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

FORM 10-K

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

For The Year Ended December 31, 2022

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 001-13795

AMERICAN VANGUARD CORPORATION

Delaware **(State or other jurisdiction of Incorporation or organization)**	**95-2588080** **(I.R.S. Employer Identification Number)**
4695 MacArthur Court, Newport Beach, California **(Address of principal executive offices)**	**92660** **(Zip Code)**

(949) 260-1200
(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, $0.10 par value	**AVD**	**New York Stock Exchange**

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

NONE

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	☐	Smaller reporting company	☐
		Emerging growth company	☐

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

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

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

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

The aggregate market value of the voting stock of the registrant held by non-affiliates is $662.2 million. This figure is estimated as of June 30, 2022 at which date the closing price of the registrant's Common Stock on the New York Stock Exchange was $22.35 per share. For purposes of this calculation, shares owned by executive officers, directors, and 5% stockholders known to the registrant have been deemed to be owned by affiliates. The number of shares of $0.10 par value Common Stock outstanding as of June 30, 2022, was 30,749,184. The number of shares of $.10 par value Common Stock outstanding as of March 6, 2023 was 29,476,112.

AMERICAN VANGUARD CORPORATION

ANNUAL REPORT ON FORM 10-K
December 31, 2022

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AMERICAN VANGUARD CORPORATION

(Dollars in thousands, except per share data)

PART I

Unless otherwise indicated or the context otherwise requires, the terms "Company," "we," "us," and "our" refer to American Vanguard Corporation and its consolidated subsidiaries ("AVD").

Forward-looking statements in this report, including without limitation, statements relating to the Company's plans, strategies, objectives, expectations, intentions, and adequacy of resources, are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Investors are cautioned that such forward-looking statements involve risks and uncertainties. (Refer to Part I, Item 1A, Risk Factors and Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operation, included in this Annual Report.)

All dollar amounts reflected in the consolidated financial statements are expressed in thousands, except per share data.

ITEM 1 BUSINESS

American Vanguard Corporation ("AVD") was incorporated under the laws of the State of Delaware in January 1969 and operates as a holding company. Unless the context otherwise requires, references to the "Company" or the "Registrant," in this Annual Report refer to AVD. The Company conducts its business through its principle operating subsidiaries, including AMVAC Chemical Corporation ("AMVAC") for its domestic business and AMVAC Netherlands BV ("AMVAC BV") for its international business.

The operating subsidiaries in the U.S. include: AMVAC, GemChem, Inc. ("GemChem"), Envance Technologies, LLC ("Envance"), TyraTech Inc. ("TyraTech") and OHP Inc. ("OHP").

Internationally, the Company operates its business through the following subsidiaries: AMVAC BV, AMVAC Hong Kong Limited ("AMVAC Hong Kong"), AMVAC Mexico Sociedad de Responsabilidad Limitada ("AMVAC M"), AMVAC de Costa Rica Sociedad de Responsabilidad Limitada ("AMVAC CR Srl"), AMVAC Singapore Pte, Ltd ("AMVAC Sgpr"), Grupo AgriCenter (including the parent AgriCenter S.A. and its subsidiaries) ("AgriCenter"), AMVAC do Brasil Representácoes Ltda ("AMVAC do Brasil"), AMVAC do Brazil 3p LTDA ("AMVAC 3p"), American Vanguard Australia PTY Ltd ("AVD Australia"), AgNova Technologies PTY Ltd ("AgNova"), and the Agrinos group ("Agrinos").

Based on similar economic and operational characteristics, the Company's business is aggregated into one reportable segment. Refer to Part II, Item 7 for selective enterprise information.

AMVAC is a California corporation that traces its history from 1945 and is a manufacturer of chemical, biological and biorational products that develops and markets solutions for agricultural, commercial and consumer uses. It synthesizes and formulates chemicals and ferments and extracts microbial products for crops, turf and ornamental plants, and human and animal health protection. These products, which include insecticides, fungicides, herbicides, soil health, plant nutrition, molluscicides, growth regulators, and soil fumigants, are marketed in liquid, powder, and granular forms. AMVAC primarily synthesizes, formulates, and distributes its own proprietary products or custom manufactures, formulates or distributes for others. In addition, the Company has carved out a leadership position in closed delivery systems, currently offers certain of its products in SmartBox, Lock 'n Load and EZ Load systems, and its most recent commercial high technology packaging system known as SIMPAS (see "*Intellectual Property*" below) which permits the delivery of multiple products (from AMVAC and/or other companies) at variable rates in a single pass. AMVAC has historically expanded its business through both the acquisition of established chemistries, the development and commercialization of new formulations or compounds through licensing arrangements, the expansion of its global distribution network to gain broader market access, and self-funded research and development of precision application technology. Beginning in 2021, we have commenced basic molecular research and development of intellectual property related to our green solutions portfolio.

AMVAC BV is a Netherlands Corporation that was established in 2012 and is based in the Netherlands. AMVAC BV sells product both directly and through its network of subsidiaries in various international territories.

Below is a description of the Company's acquisition/licensing activity over the past three years.

On July 1, 2021, the Company completed the purchase of certain assets from Syngenta Crop Protection related to the herbicide trifloxysulfuron ("Envoke"), including end-use registrations, data compensation claims, trademarks, formulation know-how, and books and records.

On October 8, 2020, the Company's Australian subsidiary, AVD Australia, completed the purchase of all the outstanding shares of AgNova, an Australian company that sources, develops, and distributes specialty crop protection and production solutions for agricultural and horticultural producers and for selected non-crop users. AgNova has an established reputation for cost-effective product development from original concept through evaluation, registration, marketing, and sales, with new technologies flowing from its development pipeline. AgNova is committed to the provision of innovative, value-adding solutions for agriculture and related industries. The acquired assets included product registration, trade names and trademarks, customer lists, workforce, fixed assets, and existing working capital.

On October 2, 2020, the Company's principal operating subsidiary, AMVAC, completed the purchase of all the outstanding shares of Agrinos from Agrinos AS, a Norwegian holding company, from a liquidation proceeding of that entity before a Norwegian bankruptcy court in Oslo, Norway. In addition to the shares of Agrinos, AMVAC acquired a bank of microbial and micronutrients, as well as about 150 pending or issued patents. Agrinos is a fully integrated biological input supplier with proprietary technology, manufacturing facilities, and global distribution capabilities. Its High Yield Technology® product platform works in conjunction with other nutritional crop inputs to increase crop yield, improve soil health and reduce the environmental footprint of traditional agricultural practices. The acquired assets included product registration, trade names and trademarks, customer lists, workforce, fixed assets, two factories and existing working capital.

On April 1, 2020, the Company's principal operating subsidiary, AMVAC, acquired 6,250,000 common shares of Clean Seed Capital Group Ltd. (Clean Seed), representing an ownership of approximately 8%. In addition, AMVAC licensed from Clean Seed certain intellectual property rights related to Clean Seed's SMART planting technologies.

Seasonality

The agricultural chemical industry, in general, is cyclical in nature. The demand for AVD's products tends to be seasonal. Seasonal usage, however, does not necessarily follow calendar dates, but more closely follows growing patterns, weather conditions, geography, weather related pressure from pests and customer marketing programs. Further, growing seasons vary by geographical region; thus, there is no single seasonal cycle affecting our sales. Rather, multiple seasons transpire over the course of the calendar year.

Backlog

AVD primarily sells its products based on purchase orders. The purchase orders are typically fulfilled within a short time frame. As a result, backlog is not considered a significant factor of, or a valid metric for, AVD's business. The 2022 year, however, did end with a significantly larger than normal backlog of orders, primarily resulting from supply chain challenges on one specific product line in the last three months of 2022.

Customers

The Company's largest three customers accounted for 18%, 13% and 8% of the Company's sales in 2022; 17%, 14% and 8% in 2021; and 17%, 12% and 10% in 2020.

Distribution

In the U.S. AMVAC predominantly distributes its products through national distribution companies and buying groups or co-operatives, which purchase AMVAC's goods on a purchase order basis and, in turn, sell them to retailers/growers/end-users.

Internationally, AMVAC BV has sales offices or wholly owned distributors in Central America, Mexico, Brazil, Australia, and India, and sales force executives or sales agents in several other territories. The Company's domestic and international distributors, agents and customers typically have long-established relationships with retailers/end-users, far-reaching logistics and transportation capabilities, and/or customer service expertise. The markets for AVD's products vary by region, target crop, use and type of distribution channel. AVD's customers are experts at addressing these various markets.

Competition

In its many marketplaces, AVD faces competition from both domestic and foreign manufacturers. Many of our competitors are larger and have substantially greater financial and technical resources than AVD. AVD's capacity to compete depends on its ability to develop additional applications (including delivery systems and precision application technologies) for its current products and/or expand its product lines and customer base. AVD competes principally based on quality, product efficacy, price, technical service and customer support. In some cases, AVD has positioned itself in smaller niche markets, which are no longer addressed by larger companies. In other cases, for example in the Midwest corn and soybean markets, the Company competes directly against larger competitors.

Manufacturing

Through its six manufacturing facilities (see Item 2, Properties), AVD synthesizes many of the technical grade active ingredients that are in its end-use products. Further, the Company formulates and packages its end-use products at four of its own facilities or at the facilities of third-party formulators in the U.S. and at various international locations. Two of the Company's manufacturing facilities are biological fermentation sites, one site in the U.S., and one in Mexico, and, in addition, has a product manufacturing arrangement at a third-party facility in India.

Raw Materials

AVD utilizes numerous companies to supply the various raw materials and components used in manufacturing its products. Many of these materials are readily available from domestic sources. In instances where there is a single source of supply, AVD seeks to secure its supply by either long-term (multi-year) arrangements or purchasing on long lead times from its suppliers. Further, where the availability or cost of certain raw materials may be subject to the effect of tariffs and/or supply chain disruption, the Company may order goods at times or in volumes out of the ordinary course to optimize pricing and to ensure supply.

Intellectual Property

AVD's proprietary product formulations are protected, to the extent possible, as trade secrets and, to a lesser extent, by patents. Certain of the Company's closed delivery systems are patented, and the Company has both pending and issued patents relating to its equipment portfolio, particularly with respect to its SIMPAS and ULTIMUS technology. In addition, the Company owns multiple issued patents relating to both its low-impact Envance solutions as well as its Agrinos biological and microbial solutions. Further, AVD's trademarks bring value to its products in both domestic and foreign markets. AVD considers that, in the aggregate, its product registrations, trademarks, licenses, customer lists and patents constitute valuable assets. While it does not regard its current business as being materially dependent upon any single product registration, trademark, license, or patent, it believes that patents will play an increasingly important role in its precision application technologies and green solutions portfolio.

EPA Registrations

In the U.S., AVD's products also receive protection afforded by the terms of the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), pursuant to which it is unlawful to sell any pesticide in the U.S., unless such pesticide has first been registered by the U.S. Environmental Protection Agency ("USEPA"). Most of the Company's products that are sold in the U.S. are subject to USEPA registration and periodic re-registration requirements and are registered in accordance with FIFRA. This registration by USEPA is based, among other things, on data demonstrating that the product will not cause unreasonable adverse effects on human health or the environment, when used according to approved label directions. In addition, each state requires a specific registration before any of AVD's products can be marketed or used in that state. State registrations are predominantly renewed annually with a smaller number of registrations that are renewed on a multiple year basis. Foreign jurisdictions typically have similar registration requirements by statute.

In addition, certain of the Company's biological products are labeled organic under the Organic Materials Review Institute ("OMRI"), Washington State Department of Agriculture ("WSDA") and/or California Department of Food and Agriculture ("CDFA") and, as such, are subject to the requirements of those certification standards, including with respect to raw materials and processes. As is the case with synthetic products, these biological products are also subject to specific labeling requirements that may vary from state to state.

The USEPA, state, and foreign agencies have required, and may require in the future, that certain scientific data requirements be performed on registered products sold by AVD. AVD, on its own behalf and in joint efforts with other registrants, has furnished, and is currently furnishing, required data relative to specific products. Under FIFRA, the federal government requires registrants to submit a wide range of scientific data to support U.S. registrations, including in the case of adding labeled uses. This requirement results in operating expenses in such areas as regulatory compliance, with USEPA and other such bodies in the markets in which the Company sells its products. In addition, at times, the Company is required to generate new formulations of existing products and/or to produce new products in order to remain compliant. The Company expensed $18,168, $16,568 and $15,613, during 2022, 2021 and 2020, respectively, on these activities.

	2022	2021	2020
Registration	$ 12,118	$ 10,612	$ 10,914
Product development	6,050	5,956	4,699
Total	$ 18,168	$ 16,568	$ 15,613

Environmental

During 2022, AMVAC continued activities to address environmental issues associated with its facility in Commerce, CA. (the "Facility"). An outline of the history of those activities follows.

In 1995, the California Department of Toxic Substances Control ("DTSC") conducted a Resource Conservation and Recovery Act ("RCRA") Facility Assessment ("RFA") of those facilities having hazardous waste storage permits. In March 1997, the RFA culminated in DTSC accepting the Facility into its Expedited Remedial Action Program. Under this program, the Facility was required to conduct an environmental investigation and health risk assessment. This activity then took two paths: first, the RCRA permit closure and second, the larger site characterization.

With respect to the RCRA permit closure, in 1998, AMVAC began the formal process to close its hazardous waste permit at the Facility (which had allowed AMVAC to store hazardous waste longer than 90 days) as required by federal regulations. Formal regulatory closure actions began in 2005 and were completed in 2008, as evidenced by DTSC's October 1, 2008, acknowledgement of AMVAC's Closure Certification Report.

With respect to the larger site characterization, soil and groundwater characterization activities began in December 2002 in accordance with the Site Investigation Plan that was approved by DTSC. Additional activities were conducted from 2003 to 2014, with oversight provided by DTSC. In 2014, the Company submitted a remedial action plan ("RAP") to DTSC, under the provisions of which, the Company proposed not to disturb sub-surface contaminants, but to continue monitoring, maintain the cover above affected soil, enter into restrictive covenants regarding the potential use of the property in the future, and provide financial assurances relating to the requirements of the RAP. In January 2017, the RAP was circulated for public comment. DTSC responded to those comments and, on September 29, 2017, approved the RAP as submitted by the Company. The Company continues to conduct groundwater monitoring and maintain the cover above affected soil. In 2022, the Company recorded land use covenants on certain affected parcels and continues to work with DTSC to prepare a Remedial Action Completion Report and to obtain further clarification on financial assurance obligations relating to the RAP. At this stage, the Company does not believe that costs to be incurred in connection with the RAP will be material and has not recorded a loss contingency for these activities.

AMVAC is subject to numerous federal and state laws and governmental regulations concerning environmental matters and employee health and safety at its six manufacturing facilities. The Company continually adapts its manufacturing process to the latest environmental control standards of the various regulatory agencies. The USEPA and other federal and state agencies have the authority to promulgate regulations that could have an impact on the Company's operations.

