclusive period of the respective agreements, which we estimate to be between 5 and 17 years based on the terms of the contract and the covered products and regions. For the years ended December 31, 2020 and 2019, license revenues constituted 1% and 2%, respectively, of total revenues, respectively. As of December 31, 2020 and 2019, we have received an aggregate of $4.1 million in payments under our strategic collaboration and distribution agreements. In addition, there is $0.8 million in payments under these agreements that we could potentially receive if certain testing validation, regulatory progress and commercialization events occur.

Cost of Product Revenues and Gross Profit

Cost of product revenues consists principally of the cost of raw materials, including inventory costs and third-party services related to procuring, processing, formulating, packaging and shipping our products. As we have used our Bangor, Michigan manufacturing plant to produce certain of our products, cost of product revenues includes an allocation of operating costs including direct and indirect labor, production supplies, repairs and maintenance, depreciation, utilities and property taxes. The amount of indirect labor and overhead allocated to finished goods is determined on a basis presuming normal capacity utilization. Operating costs incurred in excess of production allocations, considered idle capacity, are expensed to cost of product revenues in the period incurred rather than added to the cost of the finished goods produced. Cost of product revenues may also include charges due to inventory adjustments and reserves. In addition, costs associated with license revenues have been included in cost of product revenues as they have not been significant. Gross profit is the difference between total revenues and cost of product revenues. Gross margin is gross profit expressed as a percentage of total revenues.

We have entered into in-license technology agreements with respect to the use and commercialization of two of our commercially available product lines, Grandevo and Haven and certain products under development. Under these licensing arrangements, we typically make royalty payments based on net product revenues, with royalty rates varying by product in the mid-single digit of net sales. These royalty payments are included in cost of product revenues, but they have historically not been significant. The exclusivity and royalty provisions of these agreements are generally tied to the expiration of underlying patents. The in-licensed U.S. patent for Grandevo is expected to expire in 2024. There are pending in-licensed patent applications relating to Grandevo, which could expire later than 2024 if issued. The licensed patents for Haven began expiring in November 2019. After the termination of these provisions, we may continue to produce and sell these products. While third parties thereafter may develop products using the technology under expired patents, we do not believe that they can produce competitive products without infringing other aspects of our proprietary technology, including pending patent applications related to Grandevo and Haven and we therefore do not expect the expiration of the patents or the related exclusivity obligations to have a significant adverse financial or operational impact on our business.

We expect to see increases in gross profit over the life cycle of each of our products as gross margins are expected to increase over time as production processes improve and as we gain efficiencies and increase product yields. While we expect margins to improve on a product-by-product basis, our overall gross margins may vary as we introduce new products, or as we experience changes in the sales mix of these products. In particular, we may experience downward pressure on overall gross margins as we rollout Haven, Stargus and expand sales of Grandevo. Gross margin has been and will continue to be affected by a variety of factors, including plant utilization, product manufacturing yields, changes in production processes, new product introductions, product sales mix and average selling prices.

We began full-scale manufacturing in our facility in 2014. We continue to use third-party manufacturers for Venerate, Majestene, Haven, Stargus, and for spray-dried powder formulations of Grandevo. We expect gross margins to improve using this facility when sales volumes recover enough to reduce overhead and idle capacity charges from our facility.

Research, Development and Patent Expenses

Research, development and patent expenses include personnel costs, including salaries, wages, benefits and share-based compensation, related to our research, development and patent staff in support of product discovery and development activities. Research, development and patent expenses also include costs incurred for laboratory supplies, field trials and toxicology tests, quality control assessment, consultants and facility and related overhead costs.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist primarily of personnel costs, including salaries, wages, benefits and share-based compensation, related to our executive, sales, marketing, finance and human resources personnel, as well as professional fees, including legal and accounting fees, acquisition costs, public company expenses and other selling costs incurred related to business development and to acquire or build product and brand awareness. We create brand awareness through programs such as speaking at industry events, trade show displays and hosting local-level grower and distributor meetings. In addition, we dedicate significant resources to technical marketing literature, targeted advertising in print and online media, webinars and radio advertising. Costs related to these activities, including travel, are included in selling expenses.

In order to drive our strategy and revenue growth, we expect selling, general, and administrative expenses of sales and marketing to increase in the future as we increase our marketing communications campaigns and put more “boots on the ground”, which should increase grower demand, or pull-through, and develop new customers, as well as expand business with existing customers.

Interest Expense

We recognize interest expense on notes payable and other debt obligations.

In March 2017, we entered into an invoice purchase agreement with LSQ Funding Group, L.C. (“LSQ”), which was subsequently amended in January 2020, and allows us to receive advances of up to $20.0 million against receivables sold to LSQ.

In addition to the January 2020 amendment, we simultaneously entered into an Amended Inventory Financing Addendum (the “Addendum”) with LSQ. The Addendum us to request an advance of up to the lesser of (i) 100% of the Company’s unpaid finished goods inventory; (ii) 65% of the appraised value of the Company’s inventory performed on or on behalf of LSQ; or (iii) $3,000,000. Funds advance under the Addendum are subject to a monthly inventory management fee of 0.5% on the average monthly inventory funds available and a daily interest rate of 0.025%.

As of December 31, 2020, we had an outstanding balance of $9.0 million in secured borrowings.

Income Tax Provision

Since our inception, we have been subject to income taxes principally in the United States. Due to the acquisition of Pro Farm and as we further expand our sales into foreign countries, we have become subject to taxation based on foreign statutory rates and our effective tax rate could fluctuate accordingly.

Income taxes are computed using the asset and liability method, under which deferred tax assets and liabilities are determined based on the difference between the consolidated financial statement and tax bases of assets and liabilities using enacted tax rates in effect during the year in which the differences are expected to affect taxable income. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized. As of December 31, 2020, based on the available information, it is more likely than not that our deferred tax assets will not be realized, and accordingly we have taken a full valuation allowance against all of our U.S. deferred tax assets and certain foreign deferred tax assets.

As of December 31, 2020, we had net operating loss carryforwards of $104.2 million. The net operating loss carryforwards for federal and state purposes were reduced as a result of the effect of an ownership change as defined under Internal Revenue Code ("IRC") Section 382, the change related to the February 5, 2018 previously disclosed financing transactions. The federal and state reductions were $176.4 million and $119.1 million, respectively. The federal net operating loss generated after 2017 in the amount of $65.1 million will not expire. In addition, as of December 31, 2020, we had federal research and development tax credit carryforwards of $0.6 million, which begin to expire in 2038, and state research and development tax credit carryforwards of $3.1 million, which have no expiration date. The federal research and development tax credit carryforwards were also reduced by the Section 382 ownership change of $2.3 million. It is possible that we will not generate taxable income to use these loss carryforwards in cases where they are subject to expiration or where they are able to be carried forward indefinitely.

Our ability to use our federal and state net operating loss carryforwards and federal and state tax credit carryforwards to reduce future taxable income and future taxes, respectively, may be subject to restrictions attributable to equity transactions that may have resulted in a change of ownership as defined by Internal Revenue Code Section 382. In the event we have had such a change in ownership, utilization of these carryforwards could be severely restricted and could result in significant amounts of these carryforwards expiring prior to benefitting us.

Results of Operations

The following table sets forth certain statements of operations data as a percentage of total revenues:

	DECEMBER 31, 2020	DECEMBER 31, 2019
Revenues:		
Product	99%	98%
License	1	2
Total revenues	100	100
Cost of product revenues	40	45
Gross profit	60	55
Operating Expenses:		
Research, development and patent	30	48
Selling, general and administrative	75	102
Total operating expenses	105	150
Loss from operations	(45)	(95)
Other income (expense):		
Interest expense	(4)	(5)
Loss on modification of warrants	—	(5)
Loss on issuance of new warrants	(4)	(21)
Loss on change in fair value of contingent consideration in connection with the Pro Farm acquisition	(1)	(1)
Other income (expense), net	1	1
Total other expense, net	(8)	(31)
Loss before income taxes	(53)	(126)
Income tax expense	(0)	-
Net loss	(53)%	(126)%

Comparison of the Years Ended December 31, 2020 and 2019

Product Revenues

	DECEMBER 31, 2020	DECEMBER 31, 2019
	(Dollars in thousands)	
Product revenues	$ 37,915	$ 28,912
% of total revenues	99%	98%

Product revenues increased by $9.0 million, or 31.1%, in 2020 compared to 2019 due to an increase in overall sales across all of the Company's product offerings, driven most significantly by increased sales of the Regalia, Grandevo, Venerate and UBP ST product families. The revenues from Pro Farm products for the 12 months revenue period for the year ended December 31, 2020 increased by more than the total product revenue increase year over year when compared to a proportionate three and a half months post acquisition revenue period for the year ended December 31, 2019.

License Revenues

	DECEMBER 31, 2020	DECEMBER 31, 2019
	(Dollars in thousands)	
License revenues	$ 459	$ 461
% of total revenues	1%	2%

License revenues related to certain strategic collaboration and distribution agreements remained flat compared to 2019 as expected. License revenues do not comprise a significant portion of our total revenues.

Cost of Product Revenues

	DECEMBER 31, 2020	DECEMBER 31, 2019
	(Dollars in thousands)	
Cost of product revenues	$ 15,505	$ 13,260
% of total revenues	40.4%	45.1%
Gross profit	22,869	16,113

% of total revenues	59.6%	54.9%

Cost of product revenues increased by $2.2 million, or 16.9%, in 2020 compared to 2019. Our gross margins increased to 59.6% in 2020 from 54.9% in 2019. Cost of products decreased as a percentage of revenues, and gross margins increased in 2020 compared to 2019, primarily due to a favorable mix of higher margin product offerings including Venerate and UBP ST product families and continued improved manufacturing and third-party manufacturing efficiencies. For the year ended December 31, 2020, the gross margins attributable to the product revenues generated by our subsidiary, Pro Farm, had a positive impact to the Company's overall gross margins due to the incremental revenues for a full twelve months revenue period compared to a three and half month revenue period in the 2019 acquisition year.

Research, Development and Patent Expenses

	DECEMBER 31, 2020	DECEMBER 31, 2019
	(Dollars in thousands)	
Research, development and patent	$ 11,330	$ 14,026
% of total revenues	29.5%	47.8%

Research, development and patent expenses decreased by $2.7 million, or 19.2%, in 2020 compared to 2019 in line with management's refinement of its key product pipeline plans. The majority of the decrease included approximately $1.0 million related to field trials, $0.3 million in patent and registration fees, $0.2 million related to consulting fees, $0.1 million related to toxicology studies and $0.3 million from the depreciation of research and development fixed assets. While the majority of the decrease was based on management's strategy, we believe that the global impact of COVID-19, also impacted the timing of certain of our third-party expenses that may be incurred in future periods, but are not yet readily quantifiable. Additionally, in connection with COVID-19 and our receipt of PPP funds, for the year ended December 31, 2020, our operating expenses for research, development and patent expenses were reduced by $0.7 million.

Selling, General and Administrative Expenses

	DECEMBER 31, 2020	DECEMBER 31, 2019
	(Dollars in thousands)	
Selling, general administrative expenses	$ 28,734	$ 30,072
% of total revenues	75%	102%

Selling, general, and administrative expenses decreased $1.3 million, or 4.4%, in 2020 compared to 2019. The majority of the decrease was attributable to prior period expenses related to our acquisition and litigation costs of $2.5 million in legal fees, $1.2 million in consulting and outside services costs and $0.7 million in accounting fees and in connection with COVID-19, a decrease of approximately $0.9 million related to travel and travel related expenses and a reduction of $0.7 million in connection with our receipt of PPP funds during the year ended December 31, 2020. These decreases were offset by the operating cost of Pro Farm for the full year ended December 31, 2020 compared to the three and half months post acquisition in the prior year, $1.6 million related to the amortization of acquired intangible assets, and $0.4 million in severance, wages, stock-based compensation and compensation bonuses.

Other Income (Expense), Net

	DECEMBER 31, 2020	DECEMBER 31, 2019
	(Dollars in thousands)	
Interest expense	$ (1,443)	$ (1,474)
Loss on modification of warrants	(72)	(1,564)
Loss on issuance of new warrants	(1,391)	(6,065)
Change in fair value of contingent consideration	(445)	(342)
Other (expense) income, net	407	255
	$ (2,944)	$ (9,190)
% of total revenues	-8%	-31%

Other Income (expense) decreased significantly for the year ended December 31, 2020 compared to 2019. The decrease included $1.5 million related to our modification of certain warrants and by $4.7 million in relation to the call of approximately 6,000,000 and 16,000,000 modified warrants for each of the years ended December 31, 2020 and 2019, respectively. Refer to Note 9 of our consolidated financial statements.

Seasonality

In recent years, we have increasingly had higher sales during the first half of the year than the second half. However, the level of seasonality in our business may change due to a number of factors, such as our expansion into new geographical territories, the introduction of new products, the timing of introductions of new products, and the impact of weather and climate change. It is possible that our business may become more seasonal, or experience seasonality in different periods, than anticipated, particularly if we expand into new geographical territories, add or change distributors or distributor programs or introduce new products with different applicable growing seasons. Notwithstanding any such seasonality, we expect substantial fluctuation in sales year over year and quarter over quarter as a result of the number of variables on which sales of our products are dependent. Weather conditions, new trade tariffs, natural disasters, outbreaks of infectious diseases and other factors affect planting and growing seasons and incidence of pests and plant disease, may, accordingly affect decisions by our distributors, direct customers and end users about the types and amounts of pest management and plant health products to purchase and the timing of use of such products. In addition, disruptions that cause delays by growers in harvesting or planting can result in the movement of orders to a future quarter, which would negatively affect the quarter and cause fluctuations in our operating results. Customers also may purchase large quantities of our products in a particular quarter to store and use over long periods of time or time their purchases to manage their inventories, which may cause significant fluctuations in our operating results for a particular quarter or year, and low commodity prices may discourage growers from purchasing our products in an effort to reduce their costs and increase their margins for a growing season.

Liquidity and Capital Resources

Since our inception, our operations have been financed primarily by net proceeds from public offerings of common stock and private placements of convertible preferred stock, convertible notes and promissory notes, exercise of warrants, and term loans, as well as proceeds from the sale of our products and payments under strategic collaboration and distribution agreements and government grants. As of December 31, 2020, our cash and cash equivalents totaled $15.8 million, and we had an additional $1.6 million of restricted cash that we are contractually obligated to maintain in accordance with a debt agreement with Five Star Bank.

In March 2017, we entered into an invoice purchase agreement with LSQ, pursuant to which LSQ may elect to purchase up to $7.0 million of eligible customer invoices from us. Our obligations under the LSQ financing are secured by a lien on substantially all of the Company's personal property; such lien is first priority with respect to the Company's accounts receivable, inventory, and related property. In January 2020, we entered into a second amendment to the invoice purchase agreement, the terms of which included among other terms an increase to $20.0 million of eligible customer invoices to be purchased and simultaneously entered into an addendum to allow the Company to request that LSQ advance a maximum of $3.0 million of the Company's finished goods inventory. As of December 31, 2020, we had an outstanding balance of $9.0 million in secured borrowings.

In February 2018 we completed certain financing transactions which resulted in the issuance of an aggregate of 70.5 million shares of common stock and warrants to purchase an aggregate of 48.9 million shares of common stock, the deleveraging of our balance sheet by reducing principal payments that were outstanding by $49 million, and the deferral of payment on $7.5 million of remaining outstanding debt until December 31, 2022.

In August 2019, we entered into a warrant amendment and plan of reorganization agreement, which we refer to as the Warrant Facility, with certain holders of the warrants issued in connection with the February 2018 Financing Transactions (the "February 2018 Warrants"). The Warrant Facility extended the warrant expiration date from December 2020 to December 2021, and the warrant holders agreed, at any time the Company's stock trades above $1.00, upon request by the Company, to exercise up to 36.6 million of their respective February 2018 Warrants, in consideration for the delivery of (x) the shares subject to the February 2018 Warrants so exercised and (y) the delivery of new warrants (which we refer to as the August 2019 Warrants) to purchase such additional number of shares of common stock equal to the amount of shares so exercised and delivered under February 2018 Warrants. During years ended December 31, 2020 and 2019, we called the exercise of 6 million and 16 million of these outstanding warrants at $1.00 per share.

In April 2020, the Company entered into a Warrant Exchange Agreement (the "Warrant Exchange Agreement") with a group of historical investors (the "Investors"). Pursuant to the Warrant Exchange Agreement, the Investors have exchanged certain previously issued and outstanding warrants to purchase an aggregate of up to 45,977,809 shares of the Company's common stock, for new warrants (the "April 2020 Warrants") to purchase an aggregate of up to 29,881,855 shares of Common Stock (the "Warrant Shares").

The April 2020 Warrants all have an exercise price of $0.75 per share, and expire in five tranches. As of December 31, 2020, a total of 19,133,465 Warrant Shares were exercised prior to the first, second, and third tranche expiration dates of May 1, 2020, September 15, 2020, and December 15, 2020. Prior to March 15, 2021 the fourth tranche with respect to 5,862,380 was exercised by the warrant holder for a total of $4.4 million. The next warrant expiration date is December 15, 2021 with respect to 4,885,317 Warrant Shares. The total aggregate exercise price of all future New Warrants is approximately $3.7 million. There can be no assurance that the Investors will exercise the New Warrants prior to December 15, 2021. (Refer to Note 9 of our consolidated financial statements).

In December 2020, we entered into an amendment (the "Warrant Amendment") to its previously outstanding warrant to purchase 5,333,333 shares of our common stock issued to a historical warrant holder on February 5, 2018. Pursuant to the Warrant Amendment, in exchange for the holder's agreement to exercise the warrant on December 29, 2020 with respect to 1,777,778 shares at the warrant's exercise price of $0.96 per share we agreed to partially extend the warrant's expiration date by allowing the holder to exercise (i) 1,777,778 of the subject shares at $1.00 per share by March 25, 2021, and (ii) the remaining 1,777,777 shares at $1.04 per share by December 15, 2021. Prior to the March 25, 2021 expiration date, 1,777,778 December 2020 warrant shares were exercised. There can be no assurance that the holder will exercise the warrant prior to its respective expiration dates. (Refer to Note 9 of our consolidated financial statements)

On February 8, 2021, we a shelf registration statement on Form S-3 with the SEC. The shelf registration statement has not yet been declared effective by the SEC. Under the shelf registration statement, if and upon becoming effective, the Company may offer and sell, from time to time over a three-year period, various securities in an amount of up to $90 million.

As of December 31, 2020 debt outstanding includes $3.4 million and $7.3 million due to related parties, in principal and accrued interest with a maturity date of December 31, 2022. To the extent that debt is not restructured, extended, converted or otherwise amended, we will be required to repay these debts along with our general operating expenses in that period.

As of December 31, 2020, we were out of compliance with certain covenant requirements under our June 2014 Secured Promissory Note. However, the lender, Five Star Bank, has waived its right to deem recurring losses, liquidity, going concern, and financial condition as material adverse changes through May 31, 2022. Thereafter, unless the lender further extends its waiver a material adverse change clause could be triggered and the entire unpaid principal and interest balances would be due and payable upon demand as well as trigger certain covenants under each of our other debt agreements (refer to Note 8 of the consolidated financial statement).

Since our inception, we have incurred significant net losses, and we expect to incur additional losses related to the continued development and expansion of our business. However, we believe that our existing cash and cash equivalents of $15.8 million as of December 31, 2020, expected revenues, the net proceeds from warrants exercised subsequent to December 31, 2020, and cost management as well as cost reductions will be sufficient to fund operations as currently planned through one year from the date of the issuance of our accompanying consolidated financial statements. Changes in our current plans, or slower than expected adoption of our products may require that we secure additional sources through equity and/or debt financings, or through other sources of financing, which we cannot predict, with certainty, will be based on terms acceptable to us or at all. We may also require additional sources of cash for general corporate purposes, which may include operating expenses, working capital to improve and promote our commercially available products, advance product candidates, expand international presence and commercialization, general capital expenditures and satisfaction of debt obligations which are not currently planned.

Additional information regarding risks related to our capital and liquidity is described in this Annual Report filed on Form 10-K in Part I— Item 1A— "Risk Factors", and further discussion of our going concern assessment can be found in Note 1 to the accompanying consolidated financial statements, both of which should be read in connection with this disclosure.

We had the following debt arrangements in place as of December 31, 2020, in each case as discussed below (dollars in thousands):

DESCRIPTION	STATED ANNUAL INTEREST RATE	PRINCIPAL BALANCE (INCLUDING ACCRUED INTEREST)	PAYMENT/MATURITY
Promissory Notes [1]	8.00%	$ 3,033	Due December 31, 2022
Promissory Note [2]	5.25%	8,293	Monthly/June 2036
Promissory Notes [3]	8.00%	6,500	Due December 31, 2022
Secured Borrowing [4]	12.78%	9,028	Varies[5]/March 2021
Loan Facility	1.00%	283	Proportionately each September 2022, 2023, 2024, 2025

Refer to Note 8 of our consolidated financial statements for each of the following debt arrangements:

(1) "—October 2012 and April 2013 Secured Promissory Notes."

(2) "—June 2014 Secured Promissory Note."
(3) "—August 2015 Senior Secured Promissory Notes."
(4) "—LSQ Financing."
(5) Payable through the lender's direct collection of certain accounts receivable through March 2021.

Our debt arrangements contain certain representations and warranties by and between us and each of the debtors, certain indemnification provisions in favor of the lenders and customary restrictive covenants (including limitations on other debt, liens, acquisitions, investments and dividends), and events of default (including payment defaults, breaches of covenants, a material impairment in the lender's security interest or in the collateral, and events relating to bankruptcy or insolvency). Refer to Note 8 of our consolidated financial statements. As of December 31, 2020, we were in compliance with these covenants or have obtained the appropriate waivers for non-compliance with such covenants.