AMVAC expends substantial effort to minimize the risk of discharge of materials in the environment and to comply with the governmental regulations relating to protection of the environment. Wherever feasible, AMVAC recovers and recycles raw materials and increases product yield in order to partially offset increasing pollution abatement costs.

The Company is committed to a long-term environmental protection program that reduces emissions of hazardous materials into the environment, as well as to the remediation of identified existing environmental concerns.

Human Capital Resources

We believe that, beyond being essential to our operations, our people have inestimable worth independent of our business. As outlined in our Human Rights Policy (see, www.american-vanguard.com under ESG tab), we believe that it is fundamental to our corporate responsibility and, indeed, to our humanity, that we recognize, respect and nurture the freedom and dignity of all persons. Accordingly, we have insinuated that belief throughout the fabric of our operations in our approach toward our employees. Indeed, the first two core values underlying our commitment to sustainability (see, Update to Corporate Sustainability Report, www.american-vanguard.com under ESG tab) are "Safety First" – which is a culture that begins with highly-regulated manufacturing plants, continues into the design of science-backed products and extends into market-leading delivery systems – and "Making a Difference" – under which, by rewarding achievement and giving our employees a voice, we attract diverse employees who want to make a difference in their careers, in the company and in the communities that we serve.

Our Human Capital program consists of the following elements:

- *Board Oversight* – through our Nominating and Corporate Governance Committee ("N&CG"), our board of directors oversees human capital-related risks and opportunities. At least annually, the N&CG Committee requires that management update succession planning for key executives, including with respect to planning for the future with a commitment toward diversity, equity and inclusion.
- *Strategy and Development* – the Company's human capital strategy has two primary elements: giving our employees a voice and providing them with competitive benefits (including an outstanding health benefits plan and awards of common stock to the entire workforce). As we have covered in our Update to Corporate Sustainability Report, our Company is a destination for highly qualified employees who are drawn to a workplace where they can make a difference. Our managerial approach is that our functions work in a collaborative manner – cutting across departmental lines to arrive at better solutions with a high level of efficiency. This strategy has enabled the Company to maximize retention, even in an increasingly competitive employment market.

- *Compensation* – as mentioned in our Strategy above, compensation is an essential element of our human capital approach. During the pandemic in the midst of the so-called "Great Resignation" that affected many industries, we took measures to incentivize our workforce to remain with us, including across-the-board wage increases in certain of our manufacturing facilities. To the extent that our highly skilled personnel are being recruited by other companies, we endeavor to keep an open conversation on their needs and, where appropriate, have increased their total compensation (through a combination of wage, stock and/or vacation) to retain them.
- *Voice* – our management style is to solicit good ideas from employees, involve them in implementation and give them recognition for ideas that succeed. For example, personnel from virtually any department (be it sales, technology, product development or otherwise) can submit ideas to our Innovation Review Committee ("IRC") for consideration and potential funding. The IRC continues to be a source of new product ideas that has enabled us to launch several new formulations and other solutions on an annual basis. Similarly, our Beekeeper platform is a company-only social media channel on which employees anywhere in the world can report on their accomplishments, commendations of others and local developments.
- *Diversity, Equity and Inclusion ("DEI")* – the Company continues to expand its DEI program. And we believe that this commitment starts at the top. Three of nine members (33%) of our board of directors are female and two of nine (22%) are from underrepresented groups (LGBTQ and Latinx). Based upon the Company's most current EEO-1 ("Equal Employment Opportunity") Report, representation of African Americans in our domestic workforce exceeds the prevalence of that group in the national population, while representation of Hispanic personnel is slightly below the national average.
- *ESG at American Vanguard* - at the center of our Environmental, Social Responsibility and Governance commitment is the principle of Sustainable Agriculture, which, we believe, is broad enough to encompass a comprehensive ESG program, but clear enough to give us direction in our outlook and purpose in our activities.

Sustainable Agriculture: We are committed to doing our best toward building a stable, affordable food supply both now and into the future. That commitment rests upon a foundation of social responsibility and equity. In that vein, we believe that sustainable agriculture must include these three principles:

Climate Equity – as outlined in our Climate Change Commitment, we are committed to making enterprise-wide, progressive and measurable efforts toward helping to arrest the trend of climate change. In making decisions, taking actions and conducting our operations we are mindful of climate equity, which holds that climate change has three primary effects – generational, regional and individual. To that end, we believe that reducing our carbon impact and, through our products and services, enabling others to do so will advance climate equity consistent with the 2-degree warmer world as per the Paris Agreement. We advance this commitment on multiple fronts. We offer over 100 eco-friendly products – such as natural oils from Envance (used in Proctor & Gamble's Zevo product line), microbial High Yield solutions from Agrinos (that enhance soil health and promote carbon sequestration) and tailored bionutritional products from Greenplants. In addition, our patented SIMPAS® precision application system, which enables a grower to dispense multiple crop inputs at variable rates as per an agronomist's prescription ("only what is needed, precisely where it is needed") serves to maximize yield while minimizing the environmental footprint. Further, our Ultimus® technology enables us to measure, record and verify ("MRV") crop input activity anywhere on the field. When linked to a permanent ledger, such as Blockchain, Ultimus can generate an immutable record of a grower's activity and, particularly when used with our green solution products and SIMPAS, provides the ideal solution for the fast-growing carbon credit market. Through these means we are endeavoring to make the planet a better place than we found it.

Environmental Equity – we recognize that our planet has limited resources and that what we do with them has an effect on the habitat for both humans and other species, both for today and tomorrow. We also recognize that our activities can affect the environment generationally, regionally and individually. We are, therefore, committed to environmental equity in our operations. Specifically, and as more fully outlined in our sustainability reports (click on "ESG" on American-vanguard.com), we seek to conserve finite resources such as water, land and energy while protecting the environment and enhancing biodiversity, so that these resources are available in amounts and quality to support our neighbors and future generations. In addition, we have committed significant resources toward supporting growers with precision application technology – like SIMPAS and Ultimus – that enable growers to manage, optimize and trace the use of crop and soil inputs, and to use only what is needed, precisely where it is needed. And we are mindful of those who might be disproportionately affected by what we do, such as loaders and applicators of our products. To that end, we have been at the forefront of user-friendly, returnable, reusable closed delivery systems (from Lock 'n Load to SMARTBox to SIMPAS/SmartCartridges) to minimize exposure and maximize safety for those on-the-ground.

Food Equity – Implicit in our commitment to sustainable agriculture is the principle of food equity, which has three aspects, once again, generational, regional and individual. First, food security – we believe it is essential to ensure the long-term sustainability and competitiveness of the Ag industry. We contribute toward food security by investing in both eco-friendly solutions that promote long-term soil and precision application and MRV technology, like SIMPAS and Ultimus, that give growers the best tools possible to ensure that their operations are viable, both today and tomorrow. Second, food availability – ensuring that food gets from field-to-table. As we saw in the pandemic, the supply chain for food can be broken, and those who suffer most are often those farthest from the fields. To that end, we support field-to-table efforts and programs to reduce food waste. Third, food affordability – ensuring that food prices can be maintained for all, including the impoverished. We do this by giving farmers effective tools, including precision application equipment, that optimize their costs, boost their yield, and enable them to produce and market food at reasonable costs.

Social Responsibility – our discussion of Sustainable Agriculture would not be complete without specific mention of our commitment to social responsibility. This concept is inherent in all forms of equity, be they climate, environmental or food related. However, social responsibility gives us pause to consider factors of a more fundamental nature, such as human rights. Our Human Rights Policy details our essential belief that we respect and support human rights, both within and article of our operations. We believe that it is fundamental to our corporate responsibility and, indeed, to our humanity, that we recognize, respect and nurture the freedom and dignity of all persons.

Under the umbrella of Sustainable Agriculture, we are committed to operating our business with a sense of mindfulness – toward the climate, toward the environment and toward the good of humans and other species. We consider ourselves to be part of a broader mission – one of ensuring that people can rely upon a stable, affordable food supply both now and in the future. It is a privilege to be part of that mission. With that privilege comes responsibility, and we take that responsibility seriously.

The Company employed 822 employees as of December 31, 2022, and 804 employees as of December 31, 2021. From time to time, due to the seasonality of its business, AVD uses temporary contract personnel to perform certain duties primarily related to packaging of its products. None of the Company's employees are subject to a collective bargaining agreement. The Company believes it maintains positive relations with its employees.

Domestic operations

AMVAC is a California corporation that was incorporated under the name of Durham Chemical in August 1945. The name of the corporation was subsequently changed to AMVAC in January 1971. As the Company's main operating subsidiary, AMVAC owns and/or operates the Company's domestic manufacturing facilities. AMVAC manufactures, formulates, packages and sells its products in the U.S. and is a wholly owned subsidiary of AVD.

GemChem is a California corporation that was incorporated in 1991 and was subsequently purchased by the Company in 1994. GemChem sells into the pharmaceutical, cosmetic and nutritional markets and, in addition, purchases key raw materials for the Company. GemChem is a wholly owned subsidiary of AVD.

2110 Davie Corporation ("DAVIE") owns real estate for corporate use only. The site is the home to the Company's research center and provides accommodation for the Company's production control team. DAVIE is a wholly owned subsidiary of AVD.

On October 2, 2017, AMVAC purchased substantially all the assets of OHP, a domestic distribution company specializing in products for the turf and ornamental market. OHP markets and sells end use products for third parties, either under third-party brands or else as its own label products.

Envance is a Delaware Limited Liability Company that was formed in 2012 by AMVAC and joint venture partner TyraTech. Envance and TyraTech became wholly owned subsidiaries of the Company on November 9, 2018. Envance has the rights to develop and commercialize pesticide products and technologies based on TyraTech's intellectual property. Products are made from natural oils in global consumer, commercial, professional, crop protection and seed treatment markets. Envance is taking products to market primarily by licensing its intellectual property to third parties.

International operations

AMVAC BV is a registered Dutch private limited liability company that was formed in July 2012 to manage foreign sales on behalf of the Company. AMVAC BV is located in the Netherlands and is a wholly owned subsidiary of AMVAC Hong Kong. AMVAC Hong Kong is a wholly owned subsidiary of AMVAC. During 2022, the international business sold the Company's products in 45 countries, as compared to 54 countries in 2021.

AMVAC M is a wholly owned subsidiary of AMVAC BV and was originally formed in 1998 (as Quimica Amvac de Mexico S.A. de C.V and subsequently changed to AMVAC Mexico Sociedad de Responsabilidad Limitada "AMVAC M") to conduct the Company's business in Mexico.

AMVAC Sgpr is a wholly owned subsidiary of AMVAC BV and was formed on April 12, 2016. This new entity was formed to conduct the Company's business in the Asia Pacific and China region.

On October 27, 2017, AMVAC BV purchased 100% of the stock of AgriCenter, which owned shares in subsidiaries located in Costa Rica, Panama, Nicaragua, Honduras, the Dominican Republic, Mexico, Guatemala, and El Salvador. These affiliated entities, collectively known as AgriCenter, market, sell and distribute end-use chemicals, including the Company's own products, and biological products throughout Central America primarily for crop applications.

On January 10, 2019, AMVAC BV acquired 100% of the stock of Agrovant and Defensive, two distribution companies based in Brazil. Agrovant and Defensive marketed and distributed crop protection products and micronutrients with focus on the fruit and vegetable market segments throughout Brazil. On December 31, 2020, Agrovant and Defensive merged and the Company renamed the resulting entity AMVAC 3p.

On October 8, 2020, American Vanguard Australia Pty Ltd acquired 100% of the stock of AgNova, an Australian company that sources, develops, and distributes specialty crop protection and production solutions for agricultural and horticultural producers, and for selected non-crop users.

On October 2, 2020, the Company's principal operating subsidiary, AMVAC, completed the purchase of all outstanding shares of Agrinos and certain intellectual property rights. Agrinos is a fully integrated biological input supplier with proprietary technology, manufacturing, and global distribution capabilities and has operating entities in the U.S., Mexico, India, Brazil, China, Ukraine, and Spain.

The Company classifies as international sales all products bearing foreign labeling shipped to a foreign destination.

	2022	2021	2020
International sales	$ 244,282	$ 215,439	$ 186,980
Percentage of net sales	40.1%	38.6%	40.8%

Risk Management

The Company's Environmental, Social and Corporate Governance ("ESG") strategy is fully described on our website (www.american-vanguard.com); just click on the "ESG" tab. The reader will also find the Company's updated Corporate Sustainability Report under the same tab.

Available Information

The Company makes available free of charge (through its website, www.american-vanguard.com), its Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with the Securities and Exchange Commission ("SEC"). All reports filed with the SEC are available free of charge on the SEC website, www.sec.gov. Also available free of charge on the Company's website are the Company's Audit Committee, Compensation Committee, Finance Committee and Nominating and Corporate Governance Committee Charters, the Company's Corporate Governance Guidelines, the Company's Code of Conduct and Ethics, and the Company's Employee Complaint Procedures for Accounting and Auditing Matters. Beneath the ESG tab at that site, you will also find links to the Company's Corporate Sustainability Reports, Climate Change Commitment and Human Rights Policy. The Company's Internet website and the information contained therein or incorporated therein are not intended to be incorporated into this Annual Report on Form 10-K.

ITEM 1A. RISK FACTORS

Supply Chain/Regulatory/Geopolitical/Tax Risks

Disruption in the global supply chain is creating delays, unavailability and adverse conditions for our industry, including significant price increases especially with regard to ocean bound shipments. Since the inception of the coronavirus pandemic, the global supply chain has been under increased stress stemming from container shortages, a lack of domestic truck drivers and a shift in consumer buying habits. While shipping channels normalized in 2022, freight costs rose to peak levels. Further, the lockdown practices arising from China's zero-COVID policy, followed by a lifting of those practices and widespread infection have resulted in factory capacity constraints and temporary closures in that country. This disruption interrupted the supply of a certain key intermediate ingredient for the Company's leading corn soil insecticide during the fourth quarter of 2022, which contributed to lower-than-expected net sales and profit margin of the Company on a consolidated basis during that reporting period. While that supplier has resumed full operations, there is no guarantee that continued supply of raw materials and intermediates will not be impacted by further developments relating to the pandemic in that region. Such disruption could have a material adverse effect on the Company's operations, financial condition or cash flows.

The regulatory climate remains challenging to the Company's interests both domestically and internationally. Various agencies within the U.S. (both federal and state) and foreign governments continue to exercise increased scrutiny in permitting continued uses (or the expansion of such uses) of many chemistries, including several of the Company's products and, in some cases, have initiated or entertained challenges to these uses. The challenge of the regulatory climate is more pronounced in certain geographical regions (outside the U.S.) where the Company faces resistance to the continued use of certain of its products. For example, the European Union ("EU") employs a hazard-based analysis when considering whether product registrations can be maintained; under this approach, EU regulatory authorities typically do not weigh benefit against risk in their assessments and routinely cancel products for which a safer alternative is available, notwithstanding the benefit of the cancelled product. There is no guarantee that this regulatory climate will change in the near term or that the Company will be able to maintain or expand the uses of many of its products in the face of such regulatory challenges.