The following table sets forth a summary of our cash flows for the periods indicated:

	DECEMBER 31, 2020	DECEMBER 31, 2019
Net cash used in operating activities	$ (15,959)	$ (21,339)
Net cash used in investing activities	(1,797)	(6,793)
Net cash provided in financing activities	27,345	16,163
Net increase (decrease) in cash, cash equivalents, and restricted cash	$ 9,589	$ (11,969)

Cash Flows from Operating Activities

Net cash used in operating activities of $16.0 million during the twelve months ended December 31, 2020 primarily resulted from our net loss of $20.2 million, which included $3.6 million of depreciation and amortization expense, $3.6 million of share-based compensation expense, $0.2 million of non-cash interest expense, $0.4 million of change in the fair value of the contingent consideration in connection with the acquisition of Pro Farm, and $1.5 million on loss on modification and issuance of warrants and $0.8 million in amortization of right of use assets. In addition, net cash used in operating activities resulted from a decrease of $1.4 million in accounts payables, $0.8 million decrease related to lease liabilities and $1.5 related to inventory, and a $0.6 million decrease in deferred revenue, off-set by an increase of $4.2 million in accounts receivables due to overall revenue growth, and $0.2 million in prepaids and $0.2 million increase in accrued liabilities.

Net cash used in operating activities of $21.3 million during the twelve months ended December 31, 2019 primarily resulted from our net loss of $37.2 million, which included $2.3 million of depreciation and amortization expense, $3.7 million of share-based compensation expense, $0.3 million of non-cash interest expense, $0.3 million of change in the fair value of the contingent consideration in connection with the acquisition of Pro Farm, and $1.6 million on loss on modification of warrants, $6.1 million loss on exercise of 16.0 million shares underlying warrants, and $0.8 million in amortization of right of use assets. In addition, net cash used in operating activities resulted from an increase of $1.2 million in accounts payables, $3.2 million increase in accrued liabilities mainly for the contingent considerations payable in the future in connection with the Jet-Ag and Pro Farm acquisitions, $0.6 million related to lease liabilities for the adoption of ASC 842 and $0.6 related to inventory, off-set by an increase of $2.6 million in accounts receivables due to overall revenue growth, $0.7 million in deferred revenue and $0.3 million in prepaids.

Cash Flows from Investing Activities

Net cash used in investing activities was $1.8 million and $6.8 million during the years ended December 31, 2020 and 2019, respectively. Cash flow from investing activities included $1.2 million related to deferred acquisition payments in connection with the acquisition of our Jet-Ag product lines with the remainder resulting from purchases of property, plant and equipment to support our operations.

Net cash used in investing activities during the year ended December 31, 2019 included $5.8 million, net related to the acquisition of Pro Farm, and $0.6 million related to the acquisition of product lines Jet-Ag and Jet-Oxide with the remainder resulting from purchases of property, plant and equipment to support our operations.

Cash Flows from Financing Activities

Net cash provided in financing activities of $27.3 million during the twelve months ended December 31, 2020 consisted primarily of $22.1 million in proceeds from the exercise of warrants, $40.3 million in proceeds from the issuance of debt, $0.2 million in proceeds from employee stock purchases, and $0.1 million in proceeds from exercises of options, offset by reductions and repayment of debt of $35.3 million.

Net cash provided in financing activities of $16.2 million during the twelve months ended December 31, 2019 consisted primarily of $16.0 million in proceeds from the exercise of warrants and $29.5 million in proceeds from the issuance of debt, offset by reductions and repayment of debt of $29.5 million.

Off-Balance Sheet Arrangements

We have not been involved in any material off-balance sheet arrangements.

Recently Issued Accounting Pronouncements

Refer to Note 2 of our consolidated financial statements.

Critical Accounting Policies and Estimates

Our consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K are prepared in accordance with GAAP. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, net revenue, costs and expenses, and any related disclosures. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Changes in accounting estimates are reasonably likely to occur from period to period. Accordingly, actual results could differ significantly from the estimates made by our management. We evaluate our estimates and assumptions on an ongoing basis. To the extent that there are material differences between these estimates and our actual results, our future financial statement presentation, financial condition, results of operations and cash flows will be affected. Refer to Note 2 of our consolidated financial statements for additional information regarding our significant accounting policies.

Inventories

Inventories are stated at the lower of cost or market value (net realizable value or replacement cost) and include the cost of material and external and internal labor and manufacturing costs. Cost is determined on the first-in, first-out basis. We provide for inventory reserves when conditions indicate that the selling price may be less than cost due to physical deterioration, obsolescence, changes in price levels or other factors. Additionally, we provide reserves for excess and slow-moving inventory on hand that is not expected to be sold to reduce the carrying amount of excess and slow-moving inventory to its estimated net realizable value. The reserves are based upon estimates about future demand from our customers and distributors and market conditions.

Goodwill

Goodwill represents the excess of purchase price over the underlying net assets of businesses acquired. Goodwill is reviewed for impairment on an annual basis as of the first day of the fourth quarter or our fiscal year, or more frequently if events or changes in circumstances indicate that the carrying amount of goodwill may be impaired. We assess goodwill in accordance with Accounting Standards Codification 350, *Intangibles – Goodwill and other* ("ASC 330"), by first assessing through a qualitative analysis whether events and circumstances lead to the conclusion that a quantitative analysis is required. For the quantitative test, the review for impairment of goodwill is based on a combination of income-based and market-based approaches.

Under the income-based approach, we determine fair value using a discounted cash flow approach that requires significant judgment with respect to revenue and profitability growth rates, based upon annual budgets and longer-range strategic plans, and the selection of an appropriate discount rates. Under the market-based approach, we determine fair value by comparing reporting units to similar businesses or guideline companies whose securities are actively traded in public markets.

Fair value estimates employed in our annual impairment review of goodwill were determined using models involving several assumptions. Changes in assumptions could materially impact fair value estimates. Assumptions critical to our fair value estimates were: (i) discount rates; (ii) projected future revenues and profitability used in the reporting unit; and (iii) projected long-term growth rates used in the derivation of terminal year values. These and other assumptions are impacted by economic conditions and expectations of management and may change in the future based on period-specific facts and circumstances. While we believe the assumptions used to estimate future cash flows are reasonable, there can be no assurance that the expected future cash flows will be realized. As a result, impairment charges that possibly would have been recognized in earlier periods may not be recognized until later periods if actual results deviate unfavorably from earlier estimates. The use of different assumptions would increase or decrease discounted cash flows or earnings projections and, therefore, could change impairment determinations.

Fair Value of Financial Instruments

Fair value is defined as an exit price that would be received from the sale of an asset or paid to transfer a liability in an orderly transaction between market participants on the measurement date. A three-tier fair value hierarchy has been established, which prioritizes the inputs used in measuring fair value as follows: Level 1, observable inputs such as quoted prices in active markets; Level 2, inputs other than the quoted prices in active markets that are observable either directly or indirectly; and Level 3, unobservable inputs in which there is little or no market data, which requires that we develop our own assumptions. This hierarchy requires the use of observable data, when available, and minimizes the use of unobservable inputs when determining fair value.

Revenue Recognition

Under ASC 606, we recognize revenue for product sales at a point in time following the transfer of control of such products to the customers, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. We may enter into contracts in which the standalone selling prices ("SSP") is different from the amount we are entitled to bill the customer. Product revenues consist of revenues generated from sales of our products to distributors and direct customers, net of rebates and cash discounts.

We recognize license revenues pursuant to strategic collaboration and distribution agreements under which we receive payments for the achievement of certain testing validation, regulatory progress and commercialization events. As these activities and payments are associated with exclusive rights that we provide in connection with strategic collaboration and distribution agreements over the term of the agreements, revenues related to the payments received are deferred and recognized over the term of the exclusive distribution period of the respective agreement.

Share-Based Compensation

We recognize share-based compensation expense for all stock options and restricted stock units granted to employees and directors based on estimated fair values.

We estimate the fair value of restricted stock units based on the closing bid price of our common stock on the date of grant.

We estimate the fair value of stock options on the date of grant using an option-pricing model. The value of the portion of the stock options that is ultimately expected to vest is recognized as expense on a straight-line basis over the requisite service period. Forfeitures are estimated on the date of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

We use the Black-Scholes-Merton ("BSM") option-pricing model to calculate the estimated fair value of stock options on the measurement date (generally, the date of grant). From time to time we also use the Monte Carlo option-pricing model to calculate the fair value of stock options on the measurement date for such options whereby the BSM option pricing model is deemed not appropriate based on the terms of the option award terms. The required inputs in each option-pricing model include the expected life of the stock options, estimated volatility factor, risk-free interest rate and expected dividend yield. These inputs are subjective and generally require significant judgment.

If, in the future, we determine that other methods for calculating these assumptions are more reasonable, or if other methods are prescribed by authoritative guidance, the fair value calculated for our stock options could change significantly. Higher volatility factors and longer expected lives result in an increase to the share-based compensation expense determined at the date of grant. Share-based compensation expense is recorded in research, development and patent expense and selling, general and administrative expense.

The BSM option-pricing model was developed for use in estimating the fair value of traded options that have no vesting restrictions and are fully transferable, characteristics not present in our stock options. Existing valuation models, including the BSM option-pricing model, may not provide reliable measures of the fair values of our stock options. Consequently, there is a risk that our estimates of the fair values of the stock options on the grant dates may bear little resemblance to the actual values realized upon exercise. Stock options may expire or otherwise result in zero intrinsic value as compared to the fair values originally estimated on the grant date and reported in the consolidated financial statements. Alternatively, value may be realized from these instruments that is significantly higher than the fair values originally estimated on the grant date and reported in the consolidated financial statements.

Warrants

The warrants granted in connection with the April 2020 Warrant Exchange Agreement and the December 2020 Warrant Amendment were accounted for in equity. For both transactions, the Company estimated the fair value of the warrants issued using the BSM option pricing model with similar assumptions and those used for recognition of stock based compensation.

Income Taxes

We use the asset and liability method of accounting for income taxes. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to the

differences between the consolidated financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. To the extent that deferred tax assets cannot be recognized under the preceding criteria, we establish valuation allowances, as necessary, to reduce deferred tax assets to the amounts expected to be realized.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors of
Marrone Bio Innovations, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Marrone Bio Innovations, Inc. (the "Company") as of December 31, 2020 and 2019, the related consolidated statements of operations, stockholders' equity and cash flows for each of the two years in the period ended December 31, 2020, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

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

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

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

1. Valuation of Goodwill

Description of the Matter

As discussed in Note 2 to the consolidated financial statements, the Company tests goodwill for impairment annually (or under certain circumstances, more frequently) at the reporting unit level using either a qualitative or quantitative approach. Under the quantitative approach to test for goodwill impairment, the Company compares the fair value of a reporting unit to its carrying amount, including goodwill. Generally, the Company estimates the fair value of its reporting unit using a combination of a discounted cash flows analysis and market-based valuation methodologies.

Auditing the Company's quantitative goodwill impairment tests involved subjective auditor judgment due to the significant estimation required in management's determination of the fair value of the reporting unit. The significant estimation was primarily due to the sensitivity of the underlying assumptions including changes in the weighted average cost of capital, projected revenue growth rates and EBITDA margins. These assumptions relate to the expected future operating performance of the Company's reporting unit, are forward-looking, and are sensitive to and affected by economic, industry and company-specific qualitative factors.

How We Addressed the Matter in Our Audit

To test the estimated fair value of the Company's reporting unit, we performed audit procedures that included, among others, assessing the valuation methodologies used by the Company, involving our valuation specialists to assist in testing the significant assumptions discussed above, and testing the completeness and accuracy of the underlying data the Company used in its valuation analyses. For example, we compared the significant assumptions used by management to current industry, market and economic trends, the historical results of the reporting unit, and other relevant factors. We also assessed the historical accuracy of management's estimates and performed sensitivity analyses of significant assumptions used in the annual impairment test to evaluate the change in the fair value of the reporting unit resulting from changes in the significant assumptions.

2. Fair Value of Contingent Consideration

Description of the Matter

As discussed in note 2 to the consolidated financial statements, the Company's acquisition-related purchase price contingent consideration liability, which is estimated using Monte Carlo simulation of a geometric Brownian motion model based upon the Company's estimated results of the Pro Farm subsidiary for the periods specified in the share purchase agreement of 2021 to 2023 and is remeasured to its estimated fair value at each reporting period, with changes in fair value recorded in the consolidated statements of operations.

Auditing the valuation of the acquisition-related contingent consideration liability was complex and highly judgmental due to the significant estimation required in determining the fair value. In particular, the fair value estimate was sensitive to significant assumptions such as the Company's estimated results of the Pro Farm subsidiary for the periods specified in the share purchase agreement of 2021 to 2023, future industry, market or economic conditions, and are forward-looking and inherently uncertain.

How We Addressed the Matter in Our Audit

To evaluate the estimated fair value of the contingent consideration liability, we performed audit procedures that included, among others, assessing the terms of the arrangement, evaluating the methodology used, and testing the significant assumptions discussed above used by the Company in its analysis. We involved our valuation specialists to assist in the evaluation of the significant assumptions and methodology used by the Company. We also compared the significant assumptions to current industry, market and economic trends.

3. Going Concern Analysis

Description of the matter

The Company's going concern analysis contains, among other items, the Company's ability to meet future obligations twelve months from the date that the consolidated financial statements were issued based upon management's cash flow projections. The principal assumptions used in management's cash flow projections consisted of forecasts related to revenue growth, gross profit margins and operating expenses.

Auditing the evaluation of management's going concern analysis was highly judgmental due to the significant estimation required in management's cash flow projections. In particular, the significant judgment by management when evaluating the uncertainty related to the Company's forecasts and a high degree of auditor judgment in evaluating management's forecasts for at least the next twelve months from the date that the consolidated financial statements were issued.

How We Addressed the Matter in Our Audit

To evaluate the going concern analysis, we performed audit procedures that included, among others, testing the completeness and accuracy of the underlying data the Company used in its valuation analyses. For example, we compared the significant assumptions used by management to current industry, market and economic trends, the historical results of the Company, and other relevant factors. We also assessed the historical accuracy of management's estimates and performed sensitivity analyses of significant assumptions used in the going concern analysis.

/s/ Marcum llp
Marcum llp

We have served as the Company's auditor since 2018

San Francisco, CA
March 23, 2021

MARRONE BIO INNOVATIONS, INC.
Consolidated Balance Sheets
(In Thousands, Except Par Value)

	DECEMBER 31, 2020	DECEMBER 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 15,841	$ 6,252
Accounts receivable	10,113	5,925
Inventories	6,618	8,149
Prepaid expenses and other current assets	1,688	1,390
Total current assets	34,260	21,716
Property, plant and equipment, net	12,565	13,260
Right of use assets, net	3,760	4,567
Intangible assets, net	21,383	23,842
Goodwill	6,740	6,764
Restricted cash	1,560	1,560
Other assets	929	1,008
Total assets	$ 81,197	$ 72,717
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 1,895	$ 3,379
Accrued liabilities	11,650	12,467
Deferred revenue, current portion	374	427
Lease liability, current portion	1,008	913
Debt, current portion, net	9,301	3,899

Total current liabilities	24,228	21,085
Deferred revenue, less current portion	1,628	1,986
Lease liability, less current portion	3,050	3,970
Debt, less current portion, net	11,479	11,847
Debt due to related parties	7,300	7,300
Other liabilities	2,102	2,971
Total liabilities	49,787	49,159
Commitments and contingencies		
Stockholders' equity:		
Preferred stock: $0.00001 par value; 20,000 shares authorized and no shares issued or outstanding at December 31, 2020 and December 31, 2019	$ -	$ -
Common stock: $0.00001 par value; 250,000 shares authorized, 167,478 and 139,526 shares issued and outstanding as of December 31, 2020 and December 31, 2019, respectively	1	1
Additional paid in capital	372,226	344,206
Accumulated deficit	(340,817)	(320,649)
Total stockholders' equity	31,410	23,558
Total liabilities and stockholders' equity	$ 81,197	$ 72,717

See accompanying notes.

MARRONE BIO INNOVATIONS, INC.
Consolidated Statements of Operations
(In Thousands, Except Per Share Data)

	DECEMBER 31, 2020	DECEMBER 31, 2019
Revenues:		
Product	$ 37,915	$ 28,912
License	459	461
Total revenues	38,374	29,373
Cost of product revenues	15,505	13,260
Gross profit	22,869	16,113
Operating Expenses:		
Research, development and patent	11,330	14,026
Selling, general and administrative	28,734	30,072
Total operating expenses	40,064	44,098
Loss from operations	(17,195)	(27,985)
Other income (expense):		
Interest expense	(1,443)	(1,474)
Loss on modification of warrants	(72)	(1,564)
Loss on issuance of new warrants	(1,391)	(6,065)
Change in fair value of contingent consideration	(445)	(342)
Other income, net	407	255
Total other expense, net	(2,944)	(9,190)
Net loss before income taxes	(20,139)	(37,175)
Income tax expense	(29)	-
Net Loss	$ (20,168)	$ (37,175)
Basic and diluted net loss per common share:	$ (0.14)	$ (0.32)
Weighted-average shares outstanding used in computing basic and diluted net loss per common share:	148,892	117,982

See accompanying notes.

MARRONE BIO INNOVATIONS, INC.
Consolidated Statements Stockholders' Equity
(In Thousands)

	COMMON STOCK		ADDITIONAL	ACCUMULATED	TOTAL STOCKHOLDERS'
	SHARES	AMOUNT	PAID IN CAPITAL	DEFICIT	EQUITY
Balance at January 1, 2019	110,691	$ 1	$ 296,409	$ (283,474)	$ 12,936
Net loss	—	—	—	(37,175)	(37,175)
Net settlement of options	47	—	55	—	55
Share-based compensation	—	—	3,686	—	3,686
Employee stock purchase plan	115	—	128	—	128
Settlement of restricted stock units	7	—	—	—	—
Modification of existing warrants	—	—	1,564	—	1,564
Issuance of common stock in connection with call to exercise warrants	16,000	—	16,000	—	16,000
Issuance of new warrants in connection with call to exercise warrants	—	—	6,065	—	6,065
Issuance of common stock in connection with Pro Farm acquisition.	12,666	—	20,299	—	20,299
Balance at December 31, 2019	139,526	$ 1	$ 344,206	$ (320,649)	$ 23,558

Net loss	—	—	—	(20,168)	(20,168)
Net settlement of options	100	—	108	—	108
Share-based compensation	—	—	3,595	—	3,595
Employee stock purchase plan	268	—	254	—	254
Settlement of restricted stock units	657	—	—	—	—
Issuance of restricted stock units in lieu satisfaction of bonus payment	—	—	632	—	632
Financing costs	—	—	(104)	—	(104)
Exercise of warrants	26,927	—	22,072	—	22,072
Modification of existing warrants	—	—	1,463	—	1,463
Balance at December 31, 2020	167,478	$ 1	$ 372,226	$ (340,817)	$ 31,410

See accompanying notes.

MARRONE BIO INNOVATIONS, INC.
Consolidated Statements of Cash Flows
(In Thousands)

	DECEMBER 31, 2020	DECEMBER 31, 2019
Cash flows from operating activities		
Net loss	$ (20,168)	$ (37,175)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	3,558	2,349
Gain on disposal of equipment	(9)	(21)
Right of use assets amortization	807	805
Share-based compensation	3,595	3,686
Non-cash interest expense	226	277
Loss on modification of warrants	72	1,564
Loss on issuance of new warrants	1,391	6,065
Change in fair value of contingent consideration	445	342
Net changes in operating assets and liabilities:		
Accounts receivable	(4,188)	(2,622)
Inventories	1,531	599
Prepaid Expenses and other assets	(219)	(327)
Accounts payable	(1,409)	1,204
Accrued and other liabilities	(148)	3,223
Lease Liability	(825)	(627)
Deferred revenue	(618)	(681)
Net cash used in operating activities	(15,959)	(21,339)
Cash flows from investing activities		
Payment of consideration in connection with previous asset purchase	(1,240)	(669)
Business combination, net of cash acquired	—	(5,849)
Purchases of property, plant and equipment	(559)	(296)
Proceeds from sale of equipment	2	21
Net cash used in investing activities	(1,797)	(6,793)
Cash flows from financing activities		
Proceeds from issuance of debt	202	141
Proceeds from secured borrowings	40,127	29,376
Repayment in secured borrowings	(34,790)	(27,822)
Repayment of debt	(524)	(1,715)
Equity offering costs	(104)	—
Exercise of stock options	108	55
Proceeds from employee stock purchase plan	254	128
Net settlement of options	—	—
Exercise of warrants	22,072	16,000
Net cash provided by financing activities	27,345	16,163
Net (decrease) increase in cash and cash equivalents and restricted cash	9,589	(11,969)
Cash and cash equivalents and restricted cash, beginning of period	7,812	19,781
Cash and cash equivalents and restricted cash, end of period	$ 17,401	$ 7,812
Supplemental disclosure of cash flow information		
Cash paid for interest	$ 1,166	$ 1,175
Supplemental disclosure of non-cash investing and financing activities		
Property, plant and equipment included in accounts payable and accrued liabilities	$ 44	$ —
Fair Value of non-cash consideration issued in acquisition transactions	—	23,917
Conversion of accrued liabilities into equity associated with the granting of restricted stock units	$ 632	$ —

See accompanying notes.

MARRONE BIO INNOVATIONS, INC.
Notes to Consolidated Financial Statements
December 31, 2020

1. Summary of Business, Basis of Presentation

Marrone Bio Innovations, Inc. (the "Company"), formerly Marrone Organic Innovations, Inc., was incorporated under the laws of the State of Delaware on June 15, 2006, and is located in Davis, California. In July 2012, the Company formed a wholly-owned subsidiary, Marrone Michigan Manufacturing LLC ("MMM LLC"), which holds the assets of a manufacturing plant the Company purchased in July 2012. In September 2019, the Company closed its acquisition of Pro Farm Technologies OY, a Finnish limited company, which consisted of Pro Farm Technologies OY and its five subsidiaries Pro Farm International Oy (Finland), Pro Farm OU (Estonia), Pro Farm Technologies Comercio de Insumos Agricolas do Brasil ltda. (Brazil – 99% controlling interest), Pro Farm Inc. (Delaware), and Glinatur SA (Uruguay) (collectively "Pro Farm"). As a result of the acquisition, Pro Farm became a wholly-owned subsidiary of the Company. On December 31, 2019, Pro Farm Russia, LLC was formed as a subsidiary under Pro Farm Technologies OY. The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation.