Several of the Company's organophosphates are subject to a petition to revoke tolerances under the FFDCA which, if granted, could result in the limitation and/or cancellation of one or more registrations for such products. Presently, several of the Company's organophosphate products are under registration review before the USEPA and, at the same time, subject to a petition to revoke tolerances under the Federal Food, Drug, and Cosmetic Act ("FFDCA"). The Company continues to provide data and other analysis to USEPA in support of its registrations and in response to that agency's requests for clarification. However, in the recent past, USEPA revoked tolerances for chlorpyrifos (an OP not sold by the Company) finding that food residues from that product could not be deemed with reasonable certainty to cause no harm Consequently, the agency cancelled the registrations for chlorpyrifos. There is no guarantee that USEPA will not make a similar finding with respect to one or more of the Company's OPs, and that some or all uses of the Company's OP products could be limited or cancelled. Accordingly, the Company intends to take all action necessary to defend its registrations. Such limitations and/or cancellations could have a material adverse effect upon the Company's financial performance in future reporting periods.

USEPA has issued a proposed final decision ("PFD") to cancel PCNB. In mid-2022, the USEPA issued a "proposed final decision" (a variety of agency action heretofore unknown to registrants) to cancel the fungicide PCNB, which is registered by the company for use on golf courses and potatoes, among other things. The basis for its PFD was the agency's initial contention that the product is persistent, bioaccumulative and toxic ("PBT"). The Company disagrees with the agency's contention and believes that its scientific support for those findings is flawed. In reaching a conclusion that a registered product is a PBT, the agency tends to focus far less on product benefit and far more on product risk. Further, by issuing a PFD, USEPA is, in effect, skipping two steps in the registration review process (namely, the preliminary interim decision and interim decision) during which the Company would otherwise have more time to answer the agency's concerns and otherwise provide data necessary to support continued registration. In effect, then, the Company must meet a truncated schedule for defending this product, all of which is posted on a public docket, and is doing so under a more stringent standard of review (namely, that of a deemed PBT). Since making its initial determination, the agency has suggested that PCNB may merely have some characteristics of a PBT. There is no guarantee that the Company will succeed in persuading USEPA not to cancel the PCNB registration. AMVAC is the sole registrant of PCNB which it manufactures at its own facility. Loss of this product could have a material adverse negative effect on our operating results.

USEPA has issued a notice of intention to suspend DCPA, the technical ingredient of an important herbicide registered by the company for use on high-value vegetable crops. In April 2022, USEPA issued a notice of intention to suspend ("NOITS") the registration for DCPA based upon the company's alleged failure to take appropriate steps in responding to an extensive data call in for nearly 90 data studies. The NOITS came as a surprise to AMVAC, as it had been working in good faith to provide dozens of studies over several years, some of which were so complex that it required a review process extending to five years just to define the study protocols. The NOITS is currently pending before an administrative law judge ("ALJ"), who conducted a hearing on the matter in January 2023 and is likely to issue an order within 90-120 days. There is no guarantee that the ALJ will rule in AMVAC's favor and deny the requested suspension. If AMVAC does not succeed at the NOITS hearing, there is no guarantee that USEPA will not seek to suspend the registration of most any product for which a data call-in is pending, including one or more of AMVAC's other products. Further, a suspension of DCPA and/or other products could have a material, adverse effect upon the Company's business operations and financial performance.

Product liability judgments on glyphosate and cases involving other pesticides by domestic courts present a litigation risk to companies in this industry. Multiple judgments have been rendered by domestic courts in product liability cases against Bayer/Monsanto in connection with injuries allegedly arising from exposure to the herbicide product, glyphosate. The basis was purported carcinogenicity based largely upon the findings of a certain international organization, despite significant scientific evidence to the contrary. While the Company does not sell glyphosate, the theory of these results could put one or more of the Company's products at risk. There is no guarantee that one or more product liability actions would not be brought against the Company on a similar basis, and it is possible that adverse rulings in any such actions could have a material adverse effect upon the Company's financial performance in future reporting periods.

The trend of passing pesticide "ban-bills" in various states could put one or more of the Company's products at risk—In certain states, including Maryland and New York, state and/or local legislatures have passed legislation banning the use of specific pesticides, such as chlorpyrifos, or pesticide in general, in spite of valid registrations at USEPA and/or the equivalent state agency. While the Company does not sell chlorpyrifos products, there is no guarantee that one or more of its registered products would not be targeted in state or local legislation of this nature. Further, such legislation could have a material adverse effect upon the Company's financial performance in future reporting periods.

Use of the Company's products is subject to continuing challenges from activist groups. Use of agrochemical products, including the Company's products, is regularly challenged by activist groups in many jurisdictions under a multitude of federal, state and foreign statutes, including FIFRA, the Food Quality Protection Act, Endangered Species Act ("ESA") and the Clean Water Act, to name a few. These challenges typically take the form of lawsuits or administrative proceedings against the USEPA and/or other federal, state or foreign agencies, the filing of amicus briefs in pending actions, the introduction of legislation that is inimical to the Company's interests, and/or adverse comments made in response to public comment invited by regulatory agencies in the course of registration, re-registration or label expansion. The most prominent of these actions include a line of cases under which environmental groups have sought to suspend, cancel or otherwise restrict the use of pesticides that have been approved by USEPA on the ground that that agency failed to confer with the National Marine Fishery Service and/or the Fish and Wildlife Service under the ESA with respect to biological opinions relating to the use of such products. While industry has been active in defending registrations and proposing administrative and legislative approaches to address serious resource issues at the affected agencies, these cases continue to be brought. It is possible that one or more of these challenges could succeed, resulting in a material adverse effect upon one or more of the Company's products and consolidated financial statements.

The distribution and sale of the Company's products are subject to governmental approvals and thereafter ongoing governmental regulation. The Company's products are subject to laws administered by federal, state and foreign governments, including regulations requiring registration, approval and labeling of its products. The labeling requirements restrict the use of, and type of, application for our products. More stringent restrictions could make our products less available, which would adversely affect our revenues and profitability and cash flows. Substantially all the Company's products are subject to the USEPA (and/or similar agencies in the various territories or jurisdictions in which we do business) registration and re-registration requirements and are registered in accordance with FIFRA or similar laws. Such registration requirements are based, among other things, on data demonstrating that the product will not cause unreasonable adverse effects on human health or the environment when used according to approved label directions. All states, where any of the Company's products are used, also require registration before products, such as the Company sells, can be marketed or used in that state. Governmental regulatory authorities have required, and may require in the future, that certain scientific data requirements be fulfilled on the Company's products. The Company, on its behalf and also in joint efforts with other registrants, has furnished, and is currently furnishing certain required data relative to its products. There can be no assurance, however, that the USEPA or similar agencies will not request that certain tests or studies be repeated, or that more stringent legislation or requirements will not be imposed in the future. The Company can provide no assurance that any testing approvals or registrations will be granted on a timely basis, if at all, or that its resources will be adequate to meet the costs of regulatory compliance.

The manufacturing of the Company's products is subject to governmental regulations. The Company currently owns and operates six manufacturing facilities which are located in Los Angeles, California; Axis, Alabama; Hannibal, Missouri; Marsing, Idaho; Clackamas, Oregon; and Etchojoa, Mexico (the "Facilities"). The Facilities operate under the laws and regulations imposed by relevant country, state and local authorities. The manufacturing of key ingredients for certain of the Company's products occurs at the Facilities. An inability to renew or maintain a license or permit, or a significant increase in the fees for such licenses or permits, could impede the Company's manufacture of one or more of its products and/or increase the cost of production; this, in turn, would materially and adversely affect the Company's ability to provide customers with its products in a timely and affordable manner.

A change in tax laws, treaties or regulations, or their interpretation or application, could have a negative impact on our business and results of operations. We operate in many different countries and in many states within the United States, and we are subject to changes in applicable tax laws, treaties or regulations in the jurisdictions in which we operate. A material change in these tax laws, treaties or regulations, or their interpretation or application, could have a negative impact on our business and results of operations. On August 16, 2022, the Inflation Reduction Act of 2022 (the "IRA") was signed into law. The IRA contains several revisions to the Internal Revenue Code, including a 15% corporate minimum income tax for corporations with average annual adjusted financial statement income over a three-tax-year period in excess of $1 billion and is effective for the tax years beginning after December 31, 2022, a 1% excise tax on stock repurchases made by publicly traded U.S. corporations after December 31, 2022, and business tax credits and incentives for the development of clean energy projects and the production of clean energy. At this time, we do not expect the IRA will have a material impact on our consolidated financial statements. However, any future stock repurchase of our common stock will be subject to the new excise tax law.

Pandemic/Climate/Geopolitical Risks

The COVID-19 pandemic is creating risk, uncertainties and adverse conditions in many industries both here and abroad. The Company is closely monitoring the impact of the COVID-19 pandemic on all aspects of its business, including how the pandemic is impacting its customers, business partners, and employees. While the Company did not incur significant disruptions from the COVID-19 pandemic during the years ended December 31, 2022, 2021, and 2020 the Company is unable to predict the impact that the pandemic will have on its future financial condition, results of operations and cash flows due to numerous uncertainties. The extent to which the COVID-19 pandemic impacts the Company's operations and those of its customers will depend on future developments, which are highly uncertain and cannot be predicted with confidence, including the scope, severity and duration of the pandemic, the actions taken to contain the pandemic or mitigate its impact, and the direct and indirect economic effects of the pandemic and containment measures, among others. There is no guarantee that the Company will be able to operate without material disruption for the duration of the pandemic or that its financial conditions and results of operations and cash flows will not be materially adversely affected by the pandemic in future periods.

Climate Change may adversely affect the Company's business. Over the course of the past several years, global climate conditions have become increasingly inconsistent, volatile and unpredictable. Many of the regions in which the Company does business have experienced excessive moisture, cold, drought and/or heat of an unprecedented nature at various times of the year. In some cases, these conditions have either reduced or obviated the need for the Company's products, whether pre-plant, at-plant, post-emergent or at harvest. Further, the random nature of climactic change has made it increasingly difficult to forecast market demand and, consequently, financial performance, from year-to-year. There is no guarantee that climate change will abate in the near future, and it is possible that such change will continue to hinder the Company's ability to forecast its sales performance with accuracy and otherwise adversely affect the Company's financial performance.

The Company's business may be adversely affected by weather effects and commodity prices. Demand for many of the Company's products tends to vary with weather conditions and weather-related pressure from pests. Adverse weather conditions, then, may reduce the Company's revenues and profitability. In light of the possibility of adverse seasonal effects, there can be no assurance that the Company will maintain sales performance at historical levels in any particular region. Similarly, demand for the Company's products used in row crops tends to vary with the commodity prices of those crops, for instance, corn, soybeans and cotton. These prices may be driven in part by weather, pest pressure, the domestic farm economy and international markets (e.g., yield and pricing from similar crops grown in Brazil). There is no guarantee that the farm economy and row crop commodity prices will maintain sufficient strength and stability to support the Company's products at or above historical levels.

The Russian invasion of Ukraine may expand into a broader international conflict that could adversely affect multiple channels of commerce and markets. While business operations relating to Ukraine constitute an immaterial part of the Company's overall business, there is no guarantee that the current conflict will not draw military intervention from other countries or retaliation from Russia, which, in turn, could lead to a much larger conflict. If such escalation should occur, supply chain, trade routes and markets currently served by the Company could be adversely affected, which, in turn, could materially, adversely affect the Company's business operations and financial performance.

The Company may be subject to environmental liabilities. The Company is fully committed toward minimizing the risk of discharge of materials into the environment and to complying with governmental regulations relating to protection of the environment, its neighbors and its workforce. Nevertheless, federal and state authorities may seek fines and penalties for any violation of the various laws and governmental regulations. In addition, while the Company continually adapts its manufacturing processes to the latest environmental control standards of regulatory authorities, it cannot entirely eliminate the risk of accidental contamination or injury from hazardous or regulated materials. In short, the Company may be held liable for significant damages or fines relating to any environmental contamination, injury, or compliance violation which could have a material adverse effect on the Company's consolidated financial condition, statements of operations and cash flows.

Acquisition/Investment Risks

Newly acquired businesses or product lines may not generate forecasted results. While the Company conducts due diligence using a combination of internal and third-party resources and applies what it believes to be appropriate criteria for each transaction before making acquisitions, there is no guarantee that a business or product line acquired by the Company will generate results that meet or exceed results that were forecasted by the Company when evaluating the acquisition. There are many factors that could affect the performance of a newly acquired business or product line. While the Company uses assumptions that are based upon due diligence and other market information in valuing a business or product line prior to concluding an acquisition, actual results generated post-closing could vary widely from the Company’s forecast and, as such, could have a material effect upon the Company’s overall financial performance.

The Company’s investment in foreign businesses may pose additional risks. With the expansion of its footprint internationally, the Company now carries on business at a material level in some jurisdictions that have a history of political, economic or currency-related instability and customers with a potentially higher risk profile regarding accounts receivable collectability, as compared to the Company’s legacy business. While such instability may not be present at the current time, there is no guarantee that conditions will not change in one or more jurisdictions quickly and without notice, nor is there any guarantee that the Company would be able to recoup its investment in such territories in light of such changes and potential losses due to political factors, economic factors, devaluation of local currencies, or the collectability risk from customers. Adverse changes of this nature could have a material effect upon the Company’s overall financial performance.

The Company’s investment in technology may not generate forecasted returns. The Company has had a history of investing in technological innovation, including with respect to precision application technologies (such as SIMPAS and Ultimus), natural oil technology and biologicals, as one of its core strategies. These investments are based upon the premise that new technology will allow for safer handling or lower overall toxicity profile of the Company’s product portfolio, appeal to regulatory agencies and the market we serve, gain commercial acceptance, and command a return that is sufficiently in excess of the investment. However, there is no guarantee that a new technology will be successfully commercialized, generate a material return or maintain market appeal. Further, many types of development costs must be expensed in the period in which they are incurred. This, in turn, tends to put downward pressure on period profitability. There can be no assurance that these expenses will be recovered through successful long-term commercialization of a new technology.

The Company’s growth has been fueled in part by acquisitions. Over the past few decades, the Company’s growth has been driven by acquisitions and licensing of both established and developmental products from third parties. There is no guarantee that acquisition targets or licensing opportunities meeting the Company’s investment criteria will remain available or will be affordable. If such opportunities do not present themselves, then the Company may be unable to duplicate historical growth rates in future years.

The Company is dependent upon sole source suppliers for certain of its raw materials and active ingredients. There are a limited number of suppliers of certain important raw materials used by the Company in a number of its products. Certain of these raw materials are available solely from single sources either domestically or overseas. In connection with supply chain disruptions in 2021, phosphorus and related compounds were increasingly difficult to source for our entire industry; ensuring a continuous supply required extraordinary efforts both with respect to sourcing and production planning. In the last quarter of 2022, there was a temporary supply chain shortage of one key raw material of the Company’s largest corn soil insecticide, Aztec. That said, there is no guarantee that any of our suppliers will be willing or able to supply these products to the Company reliably, continuously and at the levels anticipated by the Company or required by the market. If these sources prove to be unreliable and the Company is not able to supplant or otherwise second source these products, it is possible that the Company will not achieve its projected sales which, in turn, could adversely affect the Company's consolidated financial statements.

The Company faces competition from generic competitors that source product from countries having lower cost structures. The Company continues to face competition from competitors around the globe that may enter the market through either offers to pay data compensation, or similar means in foreign jurisdictions, and then subsequently source material from countries having lower cost structures (typically India and China). These competitors typically tend to operate at thinner gross margins and, with low costs of goods, tend to drive pricing and profitability of subject product lines downward. There is no guarantee that the Company will maintain market share and pricing when facing such generic competitors, or that such competitors will not offer generic versions of the Company’s products in the future.

The Company's key customers typically carry competing product lines and may be influenced by the Company's larger competitors. A significant portion of the Company's products are sold to national distributors in the U.S., which also carry product lines of competitors that are much larger than the Company. Typically, revenues from the sales of these competitor product lines and related program incentives constitute a greater part of our distributors' income than do revenues from sales and program incentives arising from the Company's product lines. With the recent consolidation among domestic distribution companies, these considerations have become more pronounced. In light of these facts, there is no assurance that such customers will continue to market our products aggressively or successfully, or that the Company will be able to influence such customers to continue to purchase our products instead of those of our competitors.

Industry consolidation may threaten the Company's position in various markets. The global agricultural chemical industry continues to undergo significant consolidation. Many of the Company's competitors have grown or are expected to grow through mergers and acquisitions. As a result, these competitors will tend to be in position to realize greater economies of scale, offer more diverse portfolios and thereby exert greater influence throughout the distribution channels. Consequently, the Company may find it more difficult to compete in various markets. While such merger activity may generate acquisition opportunities for the Company, there is no guarantee that the Company will benefit from such opportunities. Further, there is a risk that the Company's future performance may be hindered by the growth of its competitors through consolidation.

The Company is dependent on a limited number of customers, which makes it vulnerable to the continued relationship with and financial health of those customers. Our top three customers accounted for 39% of the Company's sales in 2022, 2021 and 2020. The Company's future prospects may depend on the continued business of such customers and on our continued status as a qualified supplier to such customers. The Company cannot guarantee that these key customers will continue to buy products from us at current levels. The loss of a key customer could have a material adverse effect on the Company's consolidated financial statements.

General Risks

The carrying value of certain assets on the Company's consolidated balance sheets may be subject to impairment depending upon market trends and other factors—The Company regularly reviews the carrying value of certain assets, including long-lived assets, inventory, fixed assets and intangibles. Depending upon the class of assets in question, the Company takes into account various factors including, among others, sales, trends, market conditions, cash flows, profit margins and the like. Based upon this analysis, where circumstances warrant, the Company may leave such carrying values unchanged or adjust them as appropriate. There is no guarantee that these carrying values can be maintained indefinitely, and it is possible that one or more such assets could be subject to impairment which, in turn, could have an adverse impact upon the Company's consolidated financial statements.

The Company's computing systems are subject to cyber security risks. In the course of its operations the Company relies on its computing systems, including access to the internet, the use of third-party applications and the storage and transmission of data through such systems. While the Company has implemented security measures to protect these systems, there is no guarantee that a third-party will not penetrate these defenses through hacking, phishing or otherwise and either compromise, corrupt or shut down these systems. Further, in the event of such incursion it is possible that confidential business information and private personal data could be taken. Such an event could adversely affect both the Company's ability to operate, its reputation with key stakeholders and its overall financial performance.

Reduced financial performance may limit the Company's ability to borrow under its credit facility. The Company has historically grown net sales and net income through the expansion of current product lines, the acquisition of product lines from third parties and the acquisition of both domestic and international distributors with strong niche market positions. In order to finance such acquisitions, the Company has drawn upon its senior credit facility. However, the Company's borrowing capacity under the senior credit facility depends, in part, upon its satisfaction of a negative covenant that sets a maximum ratio of borrowed debt to earnings (as measured over the trailing 12-month period). There is no guarantee that the Company will continue to generate earnings necessary to ensure that it has sufficient borrowing capacity to support future acquisitions or that, when necessary, the lender group will amend the senior credit facility to provide for such borrowing capacity. Further, despite the Company's long-standing relationship with its lenders, in light of the uncertainties in global financial markets, there is no guarantee that the Company's lenders will be either willing or able to continue lending to the Company at such rates and in such amounts as may be necessary to meet the Company's working capital needs.

The Company is subject to taxation related risks in multiple jurisdiction. The Company is a U.S. based multinational company subject to tax in multiple U.S. and foreign tax jurisdictions. Significant judgment is required in determining our global provision for income taxes, deferred tax assets or liabilities and in evaluating our tax positions on a worldwide basis. While we believe our tax positions are consistent with the tax laws in the jurisdictions in which we conduct our business, it is possible that these positions may be contested or overturned by jurisdictional tax authorities, which may have a significant impact on our global provision for income taxes. Tax laws are dynamic and subject to change as new laws are passed and new interpretations of the law are issued or applied. In 2017, the U.S. enacted significant tax reform, and in the long-term certain provisions of the new law may adversely affect us. In addition, governmental tax authorities are increasingly scrutinizing the tax positions of companies. Many countries in the EU, as well as a number of other countries and organizations such as the Organization for Economic Cooperation and Development, are actively considering changes to existing tax laws that, if enacted, could increase our tax obligations in countries where we do business. If U.S. or other foreign tax authorities change applicable tax laws, our overall taxes could increase, and our business, financial condition, results of operations, or cash flows may be adversely impacted.

To the extent that capacity utilization is not fully realized at its manufacturing facilities, the Company may experience lower profitability. While the Company endeavors continuously to maximize utilization of its manufacturing facilities, our success in these endeavors is dependent upon many factors, including fluctuating market conditions, product life cycles, weather conditions in our key markets, availability of raw materials, manufacturing equipment performance, retention of the workforce and regulatory constraints, among other things. There can be no assurance that the Company will be able to maximize the utilization of its manufacturing facilities. Underutilization of such manufacturing resources could have a material adverse effect upon the Company's financial performance.

The Company's continued success depends, in part, upon a limited number of key employees. Within certain functions, the Company relies heavily on a small number of key employees to manage ongoing operations and to perform strategic planning. In some cases, there are no internal candidates who are qualified to succeed these key personnel in the short term. In the event that the Company were to lose one or more key employees, there is no guarantee that Company could replace them with people having comparable skills. Further, the loss of key personnel could adversely affect the operation of our business.

Domestic and regional inflation trends, increased interest rates and other factors could lead to the erosion of economies and adversely impact the Company. Both the US and many other countries are experiencing inflation, which, in turn, is leading to increased costs in multiple industry segments, including agriculture and related industries. The persistence of inflation has led central bankers to increase interest rates within their regions. There is no guarantee that these measures will arrest the inflationary trend. Further, these factors, taken together with reduced productivity and constraints on the labor supply could lead to recessionary periods in the regions in which the Company does business. While the Company takes measures within its control to manage the effects of inflation, higher interest rates and other factors, ultimately, they are outside of the Company's control. Further, the persistence and/or severity of one or more of them could adversely affect the financial performance and/or operations of the Company.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None

ITEM 2 PROPERTIES

AMVAC owns in fee the Facility constituting approximately 152,000 square feet of improved land in Commerce, California ("Commerce") on which its West Coast manufacturing, some of its warehouse facilities and some of its manufacturing administrative offices are located.

DAVIE owns in fee approximately 72,000 square feet of warehouse, office and laboratory space on approximately 118,000 square feet of land in Commerce, California, which is leased to AMVAC. In 2013, the Company made a significant investment in the Glenn A. Wintemute Research Center, which houses the Company's primary research laboratory supporting synthesis, formulation and other new product endeavors.

In 2001, AMVAC completed the acquisition of a manufacturing facility (the "Axis Facility") from E.I. DuPont de Nemours and Company ("DuPont"). The Axis Facility was one of three such units located on DuPont's 510-acre complex in Axis, Alabama. The acquisition consisted of a long-term ground lease of 25 acres and the purchase of all improvements thereon. The facility is a multi-purpose plant designed for synthesis of active ingredients and formulation and packaging of finished products. In 2018, FMC Corporation acquired from DuPont a business unit, which held, among other things, the Axis Facility. Prior to expiration of the lease, AMVAC and FMC negotiated the terms of a new lease, which has a term of 15 years and the option to renew for two, 5-year periods.

On December 28, 2007, AMVAC purchased certain manufacturing assets relating to the production of Thimet and Counter and located at BASF's multi-plant facility situated in Hannibal, Missouri (the "Hannibal Site"). Subject to the terms and conditions of the Agreement, AMVAC purchased certain buildings, manufacturing equipment, office equipment, fixtures, supplies, records, raw materials, intermediates and packaging constituting the "T/C Unit" of the Hannibal Site. The parties entered into a ground lease and a manufacturing and shared services agreement, under which BASF continues to supply various shared services to AMVAC for the Hannibal Site.

On March 7, 2008, AMVAC acquired from Bayer CropScience Limited Partnership, ("BCS LP"), a U.S. business of Bayer CropScience GmbH, a facility (the "Marsing Facility") located in Marsing, Idaho, which consists of approximately 17 acres of improved real property. The Marsing Facility is engaged in the blending of liquid and powder raw materials and the packaging of some of the Company's finished goods inventory in liquid, powder and pelletized formulations which are sold both in the U.S. and internationally. In addition, during 2019, the Company purchased approximately three acres of unimproved real estate immediately adjacent to the Marsing Facility for potential storage and operational use in the future.

On October 2, 2020, AMVAC completed the purchase of all outstanding shares of Agrinos which is a fully integrated biological input supplier with proprietary technology, internal manufacturing, and global distribution capabilities. Its High Yield Technology® product platform works in conjunction with other nutritional crop inputs to increase crop yield, improve soil health and reduce the environmental footprint of traditional agricultural practices. Agrinos has two primary biological production facilities, a state-of-the-art microbial fermentation facility based in Clackamas, Oregon, and a facility in Sonora, Mexico. The Clackamas and Sonora facilities are used as both manufacturing sites, and operational centers for global supply chain and logistics.

AVD regularly adds chemical processing equipment to enhance or expand its production capabilities. The Company believes its facilities are in good operating condition, are suitable and adequate for current needs and have flexibility to change products. Facilities and equipment are insured against losses from fire as well as other usual business risks. The Company knows of no material defects in title to, or encumbrances on, any of its properties except that substantially all of the Company's assets are pledged as collateral under the Company's credit facility agreements with its primary lender group. For further information, refer to Note 3 of the Notes to the Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K.

AVD owns approximately 42 acres of unimproved land in Texas for possible future expansion.

The Company leases approximately 19,953 square feet of office space located at 4695 MacArthur Court in Newport Beach, California. In 2020, the lease was amended and was extended to expire on June 30, 2026. The premises have served as the Company's corporate headquarters since 1995.

The facilities occupied by GemChem, OHP, Envance and TyraTech (Envance and TyraTech are co-located), AMVAC BV, AMVAC M, AMVAC CR Srl, AMVAC Sgpr, AgNova, Agrinos, AMVAC 3p and AgriCenter, consist of administration, development centers (in the case of Envance and TyraTech) and/or sales offices which are leased. In addition, AMVAC 3p leases warehouse space in Jaboticabal, Brazil.

ITEM 3 LEGAL PROCEEDINGS

Please refer to Note 5 of the Notes to the Consolidated Financial Statements in Part II, item 8 of this Annual Report on Form 10-K.

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

Effective March 7, 2006, the Company listed its $0.10 par value common stock ("Common Stock") on the New York Stock Exchange under the ticker symbol AVD. From January 1998 through March 6, 2006, the Common Stock was listed on the American Stock Exchange under the ticker symbol AVD. The Company's Common Stock traded on The NASDAQ Stock Market under the symbol AMGD from March 1987 through January 1998.

Holders

As of March 6, 2023, the number of stockholders of the Company's Common Stock was approximately 12,533, which includes beneficial owners with shares held in brokerage accounts under street name and nominees.

Dividends

The Company has issued a cash dividend in each of the last twenty-four years dating back to 1996. Cash dividends declared during the past three years are summarized in the table below.

Declaration Date	Record Date	Distribution Date	Dividend Per Share	Total Paid
December 12, 2022	December 28, 2022	January 11, 2023	$ 0.030	$ 851
September 12, 2022	September 23, 2022	October 7, 2022	0.025	715
June 6, 2022	June 24, 2022	July 8, 2022	0.025	742
March 14, 2022	March 25, 2022	April 15, 2022	0.025	736
Total 2022			**$ 0.105**	**$ 3,044**
December 13, 2021	December 27, 2021	January 10, 2022	$ 0.020	$ 594
September 13, 2021	October 1, 2021	October 15, 2021	0.020	594
June 8, 2021	June 24, 2021	July 8, 2021	0.020	600
March 10, 2021	March 15, 2021	April 15, 2021	0.020	596
Total 2021			**$ 0.080**	**$ 2,384**
December 7, 2020	December 23, 2020	January 6, 2021	$ 0.020	$ 592
March 9, 2020	March 26, 2020	April 16, 2020	0.020	586
Total 2020			**$ 0.040**	**$ 1,178**

Share Repurchase Programs

The Company periodically repurchases shares of its common stock under board-authorized repurchase programs through a combination of open market transactions and accelerated share repurchase ("ASR") arrangements.

On August 22, 2022, pursuant to a Board of Directors resolution, the Company entered into an ASR to repurchase $20,000 of its common stock. Under the ASR agreement, the Company paid $20,000 and immediately received an initial delivery of 802,810 shares in the amount of $16,000, based on a price of $19.93 per share, which represented 80% of the notional amount of the ASR based on the closing price of the Company's common stock on the New York Stock Exchange ("NYSE") on August 22, 2022. On December 14, 2022, the ASR was completed, and pursuant to the settlement terms of the ASR, the Company received an additional 131,892 shares of its common stock. The average price paid for all of the shares delivered under the ASR was $21.40 per share.

On March 8, 2022, pursuant to a Board of Directors resolution, the Company announced its intention to repurchase an aggregate number of up to 1,000,000 shares of its common stock under a 10b5-1 plan, par value $0.10 per share, in the open market over the succeeding one year, subject to limitations and restrictions under applicable securities laws. During 2022, the Company purchased 734,150 shares of its common stock for a total of $14,002 at an average price of $19.07 per share.