The accompanying consolidated financial statements and notes thereto have been prepared in accordance with the rules and regulations of the Securities and Exchange Commission ("SEC") for Form 10-K and include all of the information and disclosures required by accounting principles generally accepted in the United States of America ("GAAP") for financial reporting. Certain amounts in the prior periods' financial statements and related footnote disclosures have been reclassified to conform to the current presentation with no impact on previously reported net income or stockholders' equity.

The Company makes biological crop protection, plant health and nutrition products. The Company targets the major markets that use conventional chemical products, including certain agricultural markets where its biological products are used as alternatives for, or mixed with, conventional chemical products. The Company also targets new markets for which (i) there are no available conventional chemical products or (ii) the use of conventional chemical products may not be desirable or permissible either because of health and environmental concerns (including for organically certified crops) or because the development of pest resistance has reduced the efficacy of conventional chemical products. The Company delivers EPA-approved and registered biological crop protection products and other biological products that address the global demand for effective, safe and environmentally responsible products.

Liquidity

The Company funds operations primarily with the proceeds from the sale of its products, promissory notes and term loans, net proceeds from the private placements of convertible notes, as well as with the proceeds from other equity instruments. The Company will need to generate significant revenue growth to achieve and maintain profitability. As of December 31, 2020, the Company had a working capital surplus of $10,032,000, including cash and cash equivalents of $15,841,000. In addition, as of December 31, 2020, the Company had debt and debt due to related parties of $20,780,000 and $7,300,000, respectively, for which the underlying debt agreements contain various financial and non-financial covenants, as well as certain material adverse change clauses. As of December 31, 2020, the Company had a total of $1,560,000 of restricted cash relating to these debt agreements. (Refer to Notes 8 of these consolidated financial statements)

In April 2020, the Company entered into a Warrant Exchange Agreement (the "Warrant Exchange Agreement") with a group of historical investors (the "Investors"). Pursuant to the Warrant Exchange Agreement, the Investors have exchanged certain previously issued and outstanding warrants to purchase an aggregate of up to 45,977,809 shares of the Company's common stock, for new warrants (the "April 2020 Warrants") to purchase an aggregate of up to 29,881,855 shares of Common Stock (the "Warrant Shares"). All of the New Warrants were issued to the Investors upon execution of the Warrant Exchange Agreement.

The April 2020 Warrants all have an exercise price of $0.75 per share, and expire in five tranches. As of December 31, 2020, a total of 19,133,464 Warrant Shares were exercised prior to the first, second, and third tranche expiration dates of May 1, 2020, September 15, 2020, and December 15, 2020. Subsequently on March 15, 2021, 5,862,380 Warrant Shares were exercised leaving only the fifth tranche with an expiration date of December 15, 2021 with respect to 4,885,317 warrant shares remaining. There can be no assurance that the Investors will exercise the remaining April 2020 Warrants prior to their respective expiration date. (Refer to Note 9 of these consolidated financial statements).

In December 2020, the Company also entered into an amendment (the "Warrant Amendment") to a previously outstanding warrant to purchase 5,333,333 shares of the Company's common stock issued to a historical warrant holder (the "Holder") on February 5, 2018. Pursuant to the Warrant Amendment, in exchange for the Holder's exercise of the warrant on December 29, 2020, with respect to 1,777,778 shares at the warrant's exercise price of $0.96 per share the warrant's expiration date was partially extended and allows the Holder to exercise warrants to purchase (i) 1,777,778 shares at $1.00 per share by March 25, 2021, and (ii) 1,777,777 shares at $1.04 share by December 15, 2021. Subsequently on March 19, 2021, 1,777,778 December 2020 warrant shares were exercised. (Refer to Note 9 of these consolidated financial statements).

The Company could breach covenants contained within the debt agreements or if the material adverse change clauses are triggered, the entire unpaid principal and interest balances would be due and payable upon demand. Without entering into a continuation of its current waiver, which expires May 31, 2022, entering into strategic agreements that include significant cash payments upfront, significantly increasing revenues from sales or raising additional capital through the issuance of equity, the Company expects it will exceed its maximum debt-to-worth requirement under the June 2014 Secured Promissory Note with Five Star Bank. Further, a violation of a covenant in one debt agreement will cause the Company to be in violation of certain covenants under each of its other debt agreements. Breach of covenants included in the Company's debt agreements, which could result in the lenders demanding payment of the unpaid principal and interest balances, will have a material adverse effect upon the Company and would likely require the Company to seek to renegotiate these debt arrangements with the lenders. If such negotiations are unsuccessful, the Company may be required to seek protection from creditors through bankruptcy proceedings. The Company's inability to maintain compliance with its debt covenants could have a negative impact on the Company's financial condition and ability to continue as a going concern.

The Company's historical operating results, including prior periods of significant losses and negative use of operating cash flows which may indicate probable substantial doubt exists related to the Company's ability to continue as a going concern for the next 12 months from the date of issuance of these consolidated financial statements. The Company believes that its existing cash and cash equivalents at December 31, 2020, together with expected revenues, cost management and warrant exercises which have occurred subsequent to December 31, 2020, will be sufficient to fund operations as currently planned through one year from the date of the issuance of these consolidated financial statements and therefore has alleviated doubts related to the Company's ability to continue as a going concern.

2. Significant Accounting Policies

Use of Estimates

The preparation of these consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities as of the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

The Company believes that the assumptions and estimates associated with the Company's forecast used in its going concern, goodwill and contingent consideration assessments, revenue recognition, including assumptions and estimates used in determining the timing and amount of revenue to recognize for those transactions with variable considerations, warrants and share-based compensation, and inventory valuation, have the greatest potential impact on the consolidated financial statements. Therefore, the Company considers these estimates to be its significant estimates.

Concentrations of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash, cash equivalents, accounts receivable and debt. The Company deposits its cash and cash equivalents with high credit quality domestic financial institutions with locations in the U.S and globally. Such deposits may exceed federal deposit insurance or foreign deposit guarantee funds limits. The Company believes the financial risks associated with these financial instruments are minimal.

The Company's customer base is dispersed across many different geographic areas, and currently most customers are pest management distributors in the U.S. Generally, receivables are due up to 120 days from the invoice date and are considered past due after this date, although the Company may offer extended terms from time to time.

During the years ended December 31, 2020 and 2019, 24% and 12%, respectively, of the Company's revenues were generated from international customers. The Company's international customers were concentrated in the European Union.

The Company's principal sources of revenues were its Regalia, Grandevo, Venerate and UPB ST product lines for the years ended December 31, 2020 and 2019, accounting for 85% and 91%, respectively, of the Company's total revenues.

Customers to which 10% or more of the Company's total revenues are attributable for any one of the periods presented consist of the following:

	CUSTOMER			
DECEMBER 31,	A	B	C	D
2020	22%	13%	13%	8%
2019	30%	9%	0%	10%

Customers to which 10% or more of the Company's outstanding accounts receivable are attributable as of either December 31, 2020 or 2019, consist of the following:

	CUSTOMER	
DECEMBER 31,	A	B
2020	49%	14%
2019	44%	9%

Concentrations of Supplier Dependence

The active ingredient in the Company's Regalia product line is derived from the giant knotweed plant, which the Company obtains from China. The Company currently relies on one supplier for this plant. Such single supplier acquires raw knotweed from numerous regional sources and performs an extraction process on this plant, creating a dried extract that is shipped to the Company's manufacturing plant. While the Company does not have a long-term supply contract with this supplier, the Company does have a long-term business relationship with this supplier. The Company endeavors to keep 10-12 months of knotweed extract on hand at any given time, but an unexpected disruption in supply could have an effect on Regalia supply and revenues. Although the Company has identified additional sources of raw knotweed, there can be no assurance that the Company will continue to be able to obtain dried extract from China at a competitive price.

The Company continues to rely on third parties to formulate Grandevo into spray-dried powders, for all of its production of Venerate, Majestene/Zelto, Stargus and Haven, and from time to time, third-party manufacturers for supplemental production capacity to meet excess seasonal demand and for packaging. The Company's products have been produced in quantities, and on timelines, sufficient to meet commercial demand and for the Company to satisfy its delivery schedules. However, the Company's dependence upon others for the production of a portion of its products, or for a portion of the manufacturing process, particularly for drying and for all of its production of Venerate, may adversely affect its ability to satisfy demand and meet delivery obligations, as well as to develop and commercialize new products, on a timely and competitive basis. The Company has not entered into any long-term manufacturing or supply agreements for any of its products, and it may need to enter into additional agreements for the commercial development, manufacturing and sale of its products. There can be no assurance that it can do so on favorable terms, if at all.

Pro Farm products are currently partially sourced by suppliers from one manufacturing plant in Russia, in which the Company owns a 12% interest. The Company plans for enough inventory on hand to fill its revenue forecasts for 12 months at any given time, but an unexpected disruption in supply could have an adverse effect on the supply and revenues related to the subsidiary. Although the Company has identified additional manufacturers who are capable suppling the products, there can be no assurance that the Company will continue to be able to obtain products at a competitive price.

Cash and Cash Equivalents

The Company considers all highly liquid financial instruments purchased with a maturity of three months or less to be cash equivalents. Cash and cash equivalents consist of cash on deposit, money market funds and certificates of deposit accounts with U.S. and global financial institutions. The Company is exposed to credit risk in the event of default by financial institutions to the extent that cash and cash equivalents balances with financial institutions are in excess of amounts that are insured including for amounts held at U.S. by the Federal Deposit Insurance Corporation and in Finland by the Deposit Guarantee Fund. The Company has not experienced any losses on these deposits. The following table provides a reconciliation of cash, cash equivalents and restricted cash to amounts shown in the statement of cash flows (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019
Cash and cash equivalents	$ 15,841	$ 6,252
Restricted cash, less current portion	1,560	1,560
Total cash, cash equivalents and restricted cash	$ 17,401	$ 7,812

Restricted Cash

The Company's restricted cash consists of cash that the Company is contractually obligated to maintain in accordance with the terms of its June 2014 Secured Promissory Note. Refer to Note 8 of the consolidated financial statements.

Accounts Receivable

The carrying value of the Company's receivables represents their estimated net realizable values. The Company generally does not require collateral and estimates any required allowance for doubtful accounts based on historical collection trends, the age of outstanding receivables and existing economic conditions. If events or changes in circumstances indicate that specific receivable balances may be impaired, further consideration is given to the collectability of those balances and the allowance is recorded accordingly. Past-due

receivable balances are written-off when the Company's internal collection efforts have been unsuccessful in collecting the amount due. During the years ended December 31, 2020 and 2019, no receivables balances were written off. As of December 31, 2020 and 2019, the Company had no allowance for doubtful accounts.

Inventories

Inventories are stated at the lower of cost or market value (net realizable value or replacement cost) and include the cost of material and external and internal labor and manufacturing costs. Cost is determined on the first-in, first-out basis. The Company provides for inventory reserves when conditions indicate that the selling price may be less than cost due to physical deterioration, obsolescence, changes in price levels or other factors. Additionally, the Company provides reserves for excess and slow-moving inventory on hand that is not expected to be sold to reduce the carrying amount of excess and slow-moving inventory to its estimated net realizable value. The reserves are based upon estimates about future demand from the Company's customers and distributors and market conditions.

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

	DECEMBER 31, 2020	DECEMBER 31, 2019
Raw materials	$ 2,487	$ 1,610
Work in progress	987	783
Finished goods	3,144	5,756
	$ 6,618	$ 8,149

During the year ended December 31, 2020, the Company recorded, as a component of cost of product revenues, adjustments to inventory reserves of $387,000 due to quantities on hand that may not be used or sold prior to expiration, and an adjustment of $1,770,000 as a result of actual utilization of the Company's manufacturing plant being less than what is considered normal capacity.

During the year ended December 31, 2019, the Company recorded, as a component of cost of product revenues, adjustments to inventory reserves of $248,000 due to quantities on hand that may not be used or sold prior to expiration, and an adjustment of $969,000 as a result of actual utilization of the Company's manufacturing plant being less than what is considered normal capacity.

Property, Plant and Equipment

Property, plant and equipment are recorded at cost and are depreciated using the straight-line method over their estimated useful lives. The Company generally uses the following estimated useful lives for each asset category:

ASSET CATEGORY	ESTIMATED USEFUL LIFE
Building	30 years
Computer equipment	2-3 years
Machinery and equipment	3-20 years
Office equipment	3-5 years
Furniture	3-5 years
Leasehold improvements	Shorter of lease term or useful life
Software	3 years

Maintenance, repairs and minor renewals are expensed as incurred. Expenditures that substantially increase an asset's useful life are capitalized. The Company did not recognize any amounts related to impairment for the years ended December 31, 2020 and 2019.

Intangible Assets

Intangible assets are acquired individually or as part of a group at fair value. Intangible assets with definitive lives are amortized over the useful life of the intangible asset, which is the period over which the asset is expected to contribute directly or indirectly to the entity's future cash flows.

ASSET CATEGORY	ESTIMATED USEFUL LIFE
Customer Relationship	15 years
Developed Technology	10 years
Tradenames	10-15 years
Non-compete	6 years
In Process Research and Development	11 years

The Company evaluates intangible assets for impairment at least annually and more often whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Whenever any such impairment exists, an impairment loss will be recognized for the amount by which the carrying value exceeds the fair value. The Company's intangible assets include customer relationships, patents, trademarks, and in process research and development. The Company has not recorded impairment to intangible assets for the years ended December 31, 2020 and 2019.

Impairment of Long-Lived Assets

Impairment losses related to long-lived assets are recognized in the event the net carrying value of such assets is not recoverable and exceeds fair value. The Company evaluates the recoverability of its long-lived assets whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. The carrying amount of a long-lived asset (asset group) is not recoverable if it exceeds the sum of the undiscounted cash flows expected to result from the use and eventual disposition of the asset (asset group). If the carrying amount of a long-lived asset (asset group) is considered not recoverable, the impairment loss is measured as the amount by which the carrying value of the asset or asset group exceeds its estimated fair value.

Goodwill

Goodwill represents the excess of purchase price over the underlying net assets of businesses acquired. Goodwill is reviewed for impairment on an annual basis as of the first day of the Company's fiscal fourth quarter or more frequently if events or changes in circumstances indicate that the carrying amount of goodwill may be impaired. The Company assesses goodwill in accordance with Accounting Standards Codification 350, *Intangibles – Goodwill and other* ("ASC 350") by first assessing through a qualitative analysis whether events and circumstances lead to the conclusion that a quantitative analysis is required. For the quantitative test, the review for impairment of goodwill is based on a combination of income-based and market-based approaches.

Under the income-based approach, the Company determines fair value using a discounted cash flow approach that requires significant judgment with respect to revenue and

profitability growth rates, based upon annual budgets and longer-range strategic plans, and the selection of an appropriate discount rates. Under the market-based approach, the Company determines fair value by comparing reporting units to similar businesses or guideline companies whose securities are actively traded in public markets.

Fair value estimates employed in our annual impairment review of goodwill were determined using models involving several assumptions. Changes in assumptions could materially impact fair value estimates. Assumptions critical to the Company's fair value estimates were: (i) discount rates; (ii) projected future revenues and profitability used in the reporting unit; and (iii) projected long-term growth rates used in the derivation of terminal year values. These and other assumptions are impacted by economic conditions and expectations of management and may change in the future based on period specific facts and circumstances. While the Company believes the assumptions used to estimate future cash flows are reasonable, there can be no assurance that the expected future cash flows will be realized. As a result, impairment charges that possibly would have been recognized in earlier periods may not be recognized until later periods if actual results deviate unfavorably from earlier estimates. The use of different assumptions would increase or decrease discounted cash flows or earnings projections and, therefore, could change impairment determinations.

For the year ended December 31, 2020, the Company completed qualitative assessment and although there were no indications of a potential impairment also completed a quantitative assessment. Based on the results of the assessment, the fair values of the Company's goodwill exceeded the respective carrying value and therefore the Company has not recorded impairment to goodwill as of December 31, 2020.

Fair Value

Accounting Standards Codification 820, *Fair Value Measurements* ("ASC 820"), clarifies that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability.

ASC 820 requires that the valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. ASC 820 establishes a three-tier value hierarchy, which prioritizes inputs that may be used to measure fair value as follows:

- Level 1—Quoted prices in active markets for identical assets or liabilities.
- Level 2—Observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3—Inputs that are generally unobservable and typically reflect management's estimate of assumptions that market participants would use in pricing the asset or liability.

The change in fair value for the reporting period was driven by the result of the unobservable fair value model, a Monte Carlo simulation in a risk-neutral framework assuming Geometric Browning Motion. The most significant input to the model was the estimated results of the Pro Farm subsidiary for the periods specified in the share purchase agreement of 2021 – 2023. The following represents other inputs used in determining the fair value of the contingent consideration liability:

	DECEMBER 31, 2020	DECEMBER 31, 2019
Discount rate	15.5%	15.2%
Volatility	45.8%	33.6%
Credit spread	9.0%	10.8%
Risk-free rate	0.19%	1.66%

Discount Rate. Discount rate is based on an adjusted weighted cost of capital contribution considering an estimated operational leverage ratio and a risk-free rate, each determined by publicly traded peer group median except the risk-free rate.

Estimated Volatility Factor. Volatility factor is based on the adjusted weighted cost of capital, operating asset volatility, operating leverage ratio and risk-free interest rate, each determined by publicly traded peer group median except the risk-free rate.

Credit Spread. Credit spread cased on the Company's financial ratio in comparison with those of publicly traded peer group.

Interest Rate. Interest rate based on US Constant Maturity Treasury rates for the same period as the period of performance of 2021 to 2023.

The change in the fair value estimate is recognized in the Company's consolidated statement of operations in Other Income (expense) under caption Change in fair value of contingent consideration. The contingent consideration will be determined at each reporting period and will be settled with the issuance of the Company's common shares.

Deferred Revenue

Under ASC 606, when the Company receives consideration, or such consideration is unconditionally due, from a customer prior to transferring control of goods or services to the customer under the terms of a sales contract, the Company records deferred revenue, which represents a contract liability. The Company recognizes deferred revenue as net sales after the Company has transferred control of the goods or services to the customer and all revenue recognition criteria are met. The Company's deferred revenue is broken out as follows:

	DECEMBER 31, 2020	DECEMBER 31, 2019
Product revenues	$ 189	$ 299
Financing costs	581	609
License revenues	1,232	1,505
Total deferred revenues	2,002	2,413
Less current portion	(374)	(427)
Long term portion	$ 1,628	$ 1,986

Revenue Recognition

Under ASC 606, the Company recognizes revenue for product sales at a point in time following the transfer of control of such products to the customers, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. The Company may enter into contracts in which the standalone selling prices ("SSP") are different

from the amount the Company is entitled to bill the customer. Product revenues consist of revenues generated from sales of the Company's products to distributors and direct customers, net of rebates and cash discounts.

Product Sales. The Company recognizes revenue for product sales at a point in time following the transfer of control of such products to the customers, which typically occurs upon shipment or delivery depending on the terms of the underlying contracts. The Company may enter into contracts in which the standalone selling prices ("SSP") is different from the amount the Company is entitled to bill the customer. As of December 31, 2020 and 2019, the Company had deferred product revenue in the amount of $189,000 and $299,000, respectively, associated primarily with billings in excess of SSP.

Licenses Revenues. The Company recognizes license revenues pursuant to strategic collaboration and distribution agreements under which the Company receives payments for the achievement of certain testing validation, regulatory progress and commercialization events. As these activities and payments are associated with exclusive rights that the Company provides in connection with strategic collaboration and distribution agreements over the term of the agreements, revenues related to the payments received are deferred and recognized over the term of the exclusive distribution period of the respective agreement. Through December 31, 2020, the Company has received an aggregate of $4,100,000 in payments under these strategic collaboration and distribution agreements of which no amounts was recognized as of December 31, 2020 and 2019. In addition to the amounts already received, an additional $800,000 in payments under these agreements could potentially receive if certain testing validation, regulatory progress and commercialization events occur.

Financing Component Revenues. The Company recognizes a financing component, if material, when the Company receives consideration from the customer, and when the Company expects control of the product or service to be transferred to the customer in a period of greater than one year from the date of receipt of the consideration. As such, the financing component is determined to be long-term and therefore recorded in the consolidated balance sheet as part of deferred revenues. For each year ended December 31, 2020 and 2019 the Company recognized $32,000 and $252,000, respectively of financing revenues.

Revenue recognition requires the Company to make a number of estimates that include variable consideration. For example, customers may receive sales or volume-based pricing incentives or receive incentives for providing the Company with marketing-related information. The Company makes estimates surrounding variable consideration and the net impact to revenues. In making such estimates, significant judgment is required to evaluate assumptions related to the amount of net contract revenues, including the impact of any performance incentives and the likelihood that customers will achieve them. In the event estimates related to variable consideration change, the cumulative effect of these changes is recognized as if the revised estimates had been used since revenue was initially recognized under the contract. Such revisions could occur in any reporting period, and the effects may be material.

From time to time, the Company offers certain product rebates to its distributors and growers, which are estimated and recorded as reductions to product revenues, and an accrued liability is recorded at the later of when the revenues are recorded, or the rebate is being offered.

Contract Assets. The Company does not have contract assets since revenue is recognized as control of goods are transferred or as services are performed or such contract assets are incurred or expensed within one year of the recognition of the revenue.

Contract Liabilities. The contract liabilities consist of deferred revenue. The Company classifies deferred revenue as current or noncurrent based on the timing of when the Company expects to recognize revenue. Generally, all contract liabilities, excluding deferred revenue, are expected to be recognized within one year and are included in accounts payable in the Company's consolidated balance sheet.

Research, Development and Patent Expenses

Research and development expenses include payroll-related expenses, field trial costs, toxicology costs, regulatory costs, consulting costs and lab costs. Patent expenses include legal costs relating to the patents and patent filing costs. These costs are expensed to operations as incurred. During the years ended December 31, 2020 and 2019, research and development expenses totaled $10,316,000 and $12,924,000, respectively, and patent expenses totaled $1,014,000 and $1,102,000, respectively.

Shipping and Handling Costs

Amounts billed for shipping and handling are included as a component of product revenues. Related costs for shipping and handling have been included as a component of cost of product revenues. Shipping and handling costs for the year ended December 31, 2020 and 2019 were $1,473,000 and $1,180,000, respectively.