On August 30, 2021, pursuant to a Board of Directors resolution, the Company announced its intention to repurchase an aggregate number of 300,000 shares of its common stock under a 10b5-1 plan, par value $0.10 per share, in the open market over the succeeding six months. During 2021, the Company purchased 300,000 shares of its common stock for a total of $4,579 at an average price of $15.26 per share.

The table below summarized the number of shares of our common stock that were repurchased during the years ended December 31, 2022 and 2021. The Company did not repurchase any of its common stock in 2020.

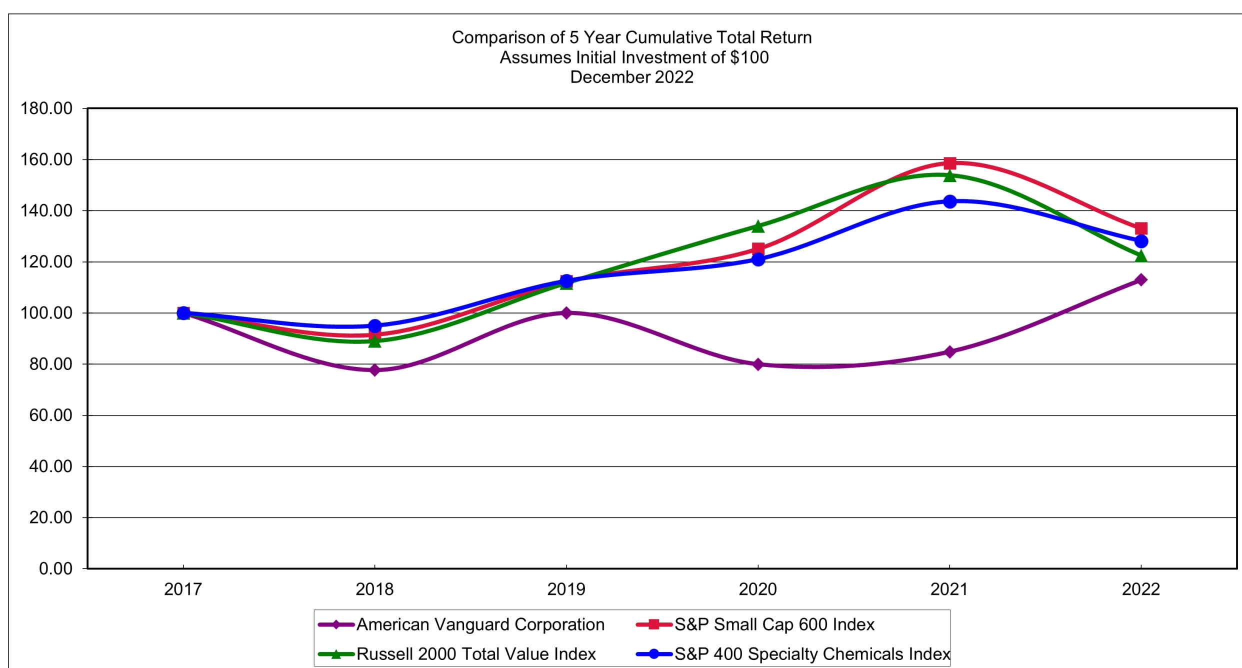
Year ended	Total number of shares purchased	Average price paid per share	Total amount paid
December 31, 2022	1,668,852	$ 20.37	$ 34,002
December 31, 2021	300,000	$ 15.26	$ 4,579

Securities Authorized for Issuance under Equity Compensation Plans

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants, and rights	Weighted average exercise price of outstanding options, warrants, rights	Number of securities remaining available for future issuance under equity compensation plans
Equity compensation plans approved by security holders	150,704	$ 11.49	1,524,567
Total	150,704	$ 11.49	1,524,567

Stock Performance Graph

The following graph presents a comparison of the cumulative, five-year total return for the Company, the Russell 2000 Stock Index, and a peer group (S&P 400 Specialty Chemical Industry). The graph assumes that the beginning values of the investments in the Company, the Russell 2000 Stock Index, and the S&P 400 Specialty Chemical Index (a peer group of companies) each was $100 on December 31, 2017. All calculations assume reinvestment of dividends. Returns over the indicated period should not be considered indicative of future returns.



ITEM 6 RESERVED

Not applicable

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

FORWARD-LOOKING STATEMENTS/RISK FACTORS:

The Company, from time-to-time, may discuss forward-looking statements including assumptions concerning the Company's operations, future results and prospects. Generally, "may," "could," "will," "would," "expect," "believe," "estimate," "anticipate," "intend," "continue" and similar words identify forward-looking statements. Forward-looking statements appearing in this Report are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are based on our current expectations and are subject to risks and uncertainties that can cause actual results and events to differ materially from those set forth in or implied by the forward-looking statements and related assumptions contained in the entire Report. Such factors include, but are not limited to: product demand and market acceptance risks; the effect of economic conditions; weather conditions; changes in regulatory policy; the impact of competitive products and pricing; changes in foreign exchange rates; product development and commercialization difficulties; capacity and supply constraints or difficulties; availability of capital resources; general business regulations, including taxes and other risks as detailed from time-to-time in the Company's reports and filings filed with the U.S. Security and Exchange Commission ("SEC"). It is not possible to foresee or identify all such factors. We urge you to consider these factors carefully in evaluating the forward-looking statements contained in this Report.

The discussion and analysis of our financial condition and results of operations for 2022, as compared to 2021 appears below. As permitted by SEC rules, we have omitted the discussion and analysis of our financial condition and results of operations for 2021 compared to 2020. See Item 7, "Management's Discussions and Analysis of Financial Condition and Results of Operations", in our Annual Report on Form 10-K for the year ended December 31, 2021, for this discussion.

MANAGEMENT OVERVIEW

The Company's performance in 2022 was stronger in most all respects as compared to the prior year. The domestic agricultural economy continued its second upcycle year following a multi-year downcycle that concluded at the end of 2020. With that trend, commodity prices for many crops, including corn, soybeans and cotton, rose and remained strong. Further, with greater confidence in the post-pandemic agricultural and chemical market and improved availability within the shipping industry, growers and distribution relaxed their procurement patterns from a mode of ordering months in advance of the planting season (in 2021) to more of a just-in-time approach (in 2022). While the Company had enjoyed a strong growth trajectory for the first three quarters of 2022, that curve flattened during the fourth quarter, as temporary supply chain disruptions (described below) prevented the production and sale of the Company's leading corn soil insecticide during that period. It is also worth noting that, while shipping services had become more readily available during 2022, the cost of freight rose to its highest point since the start of the pandemic. We expect that those costs will recede to more normalized levels in 2023.

In summary, net sales for 2022 rose 9%, as compared to 2021 (to $609,615 from $557,676), and net income was up about 43% (to $26,618 from $18,587). Operating income rose 31% (to $40,651 in 2022 from $30,946 in 2021). With respect to our businesses, net sales of our U.S. Crop rose by 9%, while gross profit rose 22%. In the U.S., non-Crop net sales declined by 2%, while gross profit dropped by 6%. Our international business increased net sales by 13% and gross profit by 9%.

As a result of the sales dynamics just described, gross profit during 2022 was approximately 13% above that of 2021 ($241,352 vs. $214,047). Further, gross profit when expressed as a percentage of sales was 40%, as compared to 38% in the prior year. Operating expenses increased by 10% ending at $200,701 as compared to $183,272 in 2021. Further, operating expenses (which include outbound freight) as a percent of net sales remained flat at 33%, as compared to 2021.

Despite numerous increases in the interest rate by the Federal Open Market Committee over the course of the year, our interest expense remained approximately even with that of the prior year ($3,954 in 2022 vs. $3,687 in 2021). This performance was due to timing of our borrowings, continued strong cash generated from increased sales, continued focus on working capital management and a high level of participation by customers in our prepayment programs. For 2022, our effective tax rate decreased (at 23.8% in 2022 vs. 30.1% in 2021). Our net income was $27,404 in 2022, as compared to $18,587 in 2021, which represents an increase of about 47%.

When considering the consolidated balance sheets, long-term debt decreased to $51,477 as of December 31, 2022, from $52,240 as of December 31, 2021. The decreased level of debt was driven by the Company's strong cash management during 2022, including a continued strong response from the Company's largest customers to our early-pay programs, offset by the decision to repurchase $34,002 of the Company's stock. The Company's liquidity position improved to $200,372 as of December 31, 2022, as compared to $178,705 as of December 31, 2021.

Results of Operations

2022 Compared with 2021:

	2022	2021	$ Change	% Change
Net sales:				
U.S. crop	$ 288,624	$ 263,632	$ 24,992	9%
U.S. non-crop	76,709	78,605	(1,896)	-2%
Total U.S.	365,333	342,237	23,096	7%
International	244,282	215,439	28,843	13%
Total net sales	$ 609,615	$ 557,676	$ 51,939	9%
Cost of sales:				
U.S. crop	$ 156,115	$ 154,064	$ 2,051	1%
U.S. non-crop	41,452	41,162	290	1%
Total U.S.	197,567	195,226	2,341	1%
International	170,696	148,403	22,293	15%
Total cost of sales	$ 368,263	$ 343,629	$ 24,634	7%
Gross profit:				
U.S. crop	$ 132,509	$ 109,568	$ 22,941	21%
U.S. non-crop	35,257	37,443	(2,186)	-6%
Total U.S.	167,766	147,011	20,755	14%
International	73,586	67,036	6,550	10%
Total gross profit	$ 241,352	$ 214,047	$ 27,305	13%
Gross margin:				
U.S. crop	46%	42%		
U.S. non-crop	46%	48%		
Total U.S.	46%	43%		
International	30%	31%		
Total gross margin	40%	38%		

Net sales of our **U.S. crop** business were about 9% higher than those of the prior year ($288,624 vs. $263,632). With the second full year of high commodity prices and a strong farm economy, the Company experienced strong demand for its crop protection products. The pacing of procurement practices in the distribution channel, however, relaxed from advance purchasing in 2021 (for the 2021-2022 season) to more of a just-in-time approach in 2022 (for the 2022-2023 season). The Company experienced strong sales of its corn products, particularly soil insecticides and post-emergent herbicides (Impact, Impact Core, Sinate, and Impact Z) notwithstanding a 20% drop in sales of our leading corn soil insecticide, Aztec, which we were unable to make and sell in the fourth quarter of 2022, due to unavailability of a key intermediate from both a domestic supplier (which experienced capacity constraints) and a China-based supplier (which experienced widespread COVID infection followed by a temporary shutdown). With respect to our cotton products, strong commodity prices stimulated demand for our Bidrin foliar insecticides and Folex harvest defoliant, which together generated sales that were up 33%, as compared to those of 2021. We also recorded stronger sales of our soil fumigants (for use on a wide range of fruit and vegetables), Thimet (for use of peanuts and sugar beets), our herbicide, Dacthal (for use on high-value crops, including onions) and our soybean herbicide products.

Cost of sales within the domestic crop business was flat compared to 2021, on sales that increased 9%, gross profit improved by 21% ($132,509 in 2022 vs. $109,568 in 2021), and gross margin was 46% of sales as compared to 42% last year.

Net sales of our **U.S. non-crop** business were down about 2% ($76,709 in 2022 vs. $78,605 in 2021). This decline was driven primarily by the nationwide consumer pest-control market, which dropped by 30% year-over-year, due to US workers returning to the workplace post-COVID. Net sales from our OHP nursery and ornamental business were about even with those of 2021, as US consumer demand for plant materials remained level. During 2022, we posted relatively flat Dibrom® mosquito adulticide sales. By contrast, sales of insecticides for commercial applications rose during the year, as the professional pest-control market began to regain its footing. Finally, TyraTech/Envance extended the scope of a license agreement in 2021 and benefited from a one-time non-refundable up-front fee.

Cost of sales in our U.S. non-crop business remained flat with the prior year and gross profit decreased by 6% (to $35,257 in 2022 from $37,443 in 2021), and gross margin percentage decreased to 46% in 2022, as compared to 48% in 2021.

Net sales of our **international** businesses increased by 13% in 2022 ($244,282 vs. $215,439 in 2021). During 2022, our international group continued to successfully integrate two important new businesses, AgNova in Australia, and Agrinos biological products in more than a half dozen countries worldwide. We enjoyed strong demand for our soil fumigants, particularly in Mexico and Australia, and experienced increased sales of our Counter nematicide in Brazil. Further, we experienced higher sales in our AgriCenter Central American distribution business and achieved a record $100 million in net sales from our LATAM region. Expansion of our Green Solutions product portfolio has significantly enhanced our penetration of international markets and drawn us much closer to many key customers.

Cost of sales in our international business increased by 15% (to $170,696 in 2022 from $148,403 in 2021) on sales that increased 13%, gross profit rose 10% from the prior year (to $73,586 in 2022 from $67,036 in 2021), and gross margin percentage ended at 30% in 2022, as compared to 31% in 2021.

Operating expenses (which include outbound freight costs) increased by $17,429 in 2022, to $200,701 or 33% of net sales, as compared to $183,272 or 33% in 2021. The differences in operating expenses by department are as follows:

	2022	2021	Change	% Change
Selling	$ 52,512	$ 49,409	$ 3,103	6%
General and administrative:				
Other	51,671	47,971	3,700	8%
Proxy contest activities	1,785	—	1,785	100%
Amortization	13,953	13,713	240	2%
Research, product development and regulatory	31,816	28,855	2,961	10%
Freight, delivery and warehousing	48,964	43,324	5,640	13%
Total Operating Expenses	$ 200,701	$ 183,272	$ 17,429	10%

- Selling expenses increased by 6% to $52,512 for the year ended December 31, 2022, as compared to $49,409 in 2021. This included increased costs associated with travel expenses (as the in-person business interactions with customers continue to increase), inflation related increased wages, increased spending on advertising and promoting the Company’s products, and the cost of commissions associated with sales growth in Brazil. These increased costs were somewhat offset by beneficial exchange rate movement in key currencies.
- General and administrative expenses increased by 8% to $51,671 for the year ended December 31, 2022, as compared to $47,971 in 2021. The main drivers were the net increase in short-term and long-term incentive compensation, as a result of improved financial performance and increased bad debt expenses related to our businesses in Central America. In addition, wages, travel expense and other administrative costs increased in support of our growing business.
- The Company spent $1,785 in fees associated with our Proxy defense activities; there were no such fees in the comparative period of the prior year.
- Research, product development and regulatory expenses increased by 10% to $31,816 in 2022, as compared to $28,855 in 2021. The main drivers were increases in our product development costs, primarily resulting from increased international regulatory activities and work in support of our SIMPAS/ULTIMUS technology platform. In addition, wages and travel expenses increased in support of our growing business.