Advertising

The Company expenses advertising costs as incurred and has included these expenses as a component of Selling, General and Administrative costs. Advertising costs for the years ended December 31, 2020 and 2019 were $631,000 and $708,000, respectively.

Share-Based Compensation

The Company recognizes share-based compensation expense for all stock options and restricted stock units granted to employees and directors based on estimated fair values.

The Company estimates the fair value of restricted stock units based on the closing bid price of the Company's common stock on the date of grant.

The Company estimates the fair value of stock options on the date of grant using an option-pricing model. The value of the portion of the stock options that is ultimately expected to vest is recognized as expense on a straight-line basis over the requisite service period. Forfeitures are estimated on the date of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

The Company uses the Black-Scholes-Merton option-pricing model to calculate the estimated fair value of stock options on the measurement date (generally, the date of grant). The required inputs in the option-pricing model include the expected life of the stock options, estimated volatility factor, risk-free interest rate and expected dividend yield. These inputs are subjective and generally require significant judgment. During the years ended December 31, 2020 and 2019, the Company calculated the fair value of stock options granted based on the following assumptions:

	DECEMBER 31, 2020	DECEMBER 31, 2019
Expected life (years)	2.14-6.08	5.33-6.08
Estimated volatility factor	57.9%-59.9%	51%-54%
Risk-free interest rate	0.28%-0.96%	1.41%-2.44%
Expected dividend yield	—	—

Expected Life. Expected life represents the period that share-based payment awards are expected to be outstanding. The Company uses the "simplified method" in accordance with

Staff Accounting Bulletin ("SAB") No. 107, *Share-Based Payment* ("SAB No. 107"), and SAB No. 110, *Simplified Method for Plain Vanilla Share Options* ("SAB No. 110"), to calculate the expected term of stock options determined to be "plain vanilla." Under this approach, the expected term is presumed to be the midpoint between the vesting date and the contractual end of the stock option grant. For stock options granted with an exercise price not equal to the determined fair value, the Company estimates the expected life based on historical data and management's expectations about exercises and post-vesting termination behavior. The Company will use the simplified method until it has sufficient historical data necessary to provide a reasonable estimate of expected life in accordance with SAB No. 107 and SAB No. 110.

Estimated Volatility Factor. For the year ended December 31, 2020, estimated volatility factor is based on the Company's trading history adjusted for certain periods of the Company's trading history, not indicative of normal trading. For the year ended December 31, 2019, the Company's common stock had limited trading history, the Company calculated the estimated volatility factor based on both the volatility of its common stock adjusted for certain periods of the Company's trading history, not indicative of normal trading and the volatility of the common stock of comparable agricultural biotechnology companies, giving the volatility of its common stock additional weight.

Risk-Free Interest Rate. The Company calculates the risk-free interest rate based on the implied yield currently available on U.S. Treasury constant-maturity securities with the same or substantially equivalent remaining term as the expected life of the stock options.

Expected Dividend Yield. The Company has not declared dividends, nor does it expect to in the foreseeable future. Therefore, a zero value was assumed for the expected dividend yield.

Estimated Forfeitures. The Company considers voluntary and involuntary termination behavior and actual stock option forfeitures when estimating forfeitures. If, in the future, the Company determines that other methods for calculating these assumptions are more reasonable, or if other methods are prescribed by authoritative guidance, the fair value calculated for the Company's stock options could change significantly. Higher volatility factors and longer expected lives result in an increase to the share-based compensation expense determined at the date of grant. Share-based compensation expense is recorded in the Company's research, development and patent expense and selling, general and administrative expense.

Warrants

The Company has a number of outstanding warrants. From time to time the terms of the warrants may be exchanged, amended or otherwise modified. Historically, the Company's warrants have been deemed stand alone equity instruments and as such changes to the original terms of the warranted have been accounted for a modification under Accounting Standards Codification ("ASC") 718, *Compensation – Stock Based Compensation*.

The issuances of August 2019 Warrants resulted in the Company incurring a non-cash charge of $1,391,000 in connection with the fair value of new warrants issued in place of the called warrants. The Company's fair value of the new warrants issued was estimated utilizing a Black Scholes option pricing model. The following table outlines assumptions utilized for the warrant issuance:

	WARRANTS EXERCISED/ISSUED DURING THE TWELVE MONTHS ENDED DECEMBER 31, 2020
Contractual life (years)	3.01-3.04
Estimated volatility factor	53%
Risk-free interest rate	1.58-1.66%
Expected dividend yield	—

Contractual Life. Contractual life represents the period that the warrants are expected to be outstanding. The Company estimates the contractual period, the period between the date of the modification and the expiration date of the warrant, which is an appropriate estimate of the expected term.

Estimated Volatility Factor. Estimated volatility factor is based on the Company's trading history, which is adjusted for certain periods of the Company's trading history that are not indicative of normal trading.

Risk-Free Interest Rate. The Company calculates the risk-free interest rate based on the implied yield currently available on U.S. Treasury constant-maturity securities with the same or substantially equivalent remaining term as the expected life of the stock options.

Expected Dividend Yield. The Company has not declared dividends, nor does it expect to in the foreseeable future. Therefore, a zero value was assumed for the expected dividend yield.

On April 29, 2020, the Company then entered into a warrant exchange agreement ("Warrant Exchange Agreement") with certain holders of warrants under the August 2015 Senior Secured Promissory Notes, the Securities Purchase Agreement and the Warrant Reorganization Agreement. Pursuant to the Warrant Exchange Agreement, the Company agreed to exchange an aggregate of 45,977,809 warrants ("August 2015 Warrants", "February 2018 Warrants 1 & 2", and all "August 2019 Warrants" collectively, "the exchanged warrants") for 29,881,855 warrants ("April 2020 Warrants"), refer to Note 9 of the consolidated financial statements.

The fair value of the April 2020 Warrants was not greater than the fair values of the exchanged warrants immediately prior to the modification date and therefore had no impact on the Company's year ended results. The fair value of each exchanged warrants immediately prior to the modification were estimated utilizing either a Black Scholes Merton or Monte Carlo option pricing model. The fair value of each April 2020 Warrants immediately after the modification were estimated utilizing a Black Scholes Merton option pricing model. The following table outlines the range of assumptions utilized in the option pricing models:

	EXCHANGED WARRANTS	APRIL 2020 WARRANTS
Contractual life (years)	0.68-3.31	0.38-1.63
Estimated volatility factor	43-52%	38-46%
Risk-free interest rate	0.14-0.26%	0.10-0.19%
Expected dividend yield	—	—

Contractual Life. Contractual life represents the period that the warrants are expected to be outstanding. The Company estimates the contractual period, the period between the date of the modification and the expiration date of the warrant, which is an appropriate estimate of the expected term.

Estimated Volatility Factor. Estimated volatility factor is based on the Company's trading history adjusted for certain periods of the Company's trading history, not indicative of normal trading.

Risk-Free Interest Rate. The Company calculates the risk-free interest rate based on the implied yield currently available on U.S. Treasury constant-maturity securities with the same or substantially equivalent remaining term as the expected life of the stock options.

Expected Dividend Yield. The Company has not declared dividends, nor does it expect to in the foreseeable future. Therefore, a zero value was assumed for the expected dividend yield.

In December 2020, the Company also entered into an amendment (the "Warrant Amendment") to a previously outstanding warrant to purchase 5,333,333 shares of the Company's common stock issued to a historical warrant holder (the "Holder") on February 5, 2018. Pursuant to the Warrant Amendment, in exchange for the Holder's exercise of the warrant on December 29, 2020, with respect to 1,777,778 shares at the warrant's exercise price of $0.96 per share the warrant's expiration date was partially extended and allows the Holder to exercise warrants to purchase (i) 1,777,778 shares at $1.00 per share by March 25, 2021, and (ii) 1,777,777 shares at $1.04 share by December 15, 2021 (Refer to Note 9 of the consolidated financial statements).

The fair value of the February 2018 Warrants was greater than the fair values of the exchanged warrants immediately prior to the modification date and therefore the Company recognized $72,000 of additional expense in connection with the modification for the year ended results. The fair value of each exchanged warrants immediately before and after the modification were estimated utilizing the Black Scholes Merton option pricing model. The following table outlines the range of assumptions utilized in the option pricing models:

	DECEMBER 2020 WARRANTS
Contractual life (years)	0.24-0.96
Estimated volatility factor	15-58%
Risk-free interest rate	0.10%-0.11%
Expected dividend yield	—

Contractual Life. Contractual life represents the period that the warrants are expected to be outstanding. The Company estimates the contractual period, the period between the date of the modification and the expiration date of the warrant, which is an appropriate estimate of the expected term.

Estimated Volatility Factor. Estimated volatility factor is based on the Company's trading history adjusted for certain periods of the Company's trading history, not indicative of normal trading.

Risk-Free Interest Rate. The Company calculates the risk-free interest rate based on the implied yield currently available on U.S. Treasury constant-maturity securities with the same or substantially equivalent remaining term as the expected life of the stock options.

Expected Dividend Yield. The Company has not declared dividends, nor does it expect to in the foreseeable future. Therefore, a zero value was assumed for the expected dividend yield.

Income Taxes

The Company uses the asset and liability method of accounting for income taxes. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to the differences between the consolidated financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. To the extent that deferred tax assets cannot be recognized under the preceding criteria, the Company establishes valuation allowances, as necessary, to reduce deferred tax assets to the amounts expected to be realized.

As of December 31, 2020 and 2019, all deferred tax assets, except the deferred tax asset generated during the year related to foreign entities, were fully offset by a valuation allowance. The realization of deferred tax assets is dependent upon future federal, state and foreign taxable income. The Company's judgments regarding deferred tax assets may change due to future market conditions, as the Company expands into international jurisdictions, due to changes in U.S. or international tax laws and other factors.

These changes, if any, may require material adjustments to the Company's deferred tax assets, resulting in a reduction in net income or an increase in net loss in the period in which such determinations are made. The Company recognizes liabilities for uncertain tax positions based upon a two-step process. To the extent that a tax position does not meet a more-likely-than-not level of certainty, no benefit is recognized in the consolidated financial statements. If a tax position meets the more-likely-than-not level of certainty, it is recognized in the consolidated financial statements at the largest amount that has a greater than 50% likelihood of being realized upon ultimate settlement. The Company's policy is to analyze the Company's tax positions taken with respect to all applicable income tax issues for all open tax years in each respective jurisdiction. As of December 31, 2020, the Company concluded that there were no additional uncertain tax positions required to be recognized in its consolidated financial statements. In connection with the Company's acquisition of Pro Farm, the Company acquired approximately $22,000 in uncertain tax position.

The Company recognizes interest and penalties related to income tax matters in income tax expense. No amounts were recognized for interest and penalties during the years ended December 31, 2020 and 2019. In connection with the Company's acquisition of Pro Farm, amounts of interest and penalties were not significant or material.

Foreign Currency

The functional currency of the Company's subsidiary Pro Farm is the U.S. dollar. Assets and liabilities have been converted to the U.S. dollar reporting currency using the exchange rates in effect on the consolidated balance sheet dates. Equity accounts are converted at historical rates, except for the change in retained earnings during the year which is the result of the income statement conversion process. Revenue and expense accounts are converted using the weighted average exchange rate during the period. The cumulative conversion adjustments associated with the net assets of foreign subsidiaries and the Company's normal operations are recorded in "Other income (expense)" in the consolidated statement of operations in the amounts of $0.3 million and $0.1 million for the periods ended December 31, 2020 and 2019, respectively.

Comprehensive Loss

Comprehensive loss represents the net loss for the period adjusted for the results of certain changes to stockholders' equity that are not reflected in the consolidated statements of operations, if applicable. From time to time the Company is impacted by foreign currency translation in the consolidation of the Company's subsidiaries.

Segment Information

The Company is organized as a single operating segment, whereby its chief operating decision maker assesses the performance of and allocates resources to the business as a whole.

Recently Adopted Accounting Pronouncements

In January 2017, the FASB issued ASU No. 2017-04, "Intangibles – Goodwill and Other (Topic 350), ("ASU No. 2017-04"), which requires the annual goodwill impairment test compare the fair value of the reporting unit with its carrying value. On January 1, 2020, the Company adopted the ASU on a prospective basis and completed the quantitative assessment component of its annual goodwill impairment test based on the fair value and the carrying value of the goodwill. The adoption of this standard did not have a material impact on the consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-13, "Fair Value Measurement (Topic 820), ("ASU No. 2018-13"), which modifies the disclosure requirements on fair value measurements in Topic 820, Fair Value Measurement. The provisions of ASU No. 2018-13 are effective for annual reporting periods beginning after December 15, 2019 and interim reporting periods within those annual periods, with early adoption permitted. Amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurements uncertainty should be applied prospectively for only the most recent interim or annual periods presented in the initial year of adoption with all other amendments applied retroactively to all periods presented upon their effective date. The Company has completed the assessment of the ASU on a prospective basis as of January 1, 2020 and determined no material impact of the standard on the consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-15, "Intangibles – Goodwill and Other-Internal-Use Software (Subtopic 350-40), ("ASU No. 2018-15"), which aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. The provisions of ASU No. 2018-15 are effective for annual reporting periods beginning after December 15, 2019 and interim reporting periods within those annual periods, with early adoption permitted. The Company has completed the assessment of the ASU on a prospective basis as of January 1, 2020 in which it determined no material impact of the standard on the consolidated financial statements.

In November 2018, the FASB issued ASU No. 2018-18, "Collaborative Arrangements (Topic 808): Clarifying the Interactions between Topic 808 and Topic 606" ("ASU No. 2018-18"), which clarifies certain transactions between collaborative arrangement participants should be accounted for as revenue under Topic 606 when the collaborative arrangement participant is a customer in the context of a unit of account including aligning Topic 808 with the guidance in Topic 606. The provisions of ASU No. 2018-18 are effective for annual reporting periods beginning after December 15, 2019 and interim reporting periods within those annual periods, with early adoption permitted, including adoption in any interim period for public business entities for periods for which consolidated financial statements have not yet be issued. This ASU shall be applied retrospectively to the date of initial application of Topic 606. The Company has completed the assessment of the ASU on a prospective basis as of January 1, 2020, and determined that there was no material impact of the standard on the consolidated financial statements.

Recently Issued Accounting Pronouncements

In June 2016, the FASB issued Accounting Standards Update No. 2016-13, Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments ("ASU 2016-13"). ASU 2016-13 introduces a new forward-looking approach, based on expected losses, to estimate credit losses on certain types of financial instruments, including trade receivables. The estimate of expected credit losses will require entities to incorporate considerations of historical information, current information and reasonable and supportable forecasts. ASU 2016-13 also expands the disclosure requirements to enable users of consolidated financial statements to understand the entity's assumptions, models and methods for estimating expected credit losses. For public business entities that meet the definition of a Securities and Exchange Commission ("SEC") filer, ASU 2016-13 is effective for annual and interim reporting periods beginning after December 15, 2019, and the guidance is to be applied using the modified-retrospective approach. Earlier adoption is permitted for annual and interim reporting periods beginning after December 15, 2018. In November 2018, the FASB issued ASU No. 2018-19, "Codification Improvements to Topic 326, Financial Instruments – Credit Losses," ("ASU No. 2018-19"), in April 2019, the FASB issued Accounting Standards Update No. 2019-04, Codification Improvements to Topic 326, Financial Instruments—Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments ("ASU 2019-04"), in May 2019, the FASB issued Accounting Standards Update No. 2019-05, Financial Instruments—Credit Losses (Topic 326) ("ASU 2019-05"), in November 2019, the FASB issued Accounting Standards Update No. 2019-10, Financial Instruments—Credit Losses, (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842): Effective Date ("ASU 2019-10") and Accounting Standards Update No. 2019-11, Financial Instruments—Credit Losses ("ASU 2019-11"), and in February 2020, the FASB issued Accounting Standards Update No. 2020-02, Financial Instruments—Credit Losses, (Topic 326) and Leases (Topic 842) ("ASU 2020-02"). ASU 2020-02, delayed the effective date for certain entities including entities meeting the SEC's definition of a Smaller Reporting Company. The Company is currently evaluating ASU 2016-13 and all related ASUs to determine the impact to its consolidated financial statements and related disclosures and anticipates delaying the adoption of ASU 2016-13.

In December 2019, the FASB issued ASU No. 2019-12, "Income Taxes (Topic 740): Simplifying the Accounting for Income Tax" ("ASU No. 2019-12"), which removed certain exceptions and updated certain provisions related to the accounting for income tax. The provisions of ASU No. 2019-12 are effective for annual reporting periods beginning after December 15, 2020, and interim reporting periods within those annual periods, with early adoption permitted, including adoption in any interim period for public business entities for periods for which consolidated financial statements have not yet been issued or made available for issuance. This ASU shall be applied on a retrospectively or modified retrospective basis. The Company has not yet determined the impact of implementing this new standard on the consolidated financial statements.

In August 2020, the FASB issued ASU No. 2020-06, "Debt-Debt with Conversion and Other Options (Sub Topic 470-20) and Derivatives and Hedging – Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity" ("ASU No. 2020-06"), which removed certain separation models for convertible instruments including no longer separating an embedded conversion features from the host contract that are not required to be accounted for as derivatives or do not result in substantial premiums accounted for as paid-in capital and a convertible debt instrument will be accounted for as a single liability measured at its amortized cost and a convertible preferred stock will be accounted for as a single equity instrument measured at its historical cost, as long as no other features required bifurcation and recognition as derivatives and included disclosure amendments for convertible instruments. The provisions of the ASU also amended Subtopic 815-40 by removing certain conditions from the previous settlement guidance, required instruments classified as an asset or liability be measured subsequently with changes reported in earnings and clarified the FASB's view on penalty payments, disclosure requirements and reassessment on both freestanding and embedded features. Lastly, the provisions of the ASU also included amendments to the calculation of earnings per share. The provisions of ASU No. 2020-06 are effective for fiscal years beginning after December 15, 2021 including interim reporting periods within those fiscal years, with early adoption permitted, but no earlier than fiscal years beginning after December 15, 2020 excluding entities eligible to be smaller reporting companies as defined by the SEC and for all other entities for fiscal years beginning after December 15, 2023. This ASU shall be applied on a modified retrospective or full retrospective method of transition. The Company has not yet determined the impact of implementing this new standard on the consolidated financial statements.

3. Right of Use Assets and Lease Liabilities

In September 2013 and then amended in April 2014, the Company entered into a lease agreement for approximately 27,300 square feet of office and laboratory space located in Davis, California. The initial term of the lease was for a period of 60 months and commenced in August 2014. In November 2018, the Company exercised the first lease extension option, extending the lease term for an additional 60 months. The monthly base rent is $44,000 per month for the first 12 months with a 3% increase each year thereafter. Concurrent with the April 2014 lease agreement, the Company entered into a lease agreement with an affiliate of the landlord to lease approximately 17,400 square feet of office and laboratory space in the same building complex in Davis, California. The initial term of the lease was for a period of 60 months and commenced in August 2014. The monthly base rent is $28,000 with a 3% increase each year thereafter. In November 2018, the Company exercised the first lease extension option, extending the lease term for an additional 60 months.

On January 19, 2016, the Company entered into an agreement with a sublessee to sublease approximately 3,800 square feet of vacant office space located in Davis, California pursuant to the terms of its lease agreement. The initial term of the sublease is for a period of approximately 43 months and commenced on February 1, 2016. The monthly base rent is approximately $5,000 per month for the first 12 months with a 5% increase each year thereafter. The lease was not renewed and was on a month to month arrangement through

November 2019.

On January 1, 2019, the Company adopted ASU No. 2016-02, "Leases (Topic 842)" (ASU 2016-02) using the modified retrospective transition method allowing it to apply the new standard at the adoption date and to recognize a cumulative-effect adjustment to the opening balance of retained earnings on the date of adoption. Under this transition method, the prior comparative period continues to be reported under the accounting standards in effect for that period.

The Company elected to use the package of practical expedients permitted which allows (i) an entity not to reassess whether any expired or existing contracts are or contain leases; (ii) an entity need not reassess the lease classification for any expired or existing leases; and (iii) an entity need not reassess any initial direct costs for any existing leases. The Company made an accounting policy election to adopt the short-term lease exception which allows the Company to not recognize on the balance sheet those leases with terms of 12 months or less resulting in short-term lease payments being recognized in the consolidated statements of income on a straight-line basis over the lease term. All of the Company's leases were previously classified as operating and are similarly classified as operating lease under the new standard.

Adoption of the new standard resulted in recognition of both right-of-use assets and lease liabilities of approximately $5,324,000 and $5,510,000 as of January 1, 2019, respectively, inclusive of any deferred rent as of December 31, 2018. As the right-of-use assets and lease liabilities were substantially the same at adoption, the Company did not record a cumulative effect adjustment to the opening balance of retained earnings.

The Company's operating leases have remaining terms ranging from less than one year to five years. The leases are for office space and various office equipment. The Company determines if an arrangement includes a lease at the inception of the agreement and the right-of-use asset and lease liability is determined at the lease commencement date and is based on the present value of estimated lease payments. The Company's lease agreements contain both fixed and variable lease payments, none of which are based on a rate or an index. Fixed lease payments are included in the determination of the right-of-use asset and lease liability. Variable lease payments that are not based on a rate or index are expensed when incurred. The present value of estimated lease payments is determined utilizing the rate implicit in the lease agreement if that rate can be determined. If the implicit rate cannot be determined, the present value of estimated lease payments is determined utilizing the Company's incremental borrowing rate. The incremental borrowing rate is determined at the lease commencement date and is estimated utilizing similar or collateralized borrowing instruments adjusted for the terms of leasing arrangement as necessary. Some of the leases include an option to renew that can extend the lease term. For those leases which are reasonably certain to be renewed, the Company included the renewal period in the lease term. The Company's lease agreements do not contain any material residual value guarantees or material restrictive covenants. As of December 31, 2020, the weighted average incremental borrowing rate and the weighted average remaining lease term for the operating leases held by the Company were 7.08% and 3.7 years, respectively.