- Freight, delivery and warehousing costs for the year ended December 31, 2022, increased by 13% (on sales up 9%) to $48,964, as compared to $43,324 in 2021. This is mainly due to increases in freight rates, and changes in volume, product mix and customer destinations. When expressed as a percentage of sales, freight costs remained essentially flat at 8% of net sales.

In July 2020, the Company made a strategic investment in Clean Seed Inc. (Clean Seed) in the amount of $1,190. The investment is carried at fair value on the Company's consolidated balance sheets. The Company recorded losses to Clean Seed's fair value in the amount of $732 and $391 in 2022 and 2021, respectively.

In February 2016, AMVAC BV made an equity investment of $3,283 in Biological Products for Agriculture ("Bi-PA"). The Company has elected to measure the investment at cost less impairment, if any, and to record an increase or decrease for changes resulting from observable price changes in orderly transactions for the identical or a similar investment of Bi-PA. The Company recorded an impairment in the amount of $399 during the year ended December 31, 2021. No impairment was recorded for the year ended December 31, 2022.

Net interest expense was $3,954 in 2022, as compared to $3,687 in 2021. Interest costs are summarized in the following table:

	2022			2021		
Average Indebtedness and Interest expense	**Average Debt**	**Interest Expense**	**Interest Rate**	**Average Debt**	**Interest Expense**	**Interest Rate**
Working capital revolver	$134,158	$ 3,921	2.9%	$142,238	$ 3,414	2.4%
Interest income	—	(167)	—	—	(65)	—
Amortization of deferred loan fees	—	261	—	—	367	—
Amortization of other deferred liabilities	—	28	—	—	(4)	—
Other interest expense	—	228	—	—	218	—
Subtotal	134,158	4,271	3.2%	142,238	3,930	2.8%
Capitalized interest	—	(317)	—	—	(243)	—
Total	$134,158	$ 3,954	2.9%	$142,238	$ 3,687	2.6%

The Company's average debt for the year ended December 31, 2022, was $134,158, as compared to $142,238 for the year ended December 31, 2021. The decrease in average debt can be attributed to improved cash management, partially offset by the Company repurchasing $34,002 of its common stock. On a gross basis, after adjustments related to capitalized interest and expenses related to the amortization of deferred liabilities, our effective interest rate on our working capital revolver increased to 2.9%, as compared to 2.4% in 2021 due to increases in the LIBOR rate driven by U.S. fiscal policy.

Our provision for income taxes for 2022 was $8,561, as compared to $8,166 for 2021. The effective tax rate for 2022 was 23.8%, as compared to 30.1% in 2021. The decrease of the effective tax rate in 2022, as compared to 2021, was primarily due to a non-cash charge related to a valuation allowance associated with a deferred tax asset in Brazil established in 2021.

The Company is subject to U.S. federal income tax as well as to income tax in multiple state jurisdictions. Federal income tax returns of the Company are subject to Internal Revenue Service ("IRS") examination for the 2019 through 2021 tax years. State income tax returns are subject to examination for the 2018 through 2021 tax years. The Company has other foreign income tax returns subject to examination.

Net income was $27,404 or $0.94 per basic share and $0.92 per diluted share in 2022, as compared to $18,587 or $0.62 per basic share and $0.61 per diluted share in 2021.

Liquidity and Capital Resources

The Company generated $57,105 of cash from operating activities during the year ended December 31, 2022, as compared to $86,361 in the prior year. Included in the $57,105 are net income of $27,404, plus non-cash depreciation, amortization of intangibles and other long-term assets in the amount of $25,711, loss on disposal of property, plant and equipment of $268, amortization of deferred loan fees and discounted liabilities of $289, provision for bad debts in the amount of $1,171, provision for inventory obsolescence in the amount of $340, and revisions of contingent consideration of $610. In addition, stock-based compensation of $5,684, change in fair value of investments of $732, change in value of deferred income taxes of $5,278, change in liabilities for certain tax positions or unrecognized tax benefits of $1,441, non-cash lease expense of $68 and net foreign currency adjustment of $29, resulted in net cash provided by operating activities (prior to changes in assets and liabilities associated with operations, net of business combinations) of $55,529 as compared to $50,989 for the same period of 2021.

The Company's working capital increased by $3,027 at December 31, 2022, as comparted to the prior year ($121,966 compared to $118,939). Accounts receivables increased by $6,447, inventories increased by $29,560, tax receivable, net increased by $4,910, and prepaid expenses increased by $3,082. Deferred revenue increased by $47,551, driven by customer decisions to make early payments in return for early cash incentive programs. Our accounts payable balances increased by $1,704, program accruals decreased by $2,449 and other payables and accrued expenses increased by $90. The Company also paid $1,321 in contingent consideration (in addition to $68 included in cash used in financing activities).

With regard to our program accrual, the year-over-year change is primarily driven by the mix of product line sales and customers in 2022, as compared to the prior year. The Company accrues programs in line with the growing season upon which specific products are targeted. Most of our programs relate to domestic sales. Typically, domestic crops have a growing season that ends on August 31st of each year. During 2022, the Company made accruals in the amount of $111,649 and made payments in the amount of $114,151. During 2021, the Company made accruals in the amount of $99,482 and made payments in the amount of $81,678.

Because the estimate for the program accrual is a material component of the Company's overall financial performance, the Company believes that the process it uses is critical in setting the accrual at the appropriate level. The Company's process for developing the estimate involves a detailed review of each related transaction and includes the input of a significant number of senior employees to enable the Company to set the accrual using consistently applied judgements, subject to the particular circumstances of any individual transaction.

Cash used for investing activities amounted to $14,470 for the year ended December 31, 2022, as compared to $20,042 in 2021. In 2022, the Company spent $13,261 on capital expenditures primarily focused on continuing to invest in manufacturing infrastructure to expand production efficiency and capabilities. In addition, the Company made a payment of $1,000 to Clean Seed to amend a license agreement under which royalty-bearing license rights were converted to fully paid-up, royalty-free, perpetual license rights, and spent $293 on registrations and patents. In 2021, the Company spent $10,524 in business and product acquisitions including intangible assets, goodwill, working capital and fixed assets as well as patent application costs, and $9,518 on capital expenditures primarily focused on our manufacturing facilities.

During the year ended December 31, 2022, financing activities used $38,260, as compared to $65,871 during the prior year. This included making repayments of $254,000 and borrowings of $253,000 on the Company's senior credit facility during the year ended December 31, 2022. During 2021, the Company made repayments in the amount of $186,569 and borrowings of $131,000. During 2022, the Company paid dividends to stockholders amounting to $2,787, as compared to $2,382 in 2021. Furthermore, the Company paid contingent consideration in the amount of $68 (in addition to the $1,321 included in cash provided by operating activities) and $1,301 for the years ended December 31, 2022 and 2021, respectively. Finally, the Company used $34,002 to repurchase common stock in 2022, as compared to $4,579 in 2021.

The Company has long-term debt as of December 31, 2022 and 2021 relating to a revolving line of credit as summarized in the following table:

Indebtedness	2022	2021
Revolving line of credit	$ 52,300	$ 53,300
Debt issuance costs	(823)	(1,060)
Total indebtedness	$ 51,477	$ 52,240

The Company's main bank is Bank of the West, a wholly owned subsidiary of BMO Financial Group. Bank of the West has been the Company's bank for more than 30 years and is the syndication manager for the Company's loans.

The Company and certain of its affiliates are parties to a revolving line of credit agreement entitled the "Third Amended and Restated Loan and Security Agreement" dated as of August 5, 2021 (the "Credit Agreement"), which is a senior secured lending facility among AMVAC, the Company's principal operating subsidiary, as Borrower Agent (including the Company and AMVAC BV), as Borrowers, on the one hand, and a group of commercial lenders led by Bank of the West as administrative agent, documentation agent, syndication agent, collateral agent and sole lead arranger, on the other hand. The Credit Agreement consists of a line of credit of up to $275,000, an accordion feature of up to $150,000, a letter of credit and swingline sub-facility (each having limits of $25,000) and has a maturity date of August 5, 2026. The Credit Agreement amends and restates the previous credit facility, which had a maturity date of June 30, 2022. With respect to key financial covenants, the Credit Agreement contains two: namely, borrowers are required to maintain a Total Leverage ("TL") Ratio of no more than 3.5-to-1, during the first three years, stepping down to 3.25-to-1 as of September 30, 2024, and a Fixed Charge Coverage Ratio of at least 1.25-to-1. In addition, to the extent that it completes acquisitions totaling $15 million or more in any 90-day period, AMVAC may step-up the TL Ratio by 0.5-to-1, not to exceed 4.00-to-1, for the next three full consecutive quarters. Acquisitions below $50 million do not require Agent consent.

The Company's borrowing capacity varies with its financial performance, measured in terms of Consolidated EBITDA as defined in the Credit Agreement, for the trailing twelve-month period. Under the Credit Agreement, revolving loans bear interest at a variable rate based, at borrower's election with proper notice, on either (i) LIBOR plus the "Applicable Margin" which is based upon the Total Leverage ("TL") Ratio ("LIBOR Revolver Loan") or (ii) the greater of (x) the Prime Rate, (y) the Federal Funds Rate plus 0.5%, and (z) the Daily One-Month LIBOR Rate plus 1.00%, plus, in the case of (x), (y) or (z) the Applicable Margin ("Adjusted Base Rate Revolver Loan"). Interest payments for LIBOR Revolver Loans are payable on the last day of each interest period (either one-, three- or six- months, as selected by the borrower) and the maturity date, while interest payments for Adjusted Base Rate Revolver Loans are payable on the last business day of each month and the maturity date. The interest rate on December 31, 2022, was 5.67%.

At December 31, 2022, according to the terms of the Credit Agreement, as amended, and based on our performance against the most restrictive covenant listed above, the Company had the capacity to increase its borrowings by up to $200,372. This compares to an available borrowing capacity of $178,705 as of December 31, 2021. The level of borrowing capacity is driven by three factors: (1) our financial performance, as measured in EBITDA for trailing twelve-month period, (2) the inclusion of proforma EBITDA related to acquisitions completed during the preceding twelve months and (3) the leverage covenant (being the number of times EBITDA the Company may borrow under its credit facility agreement).

The Company and the Lenders entered into an amendment to the Credit Agreement ("Amendment"), effective March 9, 2023, whereby LIBOR was replaced by SOFR with a credit spread adjustment of 10.0 bps for all SOFR periods. The revolving loans now bear interest at a variable rate based at borrower's election with proper notice, on either (i) SOFR plus 0.1% per annum and the "Applicable Margin" or (ii) the greater of (x) the Prime Rate, (y) the Federal Funds Rate plus 0.5%, and (z) the Daily One-Month SOFR Rate plus 1.10%, plus, in the case of (x), (y) or (z) the Applicable Margin ("Adjusted Base Rate Revolver Loan"). In addition, the Amendment waived the minimum fixed charge coverage ratio ("FCCR") requirement for the year ended December 31, 2022, and adjusted the terms of the FCCR for the periods ending March 31, 2023 and June 30, 2023. The Company was in compliance with all other debt covenants as of December 31, 2022.

We believe that the combination of our cash flows from future operations, current cash on hand and the availability under the Company's credit facility will be sufficient to meet our working capital and capital expenditure requirements and will provide us with adequate liquidity to meet our anticipated operating needs for at least the next 12 months from the issuance of the Annual Report. Although operating activities are expected to provide cash, to the extent of growth in the future, our operating and investing activities will use cash and, consequently, this growth may require us to access some or all of the availability under the credit facility. It is also possible that additional sources of finance may be necessary to support additional growth.

Substantially all the Company's assets are pledged as collateral under the Credit Agreement, as amended.

Recently Issued Accounting Guidance

Please refer to Note 3 of the Notes to the Consolidated Financial Statements in Part II, Item 8 of this Annual Report for recently issued and adopted accounting standards.

Foreign Exchange

The Company faces market risk to the extent that changes in foreign currency exchange rates affect our non-U.S. dollar functional currency for some of our foreign subsidiaries' revenues, expenses, assets and liabilities. We currently do not engage in hedging activities with respect to such exchange rate risks.

Assets and liabilities outside the U.S. are located in regions where we have subsidiaries or joint ventures: Central America, South America, North America, Europe, Asia, and Australia. Our investments in foreign subsidiaries and joint ventures with a functional currency other than the U.S. dollar are generally considered long-term. Accordingly, we do not hedge these net investments.

Inflation

Management believes inflation has had minimal impact on the Company's operations during the past two years. The Company is working diligently with its critical raw material suppliers to control inflationary pressures, conducting contract negotiations with focus on the following: reducing or delaying price increases due to higher environmental costs from suppliers mainly in China and India, managing the tariff impacts by sourcing and leveraging alternate geographies where possible, and lastly, monitoring strengths of the U.S. dollar vs other currencies in order to secure benefits and balance tariff effects. The Company recognizes there is long-term pressure on demand for raw materials in the developing world and is utilizing its expertise to minimize inflationary pressure. The Company has been able to push back on many of the proposed price increases for actives and intermediates that are shipped to our U.S. factories, to either avoid, minimize or forestall them. In response to inflation and other factors that have increased the cost of goods and services, the Company has successfully implemented price increases on its products.

CRITICAL ACCOUNTING ESTIMATES

Certain of the Company's policies require the application of judgment by management in selecting the appropriate assumptions for calculating financial estimates. These judgments are based on historical experience, terms of existing contracts, commonly accepted industry practices and other assumptions that the Company believes are reasonable under the circumstances. These estimates and assumptions are reviewed periodically, and the effects of revisions are reflected in the consolidated financial statements in the period that revisions are determined to be necessary. Actual results may differ from these estimates under different outcomes or conditions.

The Company's critical accounting policies and estimates include:

Revenue Recognition — Revenues from sales are recognized at the time control is transferred to the customer. This is typically the case when the customer has made the fixed commitment to purchase the goods, the products are shipped per the customer's instructions, the sales price can be identified, and collection is probable. The Company has adopted procedures to ensure that revenues are recognized when earned. The procedures are subject to management's review and from time-to-time certain revenues are excluded until it is clear that the title has passed and there is no further recourse to the Company. We also have some arrangements whereby revenues are recognized over time for certain products that are deemed to have no alternative use accompanied by an enforceable right to payment for performance completed to date. From time-to-time, the Company may offer a program to eligible customers, in good standing, that provides extended payment terms on a portion of the sales on selected products. The Company analyzes these extended payment programs in connection with its revenue recognition policy to ensure all revenue recognition criteria are satisfied at the time of sale. The Company also earns royalty income from its licensing arrangements which qualify as functional licenses rather than symbolic licenses. Upon signing a new licensing agreement, we typically receive up-front fees, which are generally characterized as non-refundable royalties. These fees are recognized as revenue upon the execution of the license agreements. Minimum royalty fees are recognized once the Company has an enforceable right for payment. Sales-based royalty fees are typically

recognized when the sales occur. We calculate and accrue estimated royalties based on the agreement terms and correspondence with the licensees regarding actual sales.