The components of lease expense were as follows (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019
Operating lease cost	$ 1,149	$ 1,154
Short-term lease cost	175	88
Sublease income	(26)	(93)
Total operating lease costs:	$ 1,298	$ 1,149

Maturities of lease liabilities for each future calendar year as of December 31, 2020 are as follows (in thousands):

	OPERATING LEASES
2021	$ 1,231
2022	1,267
2023	1,293
2024	867
Total lease payments	4,658
Less: imputed interest	600
Total lease obligation	4,058
Less lease obligation, current portion	1,008
Lease obligation, non-current portion	$ 3,050

4. Property, Plant and Equipment

Property, plant and equipment consist of the following (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019
Land	$ 1	$ 1
Buildings	6,562	6,562
Computer equipment and software	564	564
Furniture, fixtures and office equipment	416	379
Machinery and equipment	16,047	15,768
Leasehold improvements	2,410	2,410
Construction in progress	367	155
Gross property, plant and equipment	26,367	25,839
Less accumulated depreciation and amortization	(13,802)	(12,579)
Property, plant and equipment, net	$ 12,565	$ 13,260

The Company recognized depreciation and amortization expense of $1,210,000 and $1,565,000 during the years ended December 31, 2020 and 2019, respectively. The total depreciation and amortization for disposed assets during the year ended December 31, 2020 and 2019 was $23,000 and $48,000, respectively.

5. Intangible Assets

The Company's intangible assets consist of the following (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019
Customer Relationships	$ 2,244	$ 2,333
Developed Technology	16,362	16,362
Tradenames	3,106	3,125
Non-compete	90	93
In Process Research and Development	2,713	2,713
Gross intangibles	24,515	24,626
Less accumulated amortization	(3,132)	(784)
Intangibles, net	$ 21,383	$ 23,842

The Company recognized amortization expense during the year ended December 31, 2020 and 2019 of $2,348,000 and $784,000. The Company expects to recognize approximately $2,348,000 in each of the future periods from 2021 through 2024, $2,338,000 in 2025 with the remainder to be recognized in periods thereafter. The weighted average life of the intangible assets is 9.8 years. During the year ended December 31, 2020, changes to the Company's initially recognized intangibles were in connection to the contingent consideration estimate included in the initial recognition of intangible assets associated with the Company's asset acquisition of the Jet Ag product lines.

6. Net Loss per Share

Basic net loss per share is calculated by dividing the net loss attributable to common stockholders by the weighted average number of common shares outstanding during the period. Diluted net loss per share reflects the potential dilution that could occur if securities or other contracts to issue common stock, such as stock options, restricted stock units, convertible notes, convertible preferred stock and warrants, result in the issuance of common stock which share in the losses of the Company. Certain potential shares of common stock have been excluded from the computation of diluted net loss per share for certain periods as their effect would be anti-dilutive. Such potentially dilutive shares are excluded when the effect would be to reduce the loss per share. The treasury stock method has been applied to determine the dilutive effect of options and warrants.

The following table sets forth the potential shares of common stock as of the end of each period presented that are not included in the calculation of diluted net loss per share because to do so would be anti-dilutive (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019
Stock options outstanding	13,380	11,821
Warrants to purchase common stock	14,534	52,647
Restricted stock units outstanding	4,588	2,405
Common shares to be issued in lieu of agent fees	498	498
Employee stock purchase plan	18	8
Maximum contingent consideration shares to be issued	5,972	5,972
	38,990	73,351

Subsequent to December 31, 2020, prior to the Tranche 4 expiration date of March 15, 2021, 5,862,380 April 2020 Warrant Shares were exercised. Subsequent to December 31, 2020, prior to the March 25, 2021 expiration date, 1,777,778 December 2020 warrant shares were exercised.

7. Accrued Liabilities

Accrued liabilities consist of the following (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019
Accrued compensation	$ 3,495	$ 2,730
Accrued warranty costs	475	327
Accrued customer incentives	4,288	5,102
Accrued liabilities, acquisition related	1,463	1,722
Accrued liabilities, other	1,929	2,586
Accrued Liabilities	$ 11,650	$ 12,467

Product Warranty

The Company warrants the specifications and/or performance of its products through implied product warranties and has extended product warranties to qualifying customers on a contractual basis. The Company estimates the costs that may be incurred during the warranty period and records a liability in the amount of such costs at the time product is shipped. The Company's estimate is based on historical experience and estimates of future warranty costs as a result of increasing usage of the Company's products. The Company periodically assesses the adequacy of its recorded warranty liability and adjusts the amount as necessary. Changes in the Company's accrued warranty costs during the period are as follows (in thousands):

Balance at December 31, 2019	$ 327
Warranties issued (released) during the period	148
Settlements made during the period	-
Balance at December 31, 2020	$ 475

Contingent Consideration

As of December 31, 2020, the contingent consideration in connection with the Company's acquisition of Pro Farm was recorded at its fair value. The following table provides a reconciliation of the activity for the contingent consideration measured between the most recent reporting period and as of the balance sheet date based on the fair value using significant inputs including the unobservable inputs (Level 3) (in thousands):

	CONTINGENT CONSIDERATION LIABILITY
Fair value at September 13, 2019	$ 1,395
Change in estimated fair value recorded of contingent consideration	342

Fair value at December 31, 2019		1,737
Change in estimated fair value recorded of contingent consideration		445
Fair value at December 31, 2020	$	2,182

The change in fair value for the reporting period was driven by the result of the unobservable fair value model, a Monte Carlo simulation in a risk-neutral framework assuming Geometric Browning Motion. The most significant input to the model was the estimated results of the Pro Farm subsidiary for the periods specified in the share purchase agreement of 2021 – 2023.

The change in the fair value estimate is recognized in the Company's consolidated statement of operations in Other Income (expense) under caption Change in fair value of contingent consideration. Management has not finalized the earned contingent consideration for the fiscal year ended December 31, 2020 which is due before March 31, 2021 to the prior owners of Pro Farm. The fair value amount to be paid in 2021 is estimated at $698,000 and will be settled with the issuance of the Company's common shares in 2021.

8. Debt

Debt, including debt due to related parties, consists of the following (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019
Secured promissory notes ("October 2012 and April 2013 Secured Promissory Notes") bearing interest at 8.00% per annum, interest and principal due at maturity (December 31, 2022), collateralized by substantially all of the Company's assets.	$ 3,425	$ 3,425
Secured promissory note ("June 2014 Secured Promissory Note") bearing interest at prime plus 2% (5.25% as of December 31, 2020) per annum, payable monthly through June 2036, collateralized by certain of the Company's deposit accounts and MMM LLC's inventories, chattel paper, accounts, equipment and general intangibles, net of unamortized debt discount as of December 31, 2020 and December 31, 2019 of $166 and $185.	8,106	8,404
Secured revolving borrowing ("LSQ Financing") bearing interest at (12.80% annually) payable through the lenders direct collection of certain accounts receivable through March 2021, collateralized by substantially all of the Company's personal property.	8,966	3,629
Senior secured promissory notes due to related parties ("August 2015 Senior Secured Promissory Notes") bearing interest at 8% per annum, interest and principal payable at maturity (December 31, 2022), collateralized by substantially all of the Company's assets.	7,300	7,300
Research loan facility ("2018 Research Facility") bearing interest at 1.00% per annum, interest payments are due annually on the anniversary date of the facility with principal payable in 25% increments on the anniversary date of the facility beginning on the fourth anniversary of the loan (September 2022), net of imputed interest as of December 31, 2020 and 2019 of $41 and $8, respectively.	283	81
Financial institution facility ("2018 Bank Facility") bearing interest at Euribor plus 2.40% (2.60% as of December 31, 2019) per annum, interest payable monthly and principal payable at maturity (February 29, 2020), 60% guaranteed by Export Credit Agency of Finland for a fee of 2.49%.	-	207
Debt, including debt due to related parties	$ 28,080	$ 23,046
Less debt due to related parties, non-current	(7,300)	(7,300)
Less current portion	(9,301)	(3,899)
Debt, non-current	$ 11,479	$ 11,847

As of December 31, 2020, aggregate contractual future principal payments on the Company's debt, including debt due to related parties, are due as follows (in thousands):

PERIOD ENDING DECEMBER 31,	DEBT	DEBT TO RELATED PARTY
2021	$ 9,320	-
2022	2,903	5,000
2023	474	-
2024	494	-
2025	518	-
Thereafter	6,302	-
Total future principal payments	20,011	5,000
Interest payments included in debt balance [1]	976	2,300
Total future debt payments	$ 20,987	7,300

(1) Due to the debt extinguishment requirement, the Company has included both accrued interest and future interest in the debt balance for certain outstanding debt, as further discussed in Note 8 and 16.

The fair value of the Company's outstanding debt obligations, which excludes debt due to related parties, as of December 31, 2020 and 2019 was $20,780,000 and $15,746,000, respectively. The Company used 5.25%, the current interest rate, to value the variable rate debt. This debt is classified as Level 3 within the fair value hierarchy.

October 2012 and April 2013 Secured Promissory Notes

On October 2, 2012, the Company borrowed $7,500,000 pursuant to senior notes ("October 2012 Secured Promissory Notes") with a group of lenders. On April 10, 2013, the Company entered into an amendment to increase, by up to $5,000,000, of which $4,950,000 was issued (collectively, "April 2013 Secured Promissory Notes"), bringing the total amount outstanding under the notes to $12,450,000. On February 5, 2018, the Company converted $10,000,000 of the principal amount of indebtedness outstanding under the October 2012 and April 2013 Secured Promissory Notes to an aggregate of 5,714,285 shares of common stock and warrants to purchase 1,142,856 shares of common stock, such that the total amount outstanding under the notes was decreased to $2,450,000, which remains outstanding as of December 31, 2020.

As part of the terms of February 5, 2018 conversion, the maturity of the October 2012 and April 2013 Secured Promissory Notes was extended to December 31, 2022, the interest rate was reduced from 14% to 8% and all interest payments under the October 2012 and April 2013 Secured Promissory Notes were deferred to the maturity of the notes. This loan is collateralized by substantially all of the Company's assets. The October 2012 and April 2013 Secured Promissory Notes contain representations and warranties by the Company and the lender, certain indemnification provisions in favor of the lenders and customary covenants and events of default. The October 2012 and April 2013 Secured Promissory

Notes also contain several restrictive covenants. The Company is in compliance with all related covenants, or has received an appropriate waiver of these covenants.

In conjunction with the conversion, the Company accounted for the partial debt extinguishment under the troubled debt restructuring accounting guidance and as a result, the amount of the debt on the Company's consolidated balance sheet related to the October 2012 and April 2013 Secured Promissory Notes is $3,425,000, which includes all interest payments due on the note as compared to the contractual amount outstanding of $2,450,000. The Company has not recognized interest expense on the October 2012 and April 2013 Secured Promissory Notes since the conversion date of February 5, 2018.

Additionally, in conjunction with the terms of the October 2012 Secured Promissory Notes and the April 2013 Secured Promissory Notes, the Company agreed to pay a fee of 7% of the funded principal amount to the agent that facilitated the financing transactions between the Company and the collective lenders which resulted in payment of 498,000 shares to the Company's common stock in lieu of a cash. These shares are issuable at the maturity of the note or December 2022. The Company has included this liability in other non-current liabilities.

June 2014 Secured Promissory Note

In June 2014, the Company borrowed $10,000,000 pursuant to a business loan agreement and promissory note ("June 2014 Secured Promissory Note") with Five Star Bank ("Lender") which bears interest at 5.25% as of December 31, 2020. The interest rate is subject to change and is based on the prime rate plus 2.00% per annum. The June 2014 Secured Promissory Note is repayable in monthly payments of $65,404 and adjusted from time-to-time as the interest rate changes, with the final payment due in June 2036. Certain of the Company's deposit accounts and MMM LLC's inventories, chattel paper, accounts, equipment and general intangibles have been pledged as collateral for the promissory note. The Company is required to maintain a deposit balance with the Lender of $1,560,000, which is recorded as restricted cash included in non-current assets. The total amount of finance related cost related to this debt initially was $304,000, currently treated as a debt discount and is being amortized over the life of the loan.

The Company may prepay 20% of the outstanding principal loan balance each year without penalty. A prepayment fee of 10% will be charged if prepayments exceed 20% in the first year, and the prepayment fee will decrease by 1% each year for the first ten years of the loan.

Under this note the Company is required to maintain a current ratio of not less than 1.25-to-1.0, a debt-to-worth ratio of no greater than 4.0-to-1.0 and a loan-to-value ratio of no greater than 70% as determined by Five Star Bank. The Company is also required to comply with certain affirmative and negative covenants under the loan agreement discussed above. In the event of default on the debt, Five Star Bank may declare the entire unpaid principal and interest immediately due and payable. As of December 31, 2020, the Company was not in compliance with all of the required covenants, as such, the Company has obtained a waiver from the lender for the non-compliance through May 31, 2022.

The following table reflects the activity under this note:

Principal balance, net at December 31, 2019	$	8,404
Principal payments		(820)
Interest		503
Debt discount amortization		19
Principal balance, net at December 31, 2020	$	8,106

LSQ Financing

On March 24, 2017, the Company entered into an Invoice Purchase Agreement (the "LSQ Financing") with LSQ Funding Group, L.C. ("LSQ"), pursuant to which LSQ may elect to purchase up to $7,000,000 of eligible customer invoices from the Company. The Company's obligations under the LSQ Financing are secured by a lien on substantially all of the Company's personal property; such lien is first priority with respect to the Company's accounts receivable, inventory, and related property, pursuant to an intercreditor agreement, dated March 22, 2017 (the "Three Party Intercreditor Agreement"), with administrative agents for the October 2012 and April 2013 Secured Promissory Notes holders and the August 2015 Senior Secured Promissory Notes holders.

Advances by LSQ may be made at an advance rate of up to 80% of the face value of the receivables being sold. Upon the sale of the receivable, the Company will not maintain servicing. LSQ may require the Company to repurchase accounts receivable if (i) the payment is disputed by the account debtor, with the purchaser being under no obligation to determine the bona fides of such dispute, (ii) the account debtor has become insolvent or (iii) upon the effective date of the termination of the LSQ Financing. LSQ will retain its security interest in any accounts repurchased from the Company.

On January 7, 2020, the Company entered into a Second Amendment to the Company's Invoice Purchase Agreement with LSQ. The amendment, among other things, (i) increases the amount in which LSQ may elect to purchase up to $20,000,000 of eligible customer invoices from the Company from $7,000,000; (ii) increases the advance rate to 90% from 85% and 70% from 60%, respectively, of the face value of domestic and international receivables being sold; (iii) decreases the invoice purchase fee rate from 0.40% to 0.25%; (iv) increases the funds usage fee from 0.020% to 0.025%; (v) extends the 0% aging and collection fee percentage charged at the time when the purchased invoice is collected from 90 days to 120 days, and increases the fee percentage charged thereafter from 0.35% to 0.75%; and (vi) decreases the early termination fee from 0.75% to 0.50%.

In addition to the Amendment, the Company simultaneously entered into an Amended Inventory Financing Addendum (the "Addendum") with LSQ. The Addendum allows the Company to request an advance up to the lesser of (i) 100% of the Company's unpaid finished goods inventory; (ii) 65% of the appraised value of the Company's inventory performed on or on behalf of LSQ; or (iii) $3,000,000. Funds advance under the Addendum are subject to a monthly inventory management fee of 0.5% on the average monthly inventory funds available and a daily interest rate of 0.025%.

There was $8,966,000 and $3,629,000, respectively, in outstanding balance under the LSQ Financing as of December 31, 2020 and 2019. As of December 31, 2020 and 2019, the Company had $7,254,000 and $5,082,000, respectively included in accounts receivable that were transferred under this arrangement.

September 2018 Research Facility

In September 2018, the Company's subsidiary Pro Farm entered into a research loan facility under the Finnish Government Innovation Funding initiative with the Innovation Centre Business Finland, in the amount of $326,000 (€282,000) and subsequently drew down $94,000 (€80,000) and $232,000 (€158,000), respectively, in September 2018 and November 2020 in connection with research and development costs. The note bears interest at 3% below the reference rate for Finnish Government Aid, with a minimum of 1% interest annually. The current effective interest rate as of December 31, 2020 is 1.00%. The loan facility requires repayment in increments of 25% on each of the anniversary date of the loan after the third anniversary of the loan execution date as such the balance of the loan has been classified as long-term. The terms of the loan facility allow for partial debt forgiveness if so determined by the State Council for the Financing of Research, Development and Innovation at the lender's discretion. As of December 31, 2020, the outstanding principal balance net of imputed interest was $283,000 (€238,000).

September 2018 Bank Facility

In September 2018, the Company's subsidiary Pro Farm entered into a bank facility with Nordea Bank AB, under which the Company may borrow up to $266,000 (€230,000). The note bears interest at the Euribor three-month rates plus 2.4% which as of September 30, 2019 was increased to 2.60%. The bank facility includes a usage commitment fee of 0.95% and required repayment on its maturity date of February 28, 2019. On February 20, 2018, the bank facility was extended until August 31, 2019, and on August 30, 2019, the bank facility was again extended until February 29, 2020, and then to May 31, 2020 with all terms remaining the same. Upon maturity, the bank facility was paid in full.

9. Warrants

On August 6, 2019, the Company entered into a warrant amendment and plan of reorganization agreement ("Warrant Reorganization Agreement") with certain holders of the February 2018 Warrants. Pursuant to the Warrant Reorganization Agreement, the Company agreed to extend the expiration date under the February 2018 Warrants held by such holders from December 2020 to December 2021, and the holders agreed, at any time the Company's stock trades above $1.00 and upon request by the Company, to exercise up to 36,600,000 of their respective February 2018 Warrants, in consideration for the delivery of (x) the shares subject to the February 2018 Warrants so exercised and (y) the delivery of new warrants ("August 2019 Warrants") to purchase such additional number of shares of common stock equal to the amount of shares so exercised and delivered under February 2018 Warrants. Accordingly, up to a maximum of 36,600,000 new shares were issuable pursuant to the August 2019 Warrants. In August and through December 2019, the Company requested under the Warrant Reorganization Agreement, the exercise of 16,000,000 February 2018 Warrants.

In February 2020, the Company requested an additional exercise of 6,000,000 February 2018 Warrants, resulting in the Company issuing an additional 6,000,000 common shares and 6,000,000 August 2019 Warrants ("Exercise 3"). The issuance of the August 2019 Warrants resulted in the Company incurring a non-cash charge of $1,391,000 in connection with the fair value of new warrants.

On April 29, 2020, the Company then entered into a warrant exchange agreement ("Warrant Exchange Agreement") with certain holders of warrants under the August 2015 Senior Secured Promissory Notes, the Securities Purchase Agreement and the Warrant Reorganization Agreement. Pursuant to the Warrant Exchange Agreement, the Company agreed to exchange an aggregate of 45,977,809 warrants ("August 2015 Warrants", "February 2018 Warrants 1 & 2", and all "August 2019 Warrants" collectively, the "Exchanged warrants") for 29,881,855 warrants ("April 2020 Warrants").

The April 2020 Warrants have terms expiring for a total of (i) 3,392,581 Warrant Shares on May 1, 2020, (ii) 2,714,065 Warrant Shares on September 15, 2020, (iii) 13,027,512 Warrant Shares on December 15, 2020, (iv) 5,862,380 Warrant Shares on March 15, 2021, and (v) 4,885,317 Warrant Shares on December 15, 2021. All April 2020 Warrants have an exercise price of $0.75 per share. The April 2020 Warrants are exercisable in cash, provided that they may be exercised via net exercise if the Company does not have a registration statement registering the shares underlying the April 2020 Warrants effective as of March 31, 2021. As of December 31, 2020 all April 2020 Warrants with expiration dates of May, 1, 2020, September 15, 2020 and December 15, 2020 were exercised prior to their expiration date providing the Company with proceeds of $3,392,000, $2,714,000 and $13,027,000, respectively, for an aggregate proceed of $19,133,000.

The Company has accounted for the Warrant Exchange Agreement as a modification under ASC 718. The fair value of the April 2020 Warrants was not greater than the fair values of the Exchanged warrants immediately prior to the modification date and therefore had no impact on the Company's year ended results.

In December 2020, the Company also entered into an amendment (the "Warrant Amendment") to a previously outstanding warrant to purchase 5,333,333 shares of the Company's common stock issued to a historical warrant holder (the "Holder") on February 5, 2018. Pursuant to the Warrant Amendment, in exchange for the Holder's exercise of the warrant on December 29, 2020, with respect to 1,777,778 shares at the warrant's exercise price of $0.96 per share the warrant's expiration date was partially extended and allows the Holder to exercise warrants to purchase (i) 1,777,778 shares at $1.00 per share by March 25, 2021, and (ii) 1,777,777 shares at $1.04 share by December 15, 2021

The Company has accounted for the Warrant Amendment as a modification under ASC 718. The fair value of the February 2018 Warrants was greater than the fair values of the exchanged warrants immediately prior to the modification date and therefore the Company recognized $72,000 of additional expense in connection with the modification for the year ended results.