Accrued Program Costs— The Company offers various discounts to customers based on the volume purchased within a defined period, other pricing adjustments, some grower volume incentives or other key performance indicator driven payments made to distributors, retailers or growers, usually at the end of a growing season. The Company describes these payments as "Programs." Programs are a critical part of doing business in both the U.S. crop and non-crop chemicals marketplaces. These discount Programs represent variable consideration. Revenues from sales are recorded at the net sales price, which is the transaction price, less an estimate of variable consideration. Variable consideration includes amounts expected to be paid to its customers using the expected value method. Each quarter management compares individual sale transactions with Programs to determine what, if any, estimated Program liabilities have been incurred. Once this initial calculation is made for the specific quarter, sales and marketing management, along with executive and financial management, review the accumulated Program balance and, for volume driven payments, make assessments of whether or not customers are tracking in a manner that indicates that they will meet the requirements set out in agreed upon terms and conditions attached to each Program. Following this assessment, management will adjust to the accumulated accrual to properly reflect the Company's best estimate of the liability at the balance sheet date. Programs are paid out predominantly on an annual basis, usually in the final quarter of the financial year or the first quarter of the following year.

Allowance for Doubtful Accounts or Current Expected Credit Losses —The Company maintains an allowance to cover its Current Expected Credit Losses ("CECL") on its trade receivables, other receivables and contract assets arising from the failure of customers to make contractual payments. The Company estimates credit losses expected over the life of its trade receivables, other receivables and contract assets based on historical information combined with current conditions that may affect a customer's ability to pay and reasonable and supportable forecasts. In most instances, the Company's policy is to write-off trade receivables when they are deemed uncollectible. The vast majority of the Company's trade receivables, other receivables and contract assets are less than 365 days. Under the CECL impairment model, the Company develops and documents its allowance for credit losses on its trade receivables based on multiple portfolios. The determination of portfolios is based primarily on geographical location, type of customer and aging.

Inventories — The Company values its inventories at lower of cost or net realizable value. Cost is determined by the first-in, first-out ("FIFO") or average cost method, including, as appropriate, raw materials, labor, factory overhead and subcontracting services. The Company writes down its inventory to the net realizable value following assessments of slow moving and obsolete inventory and other annual adjustments to ensure that our standard costs continue to closely reflect actual manufacturing cost.

Leases —The Company has operating leases for warehouses, manufacturing facilities, offices, cars, railcars and certain equipment. The Company recognizes operating lease right-of-use (ROU) assets and lease liabilities for all leases. The Company measures ROU assets throughout the lease term at the carrying amount of the lease liability, plus initial direct costs, plus (minus) any prepaid (accrued) lease payments, less the unamortized balance of lease incentives received. The lease liabilities are measured at the present value of the unpaid lease payments at the lease commencement date. Leases that include both lease and non-lease components are accounted for as a single lease component for each asset class, except for warehouses. The minimum payments under operating leases are recognized on a straight-line basis over the lease term in the consolidated statements of operations. Operating lease expenses related to variable lease payments are recognized in cost of sales or as operating expenses in a manner consistent with the nature of the underlying lease and as the events, activities, or circumstances in the lease agreement occur. Leases with a term of less than 12 months are not recognized on the consolidated balance sheets, and the related lease expenses are recognized in the consolidated statements of operations on a straight-line basis over the lease term. The accounting for leases requires management to exercise judgment and make estimates in determining the applicable discount rate, effective lease term and payments due under a lease. Most of our leases do not provide an implicit interest rate, nor is it available to us from our lessors. As an alternative, we use our estimated incremental borrowing rate, which is derived from information available at the lease commencement date, including publicly available data, in determining the present value of lease payments. We also estimated the fair value of the lease and non-lease components for some of our warehouse leases based on market data and cost data. The lease term includes the non-cancellable period of the lease plus any additional periods covered by either an option to extend (or not terminate) that the Company is reasonably certain to exercise. The Company has leases with a lease term ranging from 1 year to 20 years. The operating leases of the Company do not contain major restrictions or covenants such as those relating to dividends or additional financial obligations. Finance leases are immaterial to the consolidated financial statements.

Intangible Assets—The primary identifiable intangible assets of the Company relate to assets associated with its product and business acquisitions. All of the Company's intangible assets have finite lives and are amortized. The estimated useful life of an identifiable intangible asset is based upon a number of factors including the effects of demand, competition, and expected changes in the marketability of the Company's products.

Business Combinations—The Company uses its best estimates and assumptions to assign fair value to the tangible and intangible assets acquired and liabilities assumed at the acquisition date. The Company's estimates are inherently uncertain and subject to refinement. During the measurement period, which may be up to one year from the acquisition date, the Company may record adjustments to the fair value of these tangible and intangible assets acquired and liabilities assumed, with the corresponding offset to goodwill or an adjustment to the gain from a bargain purchase. In addition, uncertain tax positions and tax-related valuation allowances are initially recorded in connection with a business combination as of the acquisition date. The Company continues to collect information and reevaluates these estimates and assumptions quarterly and records any adjustments to the Company's preliminary estimates to goodwill provided that the Company is within the measurement period. Upon the conclusion of the measurement period or final determination of the fair value of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the Company's consolidated statement of operations.

From time to time, certain of our acquisition agreements include contingent earn-out arrangements, which are generally based on the achievement of future income thresholds. The fair values of these earn-out arrangements are included as part of the purchase price of the acquired companies on their respective acquisition dates. For each transaction, we estimate the fair value of contingent earn-out payments as part of the initial purchase price and record the estimated fair value of contingent consideration as a liability on the consolidated balance sheets.

We review and re-assess the estimated fair value of contingent consideration on a quarterly basis until the contingent period ends, and the updated fair value could be materially different from the initial estimates or prior quarterly amounts. Changes in the estimated fair value of our contingent earn-out liabilities are reported in operating results.

Asset Acquisitions—If an acquisition of an asset or group of assets does not meet the definition of a business, the transaction is accounted for as an asset acquisition rather than a business combination. An asset acquisition does not result in the recognition of goodwill and transaction costs are capitalized as part of the cost of the asset or group of assets acquired. The Company uses its best estimates and assumptions to assign fair value to the tangible and intangible assets acquired and liabilities assumed at the acquisition date. The acquisitions costs are allocated to the assets acquired on a relative fair value basis. From time to time, certain of our acquisition agreements include contingent earn-out arrangements, which are recognized only when the contingency is resolved, and the consideration is paid or becomes payable.

Impairment—The carrying values of long-lived assets other than goodwill are reviewed for impairment annually and/or whenever events or changes in circumstances indicate that the carrying value of such assets may not be recoverable. In such circumstances, the Company evaluates recoverability of an asset group by comparing the carrying value to the future undiscounted cash flows that it expects to generate from the asset group. If the comparison indicates that the carrying value of an asset group is not recoverable, measurement of the impairment loss is based on the fair value of the asset.

The Company reviews goodwill for impairment utilizing either a qualitative or quantitative assessment. If the Company decides that it is appropriate to perform a qualitative assessment and concludes that the fair value of a reporting unit more likely than not exceeds its carrying value, no further evaluation is necessary. If the Company performs a quantitative assessment, the Company compares the fair value of a reporting unit with its carrying values and recognizes an impairment charge for the amount that the carrying amount exceeds the reporting unit's fair value. The Company annually tests goodwill for impairment at the beginning of the fourth quarter, or earlier if triggering events occur.

Fair Value of Financial Instruments—The accounting standard for fair value measurements provides a framework for measuring fair value and requires expanded disclosures regarding fair value measurements. Fair value is defined as the price that would be received for an asset or the exit price that would be paid to transfer a liability in the principal or most advantageous market in an orderly transaction between market participants on the measurement date. This accounting standard established a fair value hierarchy, which requires an entity to maximize the use of observable inputs, where available. The following summarizes the three levels of inputs required:

- 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 carrying amount of the Company's financial instruments, which principally include cash and cash equivalents, short-term investments, accounts receivable, long-term investments, accounts payable and accrued expenses approximate fair value because of the relatively short maturity of such instruments. The carrying amount of the Company's short-term and long-term borrowings, which are considered Level 2 liabilities, approximates fair value based upon current rates and terms available to the Company for similar debt.

We measure our contingent earn-out liabilities in connection with acquisitions at fair value on a recurring basis using significant unobservable inputs classified within Level 3 of the fair value hierarchy. We may use various valuation techniques depending on the terms and conditions of the contingent consideration including a Monte-Carlo simulation. This simulation uses probability distribution for each significant input to produce hundreds or thousands of possible outcomes and the results are analyzed to determine probabilities of different outcomes occurring.

Income taxes—Income tax expense, deferred tax assets and liabilities, and liabilities for unrecognized tax benefits reflect management's best estimate of current and future taxes to be paid. The Company is subject to income taxes in the U.S. and several foreign jurisdictions. The Company assessed the ability to realize deferred tax assets and determined that based on the available evidence, including a history of taxable income and estimates of future taxable income, it is more likely than not that the net deferred tax assets relating to the Company's operations in Brazil, Spain, and Ukraine will not be realized and a full valuation allowance was recorded in those jurisdictions. Significant management judgment is required in determining the provision for income taxes and deferred tax assets and liabilities. In the event that actual results differ from these estimates, we will adjust these estimates in future periods, which may result in a change in the effective tax rate in a future period. Accounting for income taxes involves uncertainty and judgment on how to interpret and apply tax laws and regulations within the Company's annual tax filings. Such uncertainties from time to time may result in a tax position that may be challenged and overturned by a tax authority in the future, which could result in additional tax liability, interest charges and possibly penalties. The Company classifies interest and penalties as a component of income tax expense.

ITEM 7A QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The Company is exposed to market risk related to changes in interest rates, primarily from its borrowing activities. The Company's indebtedness to its primary group of lenders is evidenced by a line of credit with a variable rate of interest, which fluctuates with changes in the lender's reference rate (SOFR). An increase or decrease in interest rates by 25 bps would impact the Company's net income by approximately $350 based on the Company's historical average borrowing in 2022 and 2021. The Company may use derivative financial instruments for trading purposes to protect trading performance from exchange rate fluctuations on material contracts, though there are no such instruments in place during any periods presented in this Annual Report.

The Company conducts business in various foreign currencies, primarily when doing business in Europe, Mexico, Central and South America. Therefore, changes in the value of the currencies of such countries or regions affect the Company's financial position and cash flows when translated into U.S. Dollars. The Company has mitigated, and will continue to mitigate, a portion of its currency exchange exposure through natural hedges based on the operation of decentralized foreign operating companies in which the majority of all costs are local-currency-based. A 10% change in the value of all foreign currencies would have an immaterial effect on the Company's financial position and cash flows.

As part of an on-going process of assessing business risk, management has identified risk factors which are disclosed in Item 1A. Risk Factors of this Report on Form 10-K.

ITEM 8 FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The Financial Statements and Supplementary Data required by this item are listed at Part IV, Item 15, Exhibits, and Financial Statement Schedule.

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

None.

ITEM 9A CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

Management, under the supervision of the Company's Chief Executive Officer and Chief Financial Officer, periodically evaluate the effectiveness of the design and operation of the Company's disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)). Based upon this evaluation, as of December 31, 2022, the Chief Executive Officer and the Chief Financial Officer have concluded that these disclosure controls and procedures are effective in ensuring that the information required to be disclosed in reports filed under the Securities Exchange Act of 1934 is (i) recorded, processed, summarized and reported on a timely basis, and (ii) accumulated and communicated to the Company's management, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Report on Internal Control over Financial Reporting

Management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) of the Securities Exchange Act of 1934 for the Company. The Company's internal control system over financial reporting is designed to provide reasonable assurance to management and the Board of Directors as to the fair, reliable and timely preparation and presentation of consolidated financial statements in accordance with accounting principles generally accepted in the United States of America filed with the SEC.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Therefore, even processes determined to be effective can provide only reasonable assurance with respect to the financial statement preparation and presentation.

Management conducted an evaluation of the Company's internal controls over financial reporting based on a framework set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control—Integrated Framework (2013)*. This evaluation included review of the documentation of controls, evaluation of the design effectiveness of controls, testing of the effectiveness of controls and a conclusion on the evaluation. Based on this evaluation, management believes that as of December 31, 2022, the Company's internal control over financial reporting is effective.

BDO USA, LLP, the independent registered public accounting firm that audited the consolidated financial statements included in the Annual Report on Form 10-K, was engaged to attest to and report on the effectiveness of AVD's internal control over financial reporting as of December 31, 2022. Their report is included herein.

Changes in Internal Control over Financial Reporting

There were no changes in internal control over financial reporting during the fourth quarter of the year ended December 31, 2022, that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

Stockholders and Board of Directors
American Vanguard Corporation
Newport Beach, California

Opinion on Internal Control over Financial Reporting

We have audited American Vanguard Corporation's (the "Company's") internal control over financial reporting as of December 31, 2022, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2022 and 2021, the related consolidated statements of operations and comprehensive income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and financial statement schedule listed in the accompanying index and our report dated March 16, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Item 9A, Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ BDO USA, LLP

Costa Mesa, California
March 16, 2023

ITEM 9B OTHER INFORMATION

None.

ITEM 9C DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10 DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information set forth under the captions “Executive Officers of the Company,” “Election of Directors,” “Information about the Board of Directors and Committees of the Board” and “Transactions with Management and Others—Section 16(a) Beneficial Ownership Reporting Compliance” in our definitive proxy statement (the “Proxy Statement”) for our Annual Meeting of Stockholders to be held on June 7, 2023, which will be filed with the SEC within 120 days of the end of our fiscal year ended December 31, 2022, is incorporated herein by reference.

ITEM 11 EXECUTIVE COMPENSATION

Except as specifically provided, the information set forth under the captions “Compensation of Executive Officers” and “Information about the Board of Directors and Committees of the Board—Compensation of Directors” in the Proxy Statement is incorporated herein by reference.

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

The disclosure contained in Part II, Item 5 under “Equity Compensation Plan Information” is incorporated herein by reference. Information regarding security ownership of certain beneficial owners and management is incorporated by reference to the information set forth under the caption “Security Ownership of Certain Beneficial Owners and Management” in the Proxy Statement.

ITEM 13 CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information set forth under the captions “Transactions with Management and Others” and “Information about the Board of Directors and Committees of the Board” in the Proxy Statement is incorporated herein by reference.

ITEM 14 PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information regarding principal accountant fees and services is incorporated herein by reference to the information set forth under the caption “Ratification of the Selection of Independent Registered Public Accounting Firm—Relationship of the Company with Independent Registered Public Accounting Firm” in the Proxy Statement.