The following table summarizes information about the Company's common stock warrants activities for the year ended December 31, 2020 and the warrants outstanding as of December 31, 2020 (in thousands, except exercise price data):

DESCRIPTION	ISSUE DATE MM/YY	EXPIRATION DATE MM/YY	EXERCISE PRICE	SHARES SUBJECT TO WARRANTS OUTSTANDING 12/31/2019	YEAR ENDED NUMBER OF WARRANTS EXCHANGED 12/31/2020	YEAR ENDED NUMBER OF WARRNTS EXERCISED 12/31/2020	YEAR ENDED NUMBER OF SHARES OR WARRANTS ISSUED 12/31/2020	YEAR ENDED NUMBER OF WARRANTS MODIFIED 12/31/2020	YEAR ENDED NUMBER OF WARRANTS EXPIRED 12/31/2020	SHARES SUBJECT TO WARRANTS OUTSANDING 12/31/2020
June 2013 Warrants	06/13	06/23 (1)	$ 8.40	27	-	-	-	-	-	27
August 2015 Warrants	08/15	08/23	$ 1.91	4,000	(4,000)	-	-	-	-	-
November 2016 Warrants	11/16	11/26	$ 2.38	125	-	-	-	-	-	125
November 2017 Warrants	06/17	06/27	$ 1.10	80	-	-	-	-	-	80
February 2018 Warrants 1	02/18	12/20	$ 1.00	6,750	(1,378)	(15)	-	(5,333)	(24)	-
February 2018 Warrants 2	02/18	12/20	$ 1.25	5,065	(4,000)	-	-	-	(1,065)	-
August 2019 Warrant	09/19	12/21	$ 1.00	20,600	(14,600)	(6,000)	-	-	-	-
August 2019 Warrant (Call Option)	Various after 08/19	01/23	$ 1.75	16,000	(22,000)	-	6,000	-	-	-
April 2020 Warrants, Tranche 1	04/20	05/20	$ 0.75	-	-	(3,393)	3,393	-	-	-
April 2020 Warrants, Tranche 2	04/20	09/20	$ 0.75	-	-	(2,714)	2,714	-	-	-
April 2020 Warrants, Tranche 3	04/20	12/20	$ 0.75	-	-	(13,027)	13,028	-	(1)	-
April 2020 Warrants, Tranche 4	04/20	03/21	$ 0.75	-	-	-	5,862	-	-	5,862
April 2020 Warrants, Tranche 5	04/20	12/21	$ 0.75	-	-	-	4,885	-	-	4,885
December 2020 Warrants, Tranche 1	12/20	12/20	$ 0.96	-	-	(1,778)	-	1,778	-	-
December 2020 Warrants, Tranche 2	03/21	03/20	$ 1.00	-	-	-	-	1,778	-	1,778
December 2020 Warrants, Tranche 3	12/21	12/21	$ 1.04	-	-	-	-	1,777	-	1,777
				52,647	(45,978)	(26,927)	35,882	-	(1,090)	14,534

(1) The June 2013 Warrants expire upon the earlier to occur of (i) the date listed above; (ii) the acquisition of the Company by another entity by means of any transaction or series of related transactions (including, without limitation, any transfer of more than 50% of the voting power of the Company, reorganization, merger or consolidation, but excluding any merger effected exclusively for the purpose of changing the domicile of the Company); or (iii) a sale of all or substantially all of the assets of the Company unless the Company's stockholders of record as constituted immediately prior to such acquisition or sale will, immediately after such acquisition or sale (by virtue of securities issued as consideration for the Company's acquisition or sale or otherwise), hold at least fifty percent (50%) of the voting power of the surviving or acquiring entity.

The June 2013 Warrants became exercisable on the date of the IPO. The August 2015 and November 2016 were immediately exercisable and remain exercisable subject to certain exceptions. The November 2017 Warrants vested over a period of six months and remain exercisable. The February 2018 Warrants were immediately exercisable and remain exercisable subject to certain exceptions.

The weighted average remaining contractual life and exercise price for warrants outstanding as of December 31, 2020 is 0.64 years and $0.85, respectively. The intrinsic value of the warrants on December 31, 2020 was $6,203,000.

Subsequent to December 31, 2020, prior to the March 15, 2021, expiration date of Tranche 4 of the April 2020 Warrants, 5,862,380 warrant shares were exercised. Additionally, prior to the March 25, 2021, expiration date, 1,777,778 December 2020 warrant shares were exercised.

10. Stock Option Plans

On May 31, 2019, the Company's stockholders approved an Employee Stock Purchase Plan (the "ESPP") whereby employees may purchase Company stock through payroll deductions over each six-month period beginning on June 1 and December 1 (the "Offer Period"). The total maximum number of shares available for purchase under the ESPP is 1,000,000. The purchase price of the shares will be 85% of the lower of the fair market value of the shares at the beginning or at the end of the Offer Period. The ESPP is a tax qualified plan under Section 423 of the Internal Revenue Code. All employees, including officers, are eligible to participate in the ESPP. A participant may withdraw all uninvested payment balances credited to their account at any time. An employee whose stock ownership in the Company exceeds 5% of the Company's outstanding common stock is not eligible to participate in the ESPP. The ESPP is compensatory and the 15% discount will be expensed over the Offer Period. The Company has accounted for the ESPP in accordance with ASC 718, Compensation – Stock Based Compensation. As of December 31, 2020 and 2019, the Company recorded stock-based compensation expense of approximately $74,000 and $34,000, respectively.

In July 2006, the Company authorized the 2006 Equity Incentive Plan, as amended, ("2006 Plan"). The 2006 Plan provided for the issuance of up to 1,434,000 shares of common stock underlying awards. The 2006 Plan was terminated in December 2011 and no new stock awards may be granted under the 2006 Plan.

The 2006 Plan allowed holders to exercise stock options prior to their vesting. The common stock received by the employee is restricted and follows the same vesting schedule as the underlying option. In the event the employee voluntarily or involuntarily terminates employment from the Company, the Company retains a right to repurchase the unvested common stock at the original option exercise price. For each of the periods ended December 31, 2020 and 2019, no options had been exercised that was subject to repurchase.

As of December 31, 2020, options to purchase 23,000 shares of the Company's common stock at a weighted-average exercise price of $1.19 per share were outstanding under the 2006 Plan, of which all were vested. During the year ended December 31, 2020, 49,000 and 25,000 options were exercised and cancelled, respectively, under the 2006 Plan.

In July 2011, and as amended in September 2012, the Company authorized the 2011 Stock Plan ("2011 Plan"). The 2011 Plan provided for the issuance of up to 1,167,000 shares of common stock underlying awards, plus any shares of common stock underlying awards previously issued under the 2006 Plan that terminate or expire after the date of authorization of the 2011 Plan, subject to certain adjustments. In addition, the 2011 Plan provided that the Company not deliver more than 2,446,000 shares upon the exercise of incentive stock options issued under both the 2006 Plan and 2011 Plan. The 2011 Plan was terminated in August 2013 and no new stock awards may be granted under the 2011 Plan.

As of December 31, 2020, options to purchase 281,000 shares of the Company's common stock at a weighted-average exercise price of $7.51 per share were outstanding under the 2011 Plan, of which all were vested. During the year ended December 31, 2020, no options were exercised and cancelled under the 2011 Plan.

In August 2013, the Company's board of directors adopted the 2013 Stock Incentive Plan ("2013 Plan") covering officers, employees, and directors of, and consultants to, the Company. Under the 2013 Plan, the Company may grant incentive stock options, non-qualified stock options, stock appreciation rights, restricted stock, restricted stock units and dividend equivalent rights. At the time the 2013 Plan was established, the maximum aggregate number of shares of the Company's common stock that could be issued pursuant to the 2013 Plan was 1,600,000, plus the number of shares of common stock that were reserved for issuance pursuant to future grants under the 2011 Plan at that time. The number of shares authorized for issuance pursuant to the 2013 Plan automatically increases by any additional shares that would have otherwise returned to the 2011 Plan as a result of the forfeiture, termination or expiration of awards previously granted under the 2011 Plan. In addition, the number of shares authorized for issuance pursuant to the 2013 Plan will increase by a number equal to the lesser of (i) 3.5% of the number of shares of the Company's common stock outstanding on the last day of the immediately preceding fiscal year or (ii) a lesser number of shares determined by the administrator.

As of December 31, 2020, options to purchase 13,076,000 shares of the Company's common stock at a weighted-average exercise price of $2.21 per share were outstanding under the 2013 Plan, of which 6,547,000 were vested. During the year ended December 31, 2020, 51,000 and 967,000 options were exercised and cancelled, respectively, under the 2013 Plan.

Generally, options vest 25% on the first anniversary from the date of grant and 1/48 per month thereafter ("Standard Vesting Terms"); however, options may be granted with different vesting terms as determined by the Company's board of directors. During the year ended December 31, 2020, the Company granted 425,000 options with Standard Vesting Terms.

The following table summarizes the activity under the Company's stock option plans for the year ended December 31, 2020 (in thousands, except exercise price and remaining contractual life data):

	SHARES OUTSTANDING	WEIGHTED-AVERAGE EXERCISE PRICE	WEIGHTED-AVERAGE REMAINING CONTRACTUAL LIFE (IN YEARS)	AGGREGATE INTRINSIC VALUE
Balances at December 31, 2019	11,821	$ 2.53	8.2	$ 65
Options granted	2,650	$ 1.16		
Options exercised	(100)	$ 1.07		
Options cancelled	(991)	$ 1.32		
Balances at December 31, 2020	13,380	$ 2.32	7.7	$ 418
Vested and expected to vest at December 31, 2020	11,823	$ 2.44	6.6	$ 357
Exercisable at December 31, 2020	6,851	$ 3.23	6.6	$ 160

The total intrinsic value of options exercised during the years ended December 31, 2020 and 2019 was $13,000 in each period.

The estimated fair value of options vested during the years ended December 31, 2020 and 2019 was $357,000 and $65,000, respectively. The weighted-average estimated fair value of options granted during the years ended December 31, 2020 and 2019 was $0.38 per share and $1.43 per share, respectively.

In August 2020, Kevin Helash joined the Company as Chief Executive Officer ("CEO") and as a member of the Company's Board of Directors. In connection with his appointment,

Mr. Helash has been granted options to purchase 2,450,000 shares of the Company's common stock, under the Company's 2013 Stock Incentive Plan. The Option is structured as follows:

- *Time-Based Tranche*. 225,000 shares of the Option are subject to time-based vesting over a period of four years. Twenty-five percent of the Time-Based Tranche will vest on the first anniversary of the Vesting Commencement Date, and the remaining 75 percent of the shares under the Time-Based Tranche will vest over the next following 3 years on a pro-rata basis equally each month.

- *Enhanced Time-Based Tranche*. 225,000 shares of the Option are subject to time-based vesting over a period of four years as measured from the Vesting Commencement Date, on a pro-rata basis equally each month, subject to acceleration on the date on which the Company files its Annual Report on Form 10-K for the fiscal year ending December 31, 2020, if within such report, the Company reports the achievement of certain revenue, margin and expense performance targets for its 2020 fiscal year, each of which are within 10% of the Company's internal targets for the year with respect to the various target elements.

- *Performance Tranche*. 2,000,000 shares of the Option are subject to performance-based vesting, but only if the performance criteria are satisfied by a specific performance deadline. Vesting of the Performance Tranche is contingent on the attainment of a certain closing price for the Company's stock, as quoted on the Nasdaq Stock Market, for 30 consecutive trading days, by that date which is 30 days following the reporting of financial results for the Company's second quarter of its fiscal year ending December 31, 2022 (the "Performance Deadline"). If the performance criteria are satisfied on or before the Performance Deadline, the Performance Tranche will vest on the date that the performance criteria are satisfied. If Mr. Helash terminates employment prior to the date on which the performance criteria are satisfied, or the performance criteria are not satisfied on or before the Performance Deadline, then all of the shares under the Performance Tranche will permanently and irrevocably forfeit at the earlier of the Performance Deadline or his termination date.

All dates on which vesting is to occur are conditioned upon Mr. Helash's continued employment with the Company as of that date. Any portion of the Option shares that are not forfeited as of the Performance Deadline shall continue to vest for so long as Mr. Helash provides "Continuous Service" to the Company or a "Related Entity," as those terms are defined in the Plan. Mr. Helash's options to purchase common stock was granted at an exercise price of $1.16 and with a fair value of $899,000. The Company's fair value of these grants was estimated utilizing either a Black Scholes or Monte Carlo option pricing model based on the following range of assumptions which have determined consistent with the Company's historical methodology for such assumptions:

	AUGUST 3, 2020
Expected life (years)	2.14-6.08
Estimated volatility factor	58.8%
Risk-free interest rate	0.28%
Expected dividend yield	—

Expected Life. Expected life represents the period that share-based payment awards are expected to be outstanding. The Company uses the "simplified method" in accordance with Staff Accounting Bulletin ("SAB") No. 107, *Share-Based Payment* ("SAB No. 107"), and SAB No. 110, *Simplified Method for Plain Vanilla Share Options* ("SAB No. 110"), to calculate the expected term of stock options determined to be "plain vanilla." Under this approach, the expected term is presumed to be the midpoint between the vesting date and the contractual end of the stock option grant. For stock options granted with an exercise price not equal to the determined fair value, the Company estimates the expected life based on historical data and management's expectations about exercises and post-vesting termination behavior. The Company will use the simplified method until it has sufficient historical data necessary to provide a reasonable estimate of expected life in accordance with SAB No. 107 and SAB No. 110.

Estimated Volatility Factor. As the Company's common stock has limited period of normalized trading history, the Company calculated the estimated volatility factor based on the Company's trading history adjusted for certain periods of the Company's trading history, not indicative of normal trading.

Risk-Free Interest Rate. The Company calculates the risk-free interest rate based on the implied yield currently available on U.S. Treasury constant-maturity securities with the same or substantially equivalent remaining term as the expected life of the stock options.

Expected Dividend Yield. The Company has not declared dividends, nor does it expect to in the foreseeable future. Therefore, a zero value was assumed for the expected dividend yield.

In September 2020, James Boyd announced his intention to retire from his position as the Company's Chief Financial Officer ("CFO") and President of the Company. In connection with his retirement, Mr. Boyd entered into an employment separation agreement with the Company (the "Separation Agreement"). The Separation Agreement provides among other terms that all of his outstanding stock options will become fully vested, and all stock options will remain exercisable until the earlier of (x) the one-year anniversary of the date Mr. Boyd ceases providing consulting services pursuant to his consulting services agreement between Mr. Boyd and the Company on September 21, 2020 (the "Consulting Agreement"), and (y) the last day of the option's full term. As a result the Company treated the accelerated vesting terms for the options as a modification under Accounting Standards Codification ("ASC") 718 – *Compensation – Stock Compensation*, which requires the Company to assess the fair value of the instrument pre- and post-modification and recognize any incremental expense on the modification date dependent on the Company's assessment of the initial probability of the option award vesting under the pre-modification terms. The Company recognized an incremental stock-based compensation expense of $138,000 as of December 31, 2020. The remaining expense to be recognized in future periods is $22,000.

During the years ended December 31, 2020 and 2019, the Company recorded share-based compensation expense related to stock options of $2,299,000 and $1,742,000, respectively. During the years ended December 31, 2020 and 2019, the Company did not realize any tax benefit associated with its share-based compensation expense as certain of the option grants were incentive stock options for which share-based compensation expense is not deductible and as a result of the full valuation allowance on the Company's deferred tax assets (see Note 11 to the consolidated financial statements).

Restricted Stock

During the year ended December 31, 2020, the Company granted restricted stock units under the 2013 Plan. The vesting periods for the restricted stock are subject to board approval and during the year ended December 31, 2020 varied from immediate to 36 months. One share of common stock is issuable for each vested restricted stock unit upon the earlier of the grantee's separation of service or a change in control in the case of non-employee directors, or in the case of employees the board can decide to provide for the immediate issuance of common stock once vesting has occurred. As of December 31, 2020, there were 4,588,000 restricted stock units outstanding under the 2013 Plan. The following table reflects the activity of restricted stock units for the year ended December 31, 2020 (in thousands, except weighted average grant date fair value):

	SHARES OUTSTANDING	WEIGHTED AVERAGE GRANT DATE FAIR VALUE

Outstanding at December 31, 2019	2,405	$ 1.40
Granted	2,865	0.97
Exercised	(657)	1.40
Forfeited	(25)	1.37
Outstanding at December 31, 2020	4,588	$ 1.14

The following table summarizes the activity of non-vested restricted stock units for the year ended December 31, 2020 (in thousands, except weighted average grant date fair value):

	SHARES OUTSTANDING	WEIGHTED AVERAGE GRANT DATE FAIR VALUE
Nonvested at December 31, 2019	711	$ 1.45
Granted	2,865	0.96
Vested	(2,114)	1.00
Forfeited	(25)	1.37
Nonvested at December 31, 2020	1,437	$ 1.16

The fair value of restricted stock units is determined based on the closing bid price of the Company's common stock on the date of grant. During the years ended December 31, 2020 and 2019, the Company recognized $1,222,000 and $1,597,00, respectively, of share-based compensation expense related to restricted stock units. Total share-based compensation expense related to restricted stock units not yet recognized as of December 31, 2020 was $1,383,000, which is expected to be recognized over a weighted average period of 1.27 years.

In May 2020, the Company granted to certain executives restricted stock units in lieu of ten percent of their annual base salaries for the fiscal year ending December 31, 2020. The total number of restricted stock units granted to these executives was 225,000 at an exercise price of $0.71.

In May 2020 the Company also the granted restricted stock units to certain executives and employees in lieu of cash bonuses for performance related to the fiscal year ended December 31, 2019. The total number of restricted stock units granted to these employees was 890,000 at an exercise price of $0.71. This grant resulted in the reclassification of the total fair value of $632,000 between Accrued liabilities and Additional paid in capital in the Company's consolidated balance sheet.

In August 2020, in connection with the Company's separation and consulting arrangement with its former chief executive officer, the Company granted 1,250,000 restricted stock units to Dr. Pamela Marrone at a grant date market value of $1.16. The restricted stock units will vest at each of the three future anniversary dates of the consulting arrangement.

The following table summarizes shares available for grant under the Company's current stock incentive plans for the year ended December 31, 2020 (in thousands):

	SHARES AVAILABLE FOR GRANT
Balances at December 31, 2019	4,051
Shares authorized	4,883
Options granted	(2,650)
Options cancelled	966
Restricted stock units granted	(2,865)
Restricted stock units cancelled	25
Balances at December 31, 2020	4,410

11. Income Taxes

Consolidated (loss) before income taxes for the United States ("U.S.") and foreign operations consisted of the following (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019
Domestic	$ (19,774)	(36,692)
Foreign	(365)	(483)
(Loss) before income taxes	$ (20,139)	$ (37,175)

The income tax provision attributable to the income before income taxes is as follows (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019
CURRENT:		
Foreign	$ 35	-
Total Current:	35	-
DEFERRED:		
Foreign	(6)	-
Total Deferred:	(6)	-
Provision for income taxes	$ 29	-

The reconciliation of the U.S. federal statutory tax rate to the actual tax rate is as follows:

	DECEMBER 31, 2020	DECEMBER 31, 2019
U.S. Federal tax benefit at statutory rate	21%	21%

State tax benefit	8	4
Deferred tax asset true up	(3)	9
Expiring tax attributes	(240)	-
Share-based compensation expense	(2)	(1)
Other	(1)	-
Financing cost, warrants	(1)	(4)
PPP Loan Forgiveness	2	-
Adjustment due to change in valuation allowance	216	(29)
Provision for income taxes	0%	0%

Accounting standards require recognition of a future tax benefit to the extent that realization of such benefit is more likely than not; otherwise, a valuation allowance is applied. During the years ended December 31, 2020 and 2019, the aggregate valuation allowance for deferred tax assets decreased by $44,314,000 and increased by $7,201,000, respectively. The decrease for the year ended December 31, 2020 was driven primarily by a change in ownership as defined under Internal Revenue Code ("IRC") Section 382 (the "382 Change") resulting in a loss of tax attributes offset by the realizability of U.S. and certain foreign loss carryforwards and other U.S. and certain foreign deferred tax assets. The increase for the year ended December 31, 2019 was driven primarily by the realizability of U.S. and certain foreign loss carryforwards and other U.S. and certain foreign deferred tax assets.

The Company recorded tax shortfalls resulting from the exercise of nonqualified stock options and the value of vested restricted stock of $315,000 and $19,000 for the years ended December 31, 2020 and 2019, respectively, where amounts reported for such items as compensation costs under accounting standards related to stock-based compensation were less than the tax deduction.

The tax effects of significant temporary differences representing net deferred tax assets and liabilities consisted of the following (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019
DEFERRED TAX ASSETS:		
Federal & State NOL carryforward	$ 31,911	$ 74,109
Research and development tax credits	2,762	4,223
Other, net	4,835	5,745
Deferred tax assets	39,508	84,077
Less valuation allowance	(33,873)	(78,187)
Net deferred tax assets	$ 5,635	$ 5,890
DEFERRED TAX LIABILITIES:		
Other Intangibles	(5,615)	(5,890)
Net deferred tax assets	$ 20	-

As of December 31, 2020 and 2019, the Company had a federal net operating loss carryforward ("NOL") of $104,180,000 and $263,675,000, respectively. Federal and state NOL carryforwards were reduced during the current year due to the 382 Change, as a result of the completion of the Company's Section 382 study in connection with the Company's February 5, 2018 financing transactions. The amount of the federal and state NOL reductions were $176,433,000 and $119,131,000, respectively. The federal net operating loss not subject to expiration at December 31, 2020 and 2019 was $65,140,000 and $50,896,000, respectively, which is subject to a limitation of 80% of taxable income. The federal net operating loss at December 31, 2020 of $39,040,000 generated prior to 2018, will begin to expire in 2036.

As of December 31, 2020 and 2019, the Company had a federal research and development ("R&D") tax credit carryforward of $607,000 and $2,759,000, respectively. The December 31, 2020 federal R&D tax credit carryforward was also reduced by $2,317,000 due to the 382 Change and will begin to expire in 2038. The December 31, 2020 and 2019 California R&D tax credit carryforward of $3,075,000 and $2,871,000, respectively, have no expiration date and were unaffected by the 382 Change.

The Company records valuation allowances on U.S. and certain foreign deferred tax assets. In assessing the need for a valuation allowance, the Company considers whether it is more likely than not that the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon generation of future taxable income. In the assessment of a valuation allowance, appropriate consideration is given to all positive and negative evidence including recent operating profitability, forecast of future earnings, ability to carryback, the reversal of net taxable temporary differences, the duration of statutory carryforward periods and tax planning strategies.

On September 13, 2019, as discussed in Note 12 to the consolidated financial statements, the Company completed its acquisition of Pro Farm. This was accounted for as a non-taxable acquisition. For purposes of the Company's income tax provision, the acquisition required the Company to consider income tax changes under the Tax Cuts and Jobs Act it was not previously subject to, including Global Intangible Low-Taxed Income ("GILTI") and Subpart F. Due to the timing of the acquisition's consummation, the impact of these amounts on the Company's income tax provision and consolidated financial statements as of December 31, 2020 were not material. The Company has elected to treat GILTI as a period cost and accordingly has not recorded any deferred assets or liabilities related to the calculation of future GILTI income. The most significant impact to the Company's tax provision as a result of the Pro Farm acquisition was the recognition of intangible assets which impacted the Company's temporary differences for depreciation and amortization. Refer to the table above for the inclusion of the foreign entity on the Company's overall federal income tax rate and deferred tax liabilities.

On September 10, 2019, as discussed in Note 12 to the consolidated financial statement, the Company completed its acquisition of the Jet-Ag and Jet-Oxide product lines. These were treated as asset acquisitions. For purposes of the Company's income tax, the acquisition resulted in the recognition of intangible assets which impacted the Company's temporary differences for depreciation and amortization which did not have a material impact on the Company's provision and consolidated financial statements as of December 31, 2019.

On January 1, 2019, the Company adopted ASC 842 and all the related amendments. For purposes of the Company's income tax, the adoption did not have a material impact on the consolidated financial statements as of December 31, 2019.

As of December 31, 2020 and 2019, the Company had unrecognized tax benefits of $946,000 and $1,431,000, respectively. The unrecognized tax benefits of $22,000 and $0, respectively, if recognized, would impact the Company's effective tax rate for December 31, 2020 and 2019. The remaining unrecognized tax benefits would not impact the effective tax rate as tax benefits would be offset by changes in the Company's valuation allowance. The Company does not believe there will be any material changes in its unrecognized tax position during the next twelve months.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	DECEMBER 31, 2020	DECEMBER 31, 2019

Balance at January 1	$	1,431	$	1,348
Gross increase to tax positions in prior years		40		14
Gross decrease to tax positions in prior years		(617)		-
Gross increase to tax positions in current years		92		69
Balance at December 31	$	946	$	1,431

The Company files income tax returns in the U.S. federal and foreign jurisdiction and various state jurisdictions. The Company is subject to U.S. federal and state income tax examination for 2006 through 2020 due to unutilized net operating loss carryforwards. The Company is subject to state income tax examination for the same periods due to an unutilized research and development tax credit carryforward. The Company's foreign locations in Finland is subject to income tax examination for 2017 through 2020.

12. Acquisitions

Jet-Ag and Jet-Oxide

On September 10, 2019, the Company completed the purchase of substantially all rights and assets related to the Jet-Ag and Jet-Oxide product lines from Austin Grant, Inc., a Florida corporation d/b/a Jet Harvest Solutions, for approximately $2,534,000 in cash, of which $544,200 was paid upon closing and the remainder is to be paid in four installments over an 16-month window (the "Jet-Ag Acquisition"). The Jet-Ag Acquisition is accounted for as an asset acquisition consistent with ASC 2017-01, which requires that substantially all of the fair value of the gross assets acquired is concentrated in a single asset or a group of similar assets. The asset purchase agreement also contains a provision providing five yearly earn out payments from 2020 through 2024 based on the Company's total future sales of Jet-Ag and Jet-Oxide purchased through a specified supplier. The fair value of the contingent consideration was estimated at $190,000 on the close date of the transaction, which the Company has included in its total cost to be allocated to the acquired assets. The Company intends to assess its contingent consideration estimate periodically upon the settlement of the revenue contingency at each reporting period. Acquisition costs of $168,000 were also included in the total consideration for the Jet-Ag Acquisition to be allocated among the acquired assets. The allocation of the total consideration was based on each of the acquired asset's relative fair values as follows (in thousands):

		INITIAL ALLOCATION OF COST OF ASSET ACQUISITION
Cash paid, inclusive of future payments	$	2,534
Fair value of contingent consideration		190
Other cost to acquire assets		168
Total acquisition related consideration	$	2,892
Intangible assets acquired:		
Customer relationships	$	2,333
Tradename		466
Non-compete		93
Total assets acquired	$	2,892

The fair value of the acquired customer list, trade name, non-compete were estimated using either an excess earning method, relief-from-royalty or with and without the asset being in place, based on management's forecasted cash inflows and outflows. Each of the intangible assets are being amortized within the expense reflected in "Selling, general and administrative" expenses in the consolidated statement of operations.

During December 31, 2020, the Company refined its contingent consideration estimate for the remaining period covered in the agreement which lead to a decrease in the overall contingent consideration liability by $118,000 and therefore decreased the acquired intangible assets on a relative basis by approximately $89,000, $18,000 and $3,000 to customer relationships, tradename, and non-compete, respectively. During December 31, 2020 the total amount of payments made in connection with the asset acquisition was $1,240,000.

Pro Farm Technologies OY

On September 13, 2019, the Company completed its acquisition of 100% of the outstanding shares of Pro Farm Technologies OY, a Finnish limited company ("Pro Farm") for consideration of approximately $27,543,000 (the "Pro Farm Acquisition"), net of cash acquired. Total consideration consisted of cash payments of $2,843,000 to beneficial owners and $3,178,000 in debt repayments made on behalf of Pro Farm, issuance of a total of 12,666,000 of the Company's common stock, at the closing market price of $1.59, for an aggregate fair value of $20,299,000, inclusive of 100,000 restricted stock units at a fair value of $159,000 awarded to a key employee and the fair value of up to $7,466,000 of contingent consideration subject to the achievement of certain distributor, revenue, earnings before interest, taxes, depreciation and amortization, and debt and equity milestones from the date of the closing through December 31, 2024, fair valued at $1,395,000. The contingent consideration will be determined at the end of each reporting period and settled through the issuance of the Company's common shares. The Pro Farm acquisition meets the definition of a business in accordance with ASC 805. The goodwill recorded as a result of the acquisition represents the strategic benefits of growing the Company's future revenues and product portfolio and the expected revenue growth from increased market penetration. The goodwill is not deductible for income tax purposes.

As of September 13, 2020, the Company has finalized its purchase accounting. The final fair values of the assets acquired, and liabilities assumed are as follows (in thousands):

		FINAL ALLOCATION
Accounts receivable	$	583
Inventory		523
Other current assets		211
Investments in subsidiary		537
Intangible assets:		
Developed technology		16,362
Tradename		2,659
In process research and development		2,713
Goodwill		6,740
Total assets acquired		30,328
Accounts payable		408
Accrued liabilities		779

Debt	1,612
Minority interest	(14)
Net assets acquired	$ 27,543
Cash paid, net of cash acquired	5,849
Fair Value of stock consideration	20,299
Fair value of contingent consideration	1,395
Total purchase price	$ 27,543

Tangible assets and liabilities acquired were recorded at their preliminary fair values on the date of close based on management's preliminary assessment. Included in the tangible assets acquired is an investment a 12% interest in a Russian manufacturing plant and which been accounted for under Accounting Standard Codification *325 – Investments Other, Cost Method Investments.* For the year ended December 31, 2020, the Company did not evaluate the investment for impairment. The purchase price allocated to developed technology, in process technology and trade name were estimated using either an excess earning method or relief-from-royalty to calculate the fair value of the assets purchased, based on management's forecasted cash inflows and outflows. All intangible assets are being amortized with the expense reflected in "Selling, general and administrative" expenses in the consolidated statement of operations.

As of December 31, 2020, the fair value of the contingent consideration is $2,182,000. The preliminary estimate of the fair value of the amount earned as o December 31, 2020 is $698,000, and reflected in Accrued Liabilities. The Company is required to submit the calculation of the fair value of the earnec contingent consideration on or before March 31, 2021.

Acquisition costs are recorded in "Selling, general and administrative" expenses as incurred. As of December 31, 2019 the Company has incurred expenses of $3,084,000 in connection with the Pro Farm Acquisition. The Pro Farm Acquisition was financed partially through the warrant holders' purchase of 10,000,000 shares of the Company's common stock in connection with the Company's exercise of its warrant call option under the Warrant Reorganization Agreement (Refer to Note 9 to the consolidated financial statements).

The consolidated statement of operations include $1,433,000 of product revenues and $1,520,000 of operating expenses from Pro Farm for the period from September 14, 2019 through December 31, 2019. The Company's consolidated results as of December 31, 2019 include amounts related to a 1% non-controlling interest in Pro Farm's Brazilian subsidiary, deemed to be immaterial to the consolidated financial statements. The following unaudited pro forma results of operations assume the Pro Farm acquisition had occurred on January 1, 2019 (in thousands):

	PRO FORMA FOR THE YEAR ENDED DECEMBER 31, 2019
Product revenues	$ 30,362
Cost of product revenues	13,630
Gross profit	16,732
Operating expenses	43,956
Loss from operations	$ (27,224)
Basic and Diluted net loss per common share	$ (0.30)

Significant pro forma adjustments incorporated into the pro forma results above include elimination of nonrecurring acquisition-related costs incurred prior to the close of the Pro Farm Acquisition, amortization of acquired intangible assets. These pro forma results are based on estimates and assumptions, which the Company believes are reasonable. They are prepared for comparative purposes only and do not necessarily reflect the results that would have been realized had the Pro Farm Acquisition occurred at the beginning of the periods ended December 31, 2019 and are not necessarily indicative of the Company's consolidated results of operations in future periods.

13. Common Stock

In August 2013, the Company amended and restated its certificate of incorporation to increase the number of shares of common stock authorized for issuance to 250,000,000 shares with a par value of $0.00001.

As of December 31, 2020, the Company had reserved shares of common stock for future issuances as follows (in thousands):

	SHARES
Shares available for future grant under stock incentive plans	4,410
Stock options outstanding	13,380
Restricted stock units outstanding	4,588
Warrants to purchase common stock	14,534
Common shares to be issued in lieu of agent fees	498
Shares available for future purchase under ESPP	618
Maximum contingent consideration shares to be issued	5,972
Contingent shares to be issued in connection with consulting service of prior CFO.	200
Balance at December 31, 2020	44,200

14. Employee Benefit Plan

The Company offers a defined contribution plan to all eligible employees, which is qualified under Section 401(k) of the IRC. The Company currently provides a matching contribution based on a formula which provides for a dollar-for-dollar matching contribution of the employee's 401(k) contribution up to 3% of eligible pay plus a 50% matching contribution on the employee's 401(k) contribution between 3% and 5% of eligible pay. Each participant is 100% vested in elective contributions and the Company's matching contribution. The Company provided 401(k) matching contributions during the years ended December 31, 2020 and 2019 of $315,000 and $364,000, respectively.

15. Commitments and Contingencies

Chief Financial Officer Retirement

On September 21, 2020, James Boyd announced his intention to retire as the CFO and President and an employee of the Company. In connection with his retirement, Mr. Boyd entered into the Separation Agreement, which provides that Mr. Boyd's retirement as an employee and officer of the Company will become effective immediately prior to the date on which a new CFO is retained. In addition to being entitled to any unpaid salary through his retirement date and continued COBRA coverage, in consideration of his execution of certain releases, Mr. Boyd will be entitled under the Separation Agreement to (i) salary continuation (payable at the annual rate of $330,000) for twelve months, (ii) a prorated portion of his 2020 annual bonus, paid in cash (or the full 2020 annual bonus and a prorated portion of the 2021 annual bonus if he remains employed through January 1, 2021), calculated based on achievement of individual goals that are to be agreed to by Mr. Boyd and the Company's chief executive officer, and with all other terms determined in accordance with the Company's annual bonus plan as applied to other active senior executives of the Company, and (iii) all of his outstanding unvested stock options will become fully vested.

In connection and in conjunction with Mr. Boyd's retirement, he also entered into the Consulting Agreement, pursuant to which Mr. Boyd will serve as a consultant to the Company for a period of one year following the date of his retirement unless terminated earlier as discussed below or extended by mutual agreement of the Company and Mr. Boyd, to help the Company create and develop an entity dedicated to the eradication of invasive species with the terms of such services and related deliverables detailed in the Consulting Agreement. As consideration for his service as a consultant, Mr. Boyd will receive a one-time award of 200,000 RSUs as soon as practicable after his retirement date, which will vest in equal installments over twelve months, subject to his continuous service as a consultant through the applicable vesting dates. Under the terms of the Consulting Agreement, the Company may terminate Mr. Boyd's service as a consultant by giving five (5) days prior written notice, in which case any unvested RSUs granted under the Consulting Agreement will vest immediately. The Company may also terminate the Consulting Agreement upon Mr. Boyd's breach or default or for certain other grounds, in which case Mr. Boyd's unvested RSUs will be forfeited.

16. Related Party Transactions

August 2015 Senior Secured Promissory Notes

On August 20, 2015, the Company entered into a purchase agreement with Ivy Science & Technology Fund, Waddell & Reed Advisors Science & Technology Fund and Ivy Funds VIP Science and Technology, each an affiliate of Waddell & Reed, which is a beneficial owner of more than 5% of the Company's common stock. Pursuant to the purchase agreement, the Company sold to such affiliates senior secured promissory notes ("August 2015 Senior Secured Promissory Notes") in the aggregate principal amount of $40,000,000. Until February 5, 2018, the August 2015 Senior Secured Promissory Notes bear interest at a rate of 8% per annum payable semi-annually on June 30 or December 31 of each year, commencing on December 31, 2015, with $10,000,000 payable three years from the closing, $10,000,000 payable four years from the closing and $20,000,000 payable five years from the closing. In connection with the note, the Company incurred $302,000 in financing-related costs. These costs were recorded as deferred financing costs to be amortized to interest expense over the term of the note.

In connection with the August 2015 Senior Secured Promissory Notes, the Company also issued warrants ("August 2015 Warrants") to purchase 4,000,000 shares of common stock of the Company. The August 2015 Warrants are immediately exercisable at an exercise price of $1.91 per share and may be exercised at a holder's option at any time on or before August 20, 2023 (subject to certain exceptions). The fair value of the August 2015 Warrants at the date of issuance of $4,610,000 was recorded as a discount to the August 2015 Senior Secured Promissory Notes to be amortized to interest expense over the term of the note.

The August 2015 Senior Secured Promissory Notes are secured by substantially all the Company's personal property assets. The agent, acting on behalf of the lenders, shall be entitled to have a first priority lien on the Company's intellectual property assets, pursuant to intercreditor arrangements with certain of the Company's existing lenders.

The August 2015 Senior Secured Promissory Notes provide for various events of default, including, among others, default in payment of principal or interest, breach of any representation or warranty by the Company or any subsidiary under any agreement or document delivered in connection with the notes, a continued breach of any other condition or obligation under any loan document, certain bankruptcy, liquidation, reorganization or change of control events, the acquisition by any person or persons acting as group, other than the lenders, of beneficial ownership of 40% or more of the outstanding voting stock of the Company. Upon an event of default, the entire principal and interest may be declared immediately due and payable. As of December 31, 2020, the Company was in compliance with its covenants under the August 2015 Senior Secured Promissory Notes.

On February 5, 2018, pursuant to an amendment, the Company converted $35,000,000 of the then outstanding debt into 20,000,000 shares of common stock and warrants to purchase 4,000,000 shares of common stock (the "Waddell Debt Conversion"). After the conversion the remaining principal outstanding was reduced to $5,000,000, the maturity of the August 2015 Senior Secured Promissory Notes was extended to December 31, 2022, and payment of all future interest was deferred to the maturity of the notes.

In conjunction with the Waddell Debt Conversion, the Company accounted for the partial debt extinguishment under the troubled debt restructuring accounting guidance which resulted in the Company recording a gain and required all future interest to be recognized as part of the outstanding debt. As a result, the amount of the debt on the Company's balance sheet related to the August 2015 Senior Secured Promissory Notes is $7,300,000, as compared to $5,000,000 of contractual principal amount outstanding thereunder and the Company will not recognize future interest expense on the August 2015 Senior Secured Promissory Notes.

Warrant Exchange

Ospraie, Ivy Science & Technology Fund ("IS&T"), Ivy VIP Science & Technology ("Ivy VIP" and, together with IS&T, the "Waddell Investors", and Ardsley, are beneficial owners of more than 5% of the Company's common stock, holding 40.4%, 16.5%, and 10.3%, respectively, of the Company's total outstanding common stock as of December 31, 2020. In April 2020, in connection with the Company's execution of the Warrant Exchange Agreement (Refer to Note 9 of the consolidated financial statements) various warrants held by Ospraie, the Waddell Investors, and Ardsley aggregating a total of 30,666,667, 8,000,000, and 5,222,333 shares, respectively, were exchanged for a total of 21,736,081, 3,397,157, and 3,780,185, April 2020 Warrants, respectively.

Warrant Exercises

Ospraie, Ivy Science & Technology Fund ("IS&T"), Ivy VIP Science & Technology ("Ivy VIP" and, together with IS&T, the "Waddell Investors", and Ardsley, are beneficial owners of the Company's securities, holding 40.4%, 16.5%, and 10.3%, respectively, of the Company's total outstanding common stock as of December 31, 2020.

In March 2020, pursuant to the terms of the February 2018 Warrants, the Company's utilization of its call option under the Warrant Reorganization Agreement to exercise 6,000,000 warrants. As a result of this transaction, the Company issued 6,000,000 common shares and 6,000,000 August 2019 Warrants. The total number of warrants exercised at the request of the Company by Ospraie and Ardsley represented 5,027,325 and 874,314, shares of common stock, respectively. The August 2019 Warrants issued as a result of this transaction were subsequently forfeited in connection with the Warrant Exchange Agreement (Refer to Warrant Exchange above and Note 9 of the consolidated financial statements).

In May, September, December 2020 and March 2021, pursuant to the terms of the April 2020 Warrants, 3,392,581, 2,714,065, 13,026,818, and 5,865,382 respectively, April 2020 Warrants were exercised (See Note 7). As a result of these transactions, the Company issued common shares of 18,182,499, 3,162,171, and 2,841,763, to Ospraie, the Waddell Investors, and Ardsley, respectively.

During the year ended December 31, 2019, the Company requested under the Warrant Reorganization Agreement, the exercise of 16,000,000 shares underlying the February 2018

Warrants, resulting in the Company issuing 16,000,000 common shares and August 2019 Warrants for 16,000,000 shares. The total number of warrants exercised at the request of the Company by Ospraie and Ardsley were 13,406,184 shares and 2,331,521 shares, respectively for this warrant exercise transaction.

Ospraie Loan to Pro Farm

In connection with the Company's closing of the Pro Farm Acquisition in September 2019, the terms of the Share Purchase Agreement included as a condition to closing the repayment of certain indebtedness of Pro Farm. One of the indebtedness obligations to be repaid was a convertible loan in a principal amount of $1,000,000, held by Dwight Anderson, an affiliate of Ospraie, the Company's largest shareholder. The Company paid in total $1,434,000 which is inclusive of the principal, interest and other charges under the terms of the debt arrangement.

17. Other Matters

Paycheck Protection Program

In April 2020, the Company entered into an unsecured note (the "Note") in the amount of $1,723,000 under the PPP. The Company has accounted for the transaction when it is considered that there is reasonable assurance that the grant amounts will be received and all necessary qualifying conditions, as stated in the loan agreement, are met, consistent with International Accounting Standards ("IAS") 20, *Accounting for Government Grants*. In November 2020, the Company received correspondence from the lender of the PPP that the Company's PPP loan amount had been forgiven by the Small Business Administration.

For the year ended December 31, 2020, the Company recognized as reduction to the expense categories specified under the PPP $702,000 and $695,000, respectively, in research, development patents and Selling, general and administrative, in the consolidated statement of operations. The remaining amount of total PPP funds received of $326,000 was allocated to the related PPP-specified expenses associated with the Company's manufacturing operations and was originally capitalized into inventory, but as of December 31, 2020, the full amount was amortized from inventory, offsetting cost of product revenues in the consolidated statement of operations based on the Company's normal recognition policy for similar items.

18. Subsequent Events

Chief Financial Officer Replacement

On January 28, 2021, the Company announced the appointment of Suping (Sue) Liu Cheung, Ph.D., CPA, as CFO, which took effect upon her commencement of employment, on February 18, 2021. In connection with her appointment as the Company's CFO, Ms. Cheung will receive an annual base salary of $275,000, and a target annual award opportunity under the Company's discretionary bonus plan of up to 40% of her annual base salary, unless adjusted by the Board for any year. Ms. Cheung will also receive a $50,000 signing bonus in April 2021, and certain relocation expenses.

Pursuant to her offer letter, subject to approval of the Board or Compensation Committee of the Board, Ms. Cheung will be granted an option to purchase 400,000 shares of the Company's common stock under the Company's 2013 Stock Incentive Plan. The Option will be subject to time-based vesting over a period of four years as measured from Ms. Cheung's first date of employment (the "Vesting Commencement Date"). Twenty-five percent of the option will vest on the first anniversary of the Vesting Commencement Date, and the remaining 75 percent of the shares will vest over the next following 3 years on a pro-rata basis equally each month, for so long as Ms. Cheung provides services to the Company.

The Company also entered into a change in control agreement with Ms. Cheung (the "CIC Agreement"), which provides Ms. Cheung with the right to receive certain benefits if, in connection with a Change in Control (as defined in the CIC Agreement), Ms. Cheung terminates her employment with the Company for good reason or the Company terminates her employment without cause. The CIC Agreement provides that in such an event: (i) Ms. Cheung will receive a single lump sum severance payment equal to twelve months of her annual salary; (ii) all outstanding and unvested equity compensation awards held by Ms. Cheung will vest; (iii) Ms. Cheung will receive a lump sum bonus payment in an amount equal to 20% of her then-current base salary, prorated based on the percentage of the current year completed prior to termination; and (iv) the Company will pay for health continuation coverage premiums for the executive and her family members for twelve months following the date of termination. The benefits provided for in the CIC Agreement are subject to Ms. Cheung's delivery of a release of claims reasonably acceptable to the Company. Under the CIC Agreement, Ms. Cheung is also subject to non-solicitation and non-disparagement obligations during employment with the Company and for one year following termination.

Shelf Registration

On February 8, 2021, the Company filed a shelf registration statement on Form S-3 with the SEC. The shelf registration statement has not yet been declared effective by the SEC. Under the shelf registration statement, if and upon becoming effective, the Company may offer and sell, from time to time over a three-year period, various securities in an amount of up to $90 million.

The Company has evaluated its subsequent events from December 31, 2020 through the date these consolidated financial statements were issued, and has determined that there are no subsequent events required to be disclosed in these consolidated financial statements.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Disclosure controls and procedures are controls and other procedures that are designed to ensure that information required to be disclosed in our reports filed or submitted under the Securities Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to management, including our principal executive officer and our principal financial officer, as appropriate, to allow timely decisions regarding required disclosure. As of the end of the period covered by this report, we carried out an evaluation under the supervision and with the participation of our management, including our Chief Executive Officer (CEO) and our Chief Financial Officer (CFO), of the effectiveness of the design and operation of our disclosure controls and procedures in ensuring that material information required to be disclosed in our reports filed or submitted under the Exchange Act, has been made known to them in a timely fashion. Based on this evaluation, our CEO and CFO concluded that the Company's disclosure controls and procedures were effective as of December 31, 2020.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in Rule 13a-15(f) of the Exchange Act. Our management assessed, with the oversight of the board of directors, the effectiveness of our internal control over financial reporting as of December 31, 2020. In making this assessment, management used the criteria established in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on this assessment, management has concluded that our internal control over financial reporting was effective as of December 31, 2020.

Changes in Internal Control

There have been no changes in our internal control over financial reporting identified in management's evaluation pursuant to Rules 13a-15(d) or 15d-15(d) of the Exchange Act during the year ended December 31, 2020 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Limitations on Effectiveness of Controls and Procedures

In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable, not absolute, assurance of achieving the desired control objectives. Because of the inherent limitations in internal control over financial reporting, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within the Company have been detected. These inherent limitations include the realities that judgments in decision making can be faulty and that breakdowns can occur because of a simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

ITEM 9B. OTHER INFORMATION

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item will be contained under the captions *Information Regarding our Nominees and Directors, Board of Directors and Corporate Governance* and *Executive Officers* in our definitive Proxy Statement for the Annual Meeting of Stockholders and is incorporated herein by reference.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item will be contained under the captions *Executive Compensation* and *Director Compensation* in our definitive Proxy Statement for the Annual Meeting of Stockholders and is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item will be contained under the caption *Security Ownership of Certain Beneficial Owners and Management* in our definitive Proxy Statement for the Annual Meeting of Stockholders and is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item will be contained under the captions *Transactions with Related Persons* and *Director Independence* in our definitive Proxy Statement for the Annual Meeting of Stockholders and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this item will be contained under the caption *Independent Registered Public Accounting Firm Fee Information* in our definitive Proxy Statement for the Annual Meeting of Stockholders and is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

We have filed the following documents as part of this Form 10-K:

1. Consolidated financial statements:

2. Financial Statement Schedules

All schedules have been omitted because they are not required, not applicable, not present in amounts sufficient to require submission of the schedule, or the required information is otherwise included.

3. Exhibits

See the Exhibit Index immediately preceding the signature page of this Annual Report on Form 10-K, which is incorporated by reference here.

ITEM 16. FORM 10-K SUMMARY

The Company has elected not to include summary information.

INDEX TO EXHIBITS

EXHIBIT NUMBER	EXHIBIT DESCRIPTION	FORM	FILE NO.	EXHIBIT NUMBER	FILING DATE	FILED HEREWITH
3.1	Fourth Amended and Restated Certificate of Incorporation of Marrone Bio Innovations, Inc.	10-K	001-36030	3.1	March 25, 2014	
3.2	Fifth Amended and Restated Bylaws of Marrone Bio Innovations, Inc.	8-K	001-36030	3.1	April 26, 2019	
4.1	Form of Marrone Bio Innovations, Inc.'s common stock certificate.	S-1/A	333-189753	10.4	July 22, 2013	
4.2	Form of Senior Secured Promissory Notes issued by Marrone Bio Innovations, Inc. to Ivy Science & Technology Fund, Waddell & Reed Advisors Science & Technology Fund and Ivy Funds VIP Science & Technology dated August 20, 2015.	8-K	001-36030	4.1	August 25, 2015	
4.3	Form of Warrants issued by Marrone Bio Innovations, Inc. to Ivy Science & Technology Fund, Waddell & Reed Advisors Science & Technology Fund and Ivy Funds VIP Science & Technology dated August 20, 2015.	8-K	001-36030	4.2	August 25, 2015	
4.4	Form of Warrants issued by Marrone Bio Innovations, Inc. pursuant to the Third Amendment to Loan Agreement, dated as of November 11, 2016, by and between Marrone Bio Innovations, Inc. and Gordon Snyder, as agent.	10-K	001-36030	4.4	April 5, 2018	
4.5	Warrant issued by Marrone Bio Innovations, Inc. to MZHCI, LLC, dated June 6, 2017.	10-Q	001-36030	4.1	August 14, 2017	
4.6	Form of Warrants issued by Marrone Bio Innovations, Inc. on February 5, 2018 to the Buyers listed in that certain Securities Purchase Agreement dated December 15, 2017.	8-K	001-36030	4.1	December 18, 2017	
4.7	Form of Warrants issued by Marrone Bio Innovations, Inc. on February 5, 2018 to Ivy Science & Technology Fund, Waddell & Reed Advisors Science & Technology Fund and Ivy VIP Science & Technology.	8-K	001-36030	4.2	December 18, 2017	
4.8	Form of Warrants issued by Marrone Bio Innovations, Inc. on February 5, 2018 to Gordon Snyder, as agent, and certain of its affiliates to that certain Loan Agreement, as amended.	8-K	001-36030	4.3	December 18, 2017	

4.9	Form of Warrants issued by Marrone Bio Innovations, Inc. on February 5, 2018 to National Securities Corporation and certain of its affiliates.	8-K	001-36030	4.4	December 18, 2017	
4.10	Form of Warrants issued by Marrone Bio Innovations, Inc. in connection with June 2013 Credit Facility.	S-1	333-189753	10.33	July 1, 2013	
4.11	Warrant Amendment and Plan of Reorganization Agreement, dated August 6, 2019, by and among Marrone Bio Innovations, Inc., Ospraie AG Science LLC, Ardsley Partners Renewable Energy Fund, L.P. and Ivan Saval.	8-K	001-36030	4.1	August 8, 2019	
4.12	Form of Warrant issued by Marrone Bio Innovations, Inc. in connection with the August 6, 2019 Warrant Agreement	8-K	001-36030	4.2	August 8, 2019	
4.13	Form of Warrant issued by Marrone Bio Innovations, Inc. in connection with April 29, 2020 Warrant Exchange Agreement	8-K	001-36030	4.1	April 30, 2020	
4.14	Description of Registrant's Securities					
4.15	Amendment to the Van Herk Warrant, by and among, Marrone Bio Innovations, Inc., Ospraie Ag Science LLC, and Van Herk Investments B.V., dated December 29, 2020.	8-K	001-36030	4.11	January 5, 2021	
10.2	Office Lease, dated April 30, 2014, by and between Marrone Bio Innovations, Inc. and Seven Davis, LLC.	10-Q	001-36030	10.4	May 15, 2014	
10.3#	Marrone Bio Innovations, Inc. Stock Option Plan and related documents.	S-1	333-189753	10.1	July 1, 2013	
10.4#	Marrone Bio Innovations, Inc. 2011 Stock Plan and related documents.	S-1	333-189753	10.2	July 1, 2013	
10.5#	Marrone Bio Innovations, Inc. 2013 Stock Incentive Plan and related documents.	S-1/A	333-189753	10.3	July 22, 2013	
10.6#	Indemnification Agreement by and between Marrone Bio Innovations, Inc. and each of its directors and executive officers.	S-1/A	333-189753	10.4	July 22, 2013	
10.7#	Offer letter, dated June 29, 2006, between Marrone Organic Innovations, Inc. and Dr. Pamela G. Marrone.	S-1	333-189753	10.5	July 1, 2013	

10.8(a)#	Offer letter, dated February 10, 2014, between Marrone Bio Innovations, Inc. and James B. Boyd.	10-K	001-36030	10.8	March 25, 2014
10.8(b)#	Letter Agreement, dated March 3, 2015, between Marrone Bio Innovations, Inc. and James B. Boyd.	10-K	001-36030	10.9	November 10, 2015
10.8(c)#	Promotion Agreement, dated August 14, 2017, between Marrone Bio Innovations, Inc. and James Boyd.	10-Q	001-36030	10.46	November 14, 2017
10.10#	Offer letter, dated April 16, 2018, between the Company and Kevin Hammill.	10-Q	001-36030	10.2	August 14, 2018
10.11	License Agreement, dated November 13, 2007, between the U.S. Government, as represented by the U.S. Department of Agriculture, Agricultural Research Service, and Marrone Organic Innovations, Inc.	S-1	333-189753	10.25	July 1, 2013
10.14	Business Loan Agreement, dated June 13, 2014, by and between Five Star Bank and jointly and severally Marrone Michigan Manufacturing LLC and Marrone Bio Innovations, Inc.	10-Q	001-36030	10.4	August 13, 2014
10.15(a)	Invoice Purchase Agreement, made on March 24, 2017 between Marrone Bio Innovations, Inc. and LSQ Funding Group, L.C.	10-Q	001-36030	10.44	May 15, 2017
10.15(b)	First Amendment to Invoice Purchase Agreement, dated June 30, 2018, between Marrone Bio Innovations, Inc. and LSQ Funding Group, L.C.	10-Q	001-36030	10.3	August 14, 2018
10.16	Subordination Agreement, dated as of March 28, 2017 by and among Five Star Bank, Marrone Bio Innovations, Inc., and LSQ Funding Group L.C.	10-Q	001-36030	10.45	May 15, 2017
10.17	Intercreditor Agreement, dated as of March 22, 2017, between Ivy Investment Management Company, administrative agent for the Waddell Lenders (defined therein), Gordon Snyder, administrative agent for Snyder Lenders (defined therein) and LSQ Funding Group, L.C.	10-Q	001-36030	10.43	May 15, 2017
10.18(a)	Loan Agreement, dated October 2, 2012, by and among Marrone Bio Innovations, Inc., the Investors party thereto and Gordon Snyder, as agent, including form of promissory note and warrant.	S-1	333-189753	10.17	July 1, 2013

10.18(b)	Amendment and Consent, dated April 10, 2013, by and among Marrone Bio Innovations, Inc. and the administrative agent party thereto.	S-1	333-189753	10.23	July 1, 2013
10.18(c)	Omnibus Amendment to Loan Agreement, dated as of August 19, 2015, by and between Marrone Bio Innovations, Inc. and Gordon Snyder, as agent.	8-K	001-36030	10.2	August 25, 2015
10.18(d)	Third Amendment to Loan Agreement, dated as of November 11, 2016, by and between Marrone Bio Innovations, Inc. and Gordon Snyder, as agent.	10-K	001-36030	10.42	April 3, 2017
10.18(e)	Fourth Amendment to Loan Agreement, dated as of October 12, 2017, by and between Marrone Bio Innovations, Inc. and Gordon Snyder, as agent.	10-K	001-36030	10.18(e)	April 5, 2018
10.18(f)	Fifth Amendment to Loan Agreement, dated as of October 23, 2017, by and between Marrone Bio Innovations, Inc. and Gordon Snyder, as agent.	10-K	001-36030	10.18(f)	April 5, 2018
10.18(g)	Sixth Amendment to Loan Agreement, dated as of December 15, 2017, by and between Marrone Bio Innovations, Inc. and Gordon Snyder, as agent.	8-K	001-36030	10.3	December 18, 2017
10.19	Security Agreement, dated October 2, 2012, by and among Marrone Bio Innovations, Inc. and the administrative and collateral agent.	S-1	333-189753	10.18	July 1, 2013
10.20(a)	Omnibus Amendment No. 1 to Notes, dated as of May 31, 2016, by and among Ivy Science & Technology Fund, Waddell & Reed Advisors Science & Technology Fund and Ivy Funds VIP Science & Technology and Marrone Bio Innovations, Inc.	8-K	001-36030	10.01	June 2, 2016
10.20(b)	Omnibus Amendment No. 2, dated as of October 6, 2017, by and among Ivy Science & Technology Fund, Waddell & Reed Advisors Science & Technology Fund Ivy Funds VIP Science & Technology and Marrone Bio Innovations, Inc.	10-K	001-36030	10.20 (b)	April 5, 2018
10.20(c)	Omnibus Amendment No. 3, dated as of October 23, 2017, by and among Ivy Science & Technology Fund, Waddell & Reed Advisors Science & Technology Fund, Ivy Funds VIP Science & Technology and Marrone Bio Innovations, Inc.	10-K	001-36030	10.20 (c)	April 5, 2018

10.20(d)	Omnibus Amendment No. 4 to Notes, dated December 15, 2017, by and among Ivy Science & Technology Fund, Waddell & Reed Advisors Science & Technology Fund, Ivy VIP Science & Technology, Marrone Bio Innovations, Inc. and Ospraie Management LLC.	8-K	001-36030	10.2	December 18, 2017
10.21	Security Agreement, dated as of August 20, 2015, by and among Marrone Bio Innovations, Inc. and the counterparties thereto.	8-K	001-36030	10.1	August 25, 2015

10.22(a)	Promissory Note, dated October 12, 2017, by and between Marrone Bio Innovations, Inc. and Dwight W. Anderson.		001-36030	10.22(a)	April 5, 2018
10.22(b)	Amended and Restated Promissory Note, dated October 23 2017, by and between Marrone Bio Innovations, Inc. and Dwight W. Anderson.		001-36030	10.22(b)	April 5, 2018
10.22(c)	Secured Promissory Note, dated December 22, 2017 between Marrone Bio Innovations, Inc. and Dwight W. Anderson.	8-K	001-36030	10.1	December 29, 2017
10.23	Security Agreement, dated as of December 22, 2017 between Marrone Bio Innovations, Inc. and Dwight W. Anderson.	8-K	001-36030	10.1	December 29, 2017
10.24	Securities Purchase Agreement, dated December 15, 2017, by and among Marrone Bio Innovations, Inc. and the investors listed on the Schedule of Buyers attached therein.	8-K	001-36030	10.1	December 18, 2017
10.28#	Change in Control Agreement, dated as of June 17, 2016, by and between Marrone Bio Innovations, Inc. and James B. Boyd.	10-K	001-36030	10.35	April 3, 2017
10.29#	Change in Control Agreement, dated as of June 17, 2016, by and between Marrone Bio Innovations, Inc. and Linda V Moore.	10-K	001-36030	10.37	April 3, 2017
10.29	First Amendment to Lease, dated April 25, 2019, by and between San Carlos Retail Venture, L.P., Verbenta URP Partners, LP, Fulcrum URP Investors, LP, Gray & Affrime Family LLC, and Flores-Lopez Anvary LLC.	10-Q	001-36030	10.2	August 8, 2019
10.30†	Share Purchase Agreement, dated August 7, 2019, by and among Marrone Bio Innovations, Inc., Pro Farm Technologies OY, the Shareholders and Matti Tiainen as Shareholders' Representative.	8-K	001-36030	10.1	August 8, 2019

10.31	Registration Rights Agreement, dated August 6, 2019, by and between Marrone Bio Innovations, Inc. and the investors named therein.	8-K	001-36030	10.3	August 8, 2019
10.32†	Asset Purchase Agreement dated September 10, 2019, by and among Austin Grant, Inc., Marrone Bio Innovations, Inc., and Bill Grant and Lucie Grant	10-Q	001-36030	10.3	November 19, 2019
10.33#	Employment Separation Agreement, dated December 1, 2019, between Marrone Bio Innovations, Inc. and Dr. Pamela G. Marrone.	10-K	001-36030	10.33	March 16, 2020
10.34#	Consulting Agreement, dated December 1, 2019, between Marrone Bio Innovations, Inc. and Dr. Pamela G. Marrone.	10-K	001-36030	10.33	March 16, 2020
10.35#	Marrone Bio Innovations, Inc. 2019 Employee Stock Purchase Plan	DEF 14A	001-36030	Appendix A	April 30, 2019
10.36	Promissory Note dated April 13, 2020, between Five Star Bank and Marrone Bio Innovations, Inc.	8-K	001-36060	10.1	April 17, 2020
10.37	Warrant Exchange Agreement, dated April 29, 2020, between Marrone Bio Innovations, Inc., Ospraie Ag Science LLC, Ardsley Partners Renewable Energy Fund, L.P., National Securities Corporation, Ivan Saval, Ivy Science & Technology Fund, and Ivy VIP Science & Technology, and the Waddell Investors	8-K	001-36030	10.1	April 30, 2020
10.38	Registration Rights Agreement, dated April 29, 2020, by and among Marrone Bio Innovations, Inc., Ospraie Ag Science LLC, Ardsley Partners Renewable Energy Fund, L.P., National Securities Corporation, Ivan Saval, Ivy Science & Technology Fund, and Ivy VIP Science & Technology, and the Waddell Investors	8-K	001-36030	10.2	April 30, 2020
10.37#†	Offer letter, dated July 3, 2020, by and between Marrone Bio Innovations, Inc. and Kevin Helash	8-K	001-36030	10.1	July 6, 2020
10.38#	Change in Control Agreement, dated as of July 3, 2020, by and between Marrone Bio Innovations, Inc. and Kevin Helash	8-K	001-36030	10.2	July 6, 2020
10.39#	Employment Separation Agreement, dated September 21, 2020, between James B. Boyd and Marrone Bio Innovations, Inc.	8-K	001-36030	10.2	September 23, 2020

10.40#†	Consulting Agreement, dated September 21, 2020, between Marrone Bio Innovations, Inc., and James B. Boyd	8-K	001-36030	10.2	September 23, 2020
10.41#	Offer letter, effective January 25, 2021, by and between Marrone Bio Innovations, Inc. and Suping Liu Cheung.	8-K	001-36030	10.1	January 29, 2021
10.42#	Change in Control Agreement, dated as of January 26, 2021, by and between Marrone Bio Innovations, Inc. and Suping Liu Cheung.	8-K	001-36030	10.2	January 29, 2021
14.1	Code of Business Conduct and Ethics	8-K	001-36030	14.1	August 8, 2017
21.1	List of Subsidiaries of Marrone Bio Innovations, Inc.	10-K	001-36030	2.1	March 16, 2020

23.1	Consent of Marcum LLP, Independent Registered Public Accounting Firm.	X
31.1	Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.	X
31.2	Certification of Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.	X
32.1	Certification of Principal Executive Officer and Principal Financial Officer Required Under Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350	X
101	Interactive Data Files Pursuant to Rule 405 of Regulation S-T: (i) Consolidated Balance Sheets as of December 31, 2019 and 2018; (ii) Consolidated Statements of Operations for the years ended December 31, 2019 and 2018; (iii) Consolidated Statements of Convertible Preferred Stock and Stockholders' Equity (Deficit) for the years ended December 31, 2019 and 2018; (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2019 and 2018 and (vi) Notes to Consolidated Financial Statements	X
104	Cover Page Interactive Data File Pursuant to Item 601 of Regulation S-K	X

# Indicates a management contract or compensatory plan or arrangement.
† Confidential portions of this document have been redacted as permitted by applicable regulations.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Davis, State of California, on March 23, 2021.

MARRONE BIO INNOVATIONS, INC.

/s/ Kevin Helash
Kevin Helash
Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Kevin Helash her or his true and lawful attorney-in-fact and agent, with full power of substitution and, for her or him and in her or his name, place and stead, in any and all capacities to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as she or he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report on Form 10-K has been signed by the following persons on behalf of the Registrant and in the capacities and on the dates indicated:

SIGNATURE	TITLE	DATE
/s/ Kevin Helash Kevin Helash	Chief Executive Officer (Principal Executive Officer)	March 23, 2021
/s/ Suping (Sue) Cheung Suping (Sue) Cheung	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 23, 2021
/s/ Robert A. Woods Robert A. Woods	Chair of the Board	March 23, 2021
/s/ Pamela G. Marrone Pamela G. Marrone	Director	March 23, 2021
/s/ Yogesh Mago Yogesh Mago	Director	March 23, 2021
/s/ Zachary S. Wochok Zachary S. Wochok	Director	March 23, 2021
/s/ Keith McGovern Keith McGovern	Director	March 23, 2021
/s/ Stuart Woolf Stuart Woolf	Director	March 23, 2021
/s/ Lara L. Lee Lara L. Lee	Director	March 23, 2021

Exhibit 23.1

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We consent to the incorporation by reference in the Registration Statement of Marrone Bio Innovations, Inc. on Form S-8 (file No.'s 333-191048, 333-219981, 333-222846, 333-225401, 333-229859, 333-232039, 333-237322, and 333-251970), Form S-3 (file No.'s 333-251284 and 333-252823), and Form S-1 (file No. 333-237331) of our report dated March XX, 2021, with respect to our audits of the consolidated financial statements of Marrone Bio Innovations, Inc. as of December 31, 2020 and 2019 and for the years ended December 31, 2020 and 2019, which report is included in this Annual Report on Form 10-K of Marrone Bio Innovations, Inc. for the year ended December 31, 2020.

/s/ Marcum llp

Marcum llp

San Francisco, CA
March 23, 2021

Exhibit 31.1

I, Kevin Helash, certify that:

1. I have reviewed this Annual Report on Form 10-K of Marrone Bio Innovations, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a–15(e) and 15d–15(e)) for the registrant and have:

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

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

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

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

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 23, 2021

/s/ Kevin Helash

Kevin Helash
Chief Executive Officer

Exhibit 31.2

I, Suping (Sue) Cheung, certify that:

1. I have reviewed this Annual Report on Form 10-K of Marrone Bio Innovations, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a–15(e) and 15d–15(e)) for the registrant and have:

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

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

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

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

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 23, 2021

/s/ Suping (Sue) Cheung

Suping (Sue) Cheung
Chief Financial Officer

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Kevin Helash, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Marrone Bio Innovations, Inc. on Form 10-K for the fiscal year ended December 31, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of Marrone Bio Innovations, Inc.

Date: March 23, 2021

By: */s/ Kevin Helash*
Name: Kevin Helash
Title: Chief Executive Officer

I, Suping (Sue) Cheung, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Marrone Bio Innovations, Inc. on Form 10-K for the fiscal year ended December 31, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of Marrone Bio Innovations, Inc.

Date: March 23, 2021

By: */s/ Suping (Sue) Cheung*
Name: Suping (Sue) Cheung
Title: Chief Financial Officer

This certification accompanies this Report on Form 10-K pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 and shall not be deemed filed by the Company for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the Exchange Act). Such certification will not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act, except to the extent that the Company specifically incorporates it by reference.