AMERICAN VANGUARD CORPORATION

EXHIBIT INDEX

ITEM 15

Exhibit Number	Description of Exhibit
3.1	Amended and Restated Certificate of Incorporation of American Vanguard Corporation (filed as Exhibit 3.1 to the Company's Form 10-K for the year ended December 31, 2003, which was filed on March 30, 2004, with the Securities Exchange Commission and incorporated herein by reference).
3.2	Certificate of Amendment of Amended and Restated Certificate of Incorporation of American Vanguard Corporation (filed as Exhibit 3.2 to the Company's Form 10-Q/A for the period ended June 30, 2004, which was filed with the Securities Exchange Commission on February 23, 2005, and incorporated herein by reference).
3.3	Amended and Restated Bylaws of American Vanguard Corporation dated as of June 5, 2014 (filed as Exhibit 99.1 to the Company's Form 8-K, which was filed with the Securities Exchange Commission on June 7, 2014, and incorporated herein by reference.)
4	Form of Indenture (filed as Exhibit 4.4 to the Company's Registration Statement on Form S-3 (File No. 333-122981) and incorporated herein by reference).
10.1	American Vanguard Corporation Employee Stock Purchase Plan (filed as Appendix A to the Company's Proxy Statement filed with the Securities and Exchange Commission on April 23, 2018, and incorporated herein by reference).
10.2	American Vanguard Corporation Amended and Restated Stock Incentive Plan as of June 8, 2016 (filed as Appendix A to the Company's Proxy Statement filed with the Securities and Exchange Commission on April 25, 2016, and incorporated herein by reference).
10.3	Form of Incentive Stock Option Agreement under the American Vanguard Corporation Fourth Amended and Restated Stock Incentive Plan, (filed as Exhibit 10.3 with the Company's Annual Report on Form 10-K for the period ended December 31, 2004, which was filed with the Securities and Exchange Commission on March 16, 2005, and incorporated herein by reference).
10.4	Form of Non-Qualified Stock Option Agreement under the American Vanguard Corporation Fourth Amended and Restated Stock Incentive Plan, (filed as Exhibit 10.4 with the Company's Annual Report on Form 10-K for the period ended December 31, 2004, which was filed with the Securities and Exchange Commission on March 16, 2005, and incorporated herein by reference).
10.5	Employment Agreement between American Vanguard Corporation and Eric G. Wintemute dated January 15, 2008 (filed as Exhibit 10.5 to the Company's Annual Report on Form 10-K for the year ended December 31, 2007, which was filed with the Securities Exchange Commission on March 17, 2008, and incorporated herein by reference).
10.8	Form of Change of Control Severance Agreement, dated effective as of January 1, 2004, between American Vanguard Corporation and its executive and senior officers (filed as Exhibit 10.2 to the Company's Form 10-Q for the period ended March 31, 2004, which was filed with the Securities Exchange Commission on May 17, 2004, and incorporated herein by reference.)
10.9	Form of Amendment of Change of Control Severance Agreement, dated effective as of July 11, 2008, between American Vanguard Corporation and named executive officers and senior officers (filed as Exhibit 99.1 to the Company's Form 8-K, which was filed on July 11, 2008, with the Securities and Exchange Commission and incorporated herein by reference).
10.10	Form of Indemnification Agreement between American Vanguard Corporation and its Directors (as filed as Exhibit 10.7 to the Company's Annual Report on Form 10-K for the period ended December 31, 2004, which was filed with the Securities and Exchange Commission on March 16, 2005, and incorporated herein by reference).

Exhibit Number	Description of Exhibit
10.11	Description of Compensatory Arrangements Applicable to Non-Employee Directors (as set forth on page 34 of the Company's Proxy Statement which was filed with the Securities and Exchange Commission on April 22, 2019, and incorporated herein by reference).
10.12	Form of Restricted Stock Agreement between American Vanguard Corporation and named executive officers dated as of November 13, 2020. Filed as exhibit 10.12 to the Company's Form 10-K for the period ended December 31, 2020.
10.14	Form of Performance-Based Restricted Stock Units Award Agreement between American Vanguard Corporation and named executive officer dated as of November 13, 2020. Filed as exhibit 10.14 to the Company's Form 10-K for the period ended December 31, 2020.
10.15	Form of American Vanguard Corporation Amended and Restated Stock Incentive Plan TSR-Based Restricted Stock Units Award Agreement dated June 6, 2013 (filed as Exhibit 10.15 to the Company's 10-K, which was filed with the Securities Exchange Commission on February 28, 2014, and incorporated herein by reference).
10.16	Form of American Vanguard Corporation Amended and Restated Stock Incentive Plan Performance-Based Restricted Stock Units Award Agreement dated June 6, 2013 (filed as Exhibit 10.16 to the Company's 10-K, which was filed with the Securities Exchange Commission on February 28, 2014, and incorporated herein by reference).
10.17	Third Amendment to Second Amended and Restated Credit Agreement dated as of June 30, 2017 among AMVAC and certain affiliates on the other hand, and a group of commercial lenders led by Bank of the West as agent, swing line lender, and letter of credit issuer, on the other hand (filed as Exhibit 10.1 to the Company's Form 8-K, which was filed with the Securities Exchange Commission on July 6, 2017 and is incorporated herein by reference).
10.18	Fourth Amendment to Second Amended and Restated Credit Agreement dated as of November 27, 2019, among AMVAC and certain affiliates, on the one hand, and a group of commercial lenders led by Bank of the West as agent, swing line lender, and letter of credit issuer, on the other hand (filed with the Company's Form 10-K for the period ended December 31, 2019). Third Amended and Restated Loan and Security Agreement dated August 5, 2021 by and among American Vanguard Corporation et al. and Bank of the West et al. a form of which was filed with the SEC as an exhibit to the Company's Form 8-K on or about August 10, 2021.
21	List of Subsidiaries of the Company.*
23	Consent of BDO USA, LLP, Independent Registered Public Accounting Firm.*
31.1	Certification of Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.*
31.2	Certification of Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.*
32.1	Certifications Pursuant to 18 U.S.C. Section 1350 as adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.*
101	The following materials from American Vanguard Corp's Annual Report on Form 10-K for the year ended December 31, 2022, formatted in XBRL (Extensible Business Reporting Language): (i) Consolidated Balance Sheets; (ii) Consolidated Statements of Operations; (iii) Consolidated Statements of Stockholders' Equity; (iv) Consolidated Statements of Comprehensive Income; (v) Consolidated Statements of Cash Flows; and (vi) Notes to Consolidated Financial Statements, tagged as blocks of text.*
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document

Exhibit Number	Description of Exhibit
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

* Filed herewith.

(c) Valuation and Qualifying Accounts:

Schedule II-A—Valuation and Qualifying Accounts
Allowance for Doubtful Accounts Receivable (in thousands)

Fiscal Year Ended	Balance at Beginning of Period	Additions Charged to Costs and Expenses	Foreign exchange impact	Balance at End of Period
December 31, 2022	$ 3,938	1,171	27	$ 5,136
December 31, 2021	$ 3,297	649	(8)	$ 3,938
December 31, 2020	$ 2,300	1,002	(5)	$ 3,297

Inventory Reserve (in thousands)

Fiscal Year Ended	Balance at Beginning of Period	Additions	Deductions	Balance at End of Period
December 31, 2022	$ 2,675	1,230	(890)	$ 3,015
December 31, 2021	$ 2,868	948	(1,141)	$ 2,675
December 31, 2020	$ 2,130	1,120	(382)	$ 2,868

Deferred Tax Assets Valuation Allowance (in thousands)

Fiscal Year Ended	Balance at Beginning of Period	Additions Charged to Costs and Expenses	Additions Charged to Other Comprehensive (Gain) Loss	Deductions	Balance at End of Period
December 31, 2022	$ 4,262	$ 628	$ (788)	$ (249)	$ 3,853
December 31, 2021	$ —	$ 3,304	$ 958	$ —	$ 4,262

See accompanying report of independent registered public accounting firm on page 42 of this annual report.

ITEM 16 FORM 10-K SUMMARY

None.

AMERICAN VANGUARD CORPORATION

SIGNATURES

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

AMERICAN VANGUARD CORPORATION

(Registrant)

By: /s/ ERIC G. WINTEMUTE
Eric G. Wintemute
Chief Executive Officer
and Chairman of the Board

March 16, 2023

By: /s/ DAVID T. JOHNSON
David T. Johnson
Chief Financial Officer
and Principal Accounting Officer

March 16, 2023

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities indicated.

By: /s/ ERIC G. WINTEMUTE
Eric G. Wintemute
Principal Executive Officer
and Chairman of the Board

March 16, 2023

By: /s/ DAVID T. JOHNSON
David T. Johnson
Principal Financial Officer
and Principal Accounting Officer

March 16, 2023

By: /s/ DEBRA EDWARDS
Debra Edwards
Director

March 16, 2023

By: /s/ MORTON D. ERLICH
Morton D. Erlich
Director

March 16, 2023

By: /s/ MARISOL ANGELINI
Marisol Angelini
Director

March 16, 2023

By: /s/ SCOTT D. BASKIN
Scott D. Baskin
Director

March 16, 2023

By: /s/ ÉMER GUNTER
Émer Gunter
Director

March 16, 2023

By: /s/ PATRICK E. GOTTSCHALK
Patrick E. Gottschalk
Director

March 16, 2023

By: /s/ MARK R. BASSETT
Mark R. Bassett
Director

March 16, 2023

By: /s/ KEITH M. ROSENBLOOM
Keith M. Rosenbloom
Director

March 16, 2023

AMERICAN VANGUARD CORPORATION

PART IV

ITEM 15 EXHIBITS AND FINANCIAL STATEMENT SCHEDULE

(a) The following documents are filed as part of this report:

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Report of Independent Registered Public Accounting Firm BDO USA, LLP; Costa Mesa, California, PCAOB ID#243	41
Consolidated Balance Sheets as of December 31, 2022 and 2021	43
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(b) Exhibits Index

Report of Independent Registered Public Accounting Firm

Stockholders and Board of Directors
American Vanguard Corporation
Newport Beach, California

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of American Vanguard Corporation (the "Company") as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and financial statement schedule listed in the accompanying index (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022**,** in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") and our report dated March 16, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the 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 consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated 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 consolidated 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 consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

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

Accrued Program Costs

As discussed in note 1 to the 2022 consolidated financial statements, the Company offers discounts to its customers based on various programs. As of December 31, 2022, the Company had accrued program costs of $60.7

million and program costs recorded as a reduction of gross sales totaled $111.6 million in 2022. These discounts represent variable consideration. Revenues from sales are recorded at the net sales price, which is the transaction price, and includes estimates of variable consideration. Variable consideration includes amounts expected to be paid to customers using the expected value method. Each quarter management compares individual sale transactions with programs to determine what, if any, estimated program liabilities have been incurred.

We identified variable consideration related to program costs as a critical audit matter. The principal considerations were the recording of accrued program costs at the individual sale transaction level and the assessment that customers will meet the requirements set out in agreed upon terms and conditions attached to each program. Auditing these elements involved especially challenging auditor judgment due to the nature and extent of audit effort required to address this matter.

The primary procedures we performed to address the critical audit matter included:

- Testing the design and operating effectiveness of certain internal controls related to management's accounting for accrued program costs, specifically including controls over: (i) the calculation of significant components of the accrued program costs, and (ii) the completeness and accuracy of accrued program costs.

- Assessing the completeness and reasonableness of the recorded accrued program costs at the individual sale transaction level through (i) comparing current year accrued program costs for certain product lines against historical program cost payments, and (ii) evaluating management's ability to accurately accrue program costs by comparing the accruals made in prior periods to actual payment activity.

- Testing the computation of the accrued program costs by (i) independently calculating portions of the accrued program costs at the individual sale transaction level, and (ii) validating management's assessment that customers will meet the program requirements by comparing a sample of accrued program costs payments made to customers to the approved program rates and relevant source documents.

/s/ BDO USA, LLP

We have served as the Company's auditor since 1991.

Costa Mesa, California
March 16, 2023

AMERICAN VANGUARD CORPORATION

CONSOLIDATED BALANCE SHEETS
December 31, 2022 and 2021
(In thousands, except share data)

	2022	2021
Assets		
Current assets:		
Cash and cash equivalents	$ 20,328	$ 16,285
Receivables:		
Trade, net of allowance for doubtful accounts of $5,136 and $3,938, respectively	156,492	149,326
Other	9,816	9,595
Total receivables, net	166,308	158,921
Inventories, net	184,190	154,306
Prepaid expenses	15,850	12,488
Income taxes receivable	1,891	—
Total current assets	388,567	342,000
Property, plant and equipment, net	70,912	66,111
Operating lease right-of-use assets	24,250	25,386
Intangible assets, net of amortization	184,664	197,841
Goodwill	47,010	46,260
Other assets	10,769	16,292
Deferred income tax assets, net	141	270
Total assets	$ 726,313	$ 694,160
Liabilities and Stockholders' Equity		
Current liabilities:		
Current installments of other liabilities	$ —	$ 802
Accounts payable	69,000	67,140
Customer prepayments	110,597	63,064
Accrued program costs	60,743	63,245
Accrued expenses and other payables	20,982	20,745
Income taxes payable	—	3,006
Operating lease liabilities, current	5,279	5,059
Total current liabilities	266,601	223,061
Long-term debt, net of deferred loan fees	51,477	52,240
Other liabilities, excluding current installments	4,167	5,335
Operating lease liabilities, long-term	19,492	20,780
Deferred income tax liabilities, net	14,597	20,006
Total liabilities	356,334	321,422
Commitments and contingent liabilities (Notes 5 and 11)		
Stockholders' equity:		
Preferred stock, $0.10 par value per share; authorized 400,000 shares; none issued	—	—
Common stock, $0.10 par value per share; authorized 40,000,000 shares; issued 34,446,194 shares in 2022 and 34,248,218 shares in 2021	3,444	3,426
Additional paid-in capital	105,634	101,450
Accumulated other comprehensive loss	(12,182)	(13,784)
Retained earnings	328,745	304,385
	425,641	395,477
Less treasury stock at cost, 5,029,892 shares in 2022 and 3,361,040 in 2021	(55,662)	(22,739)
Total stockholders' equity	369,979	372,738
Total liabilities and stockholders' equity	$ 726,313	$ 694,160

See summary of significant accounting policies and notes to consolidated financial statements.

CONSOLIDATED STATEMENTS OF OPERATIONS
Years ended December 31, 2022, 2021 and 2020
(In thousands, except per share data)

	2022	2021	2020
Net sales	$ 609,615	$ 557,676	$ 458,704
Cost of sales	(368,263)	(343,629)	(286,114)
Gross profit	241,352	214,047	172,590
Operating expenses	(200,701)	(183,272)	(154,339)
Bargain purchase gain on business acquisition	—	171	4,657
Operating income	40,651	30,946	22,908
Change in fair value of equity investments, net	(732)	(790)	717
Other income	—	672	—
Interest expense, net	(3,954)	(3,687)	(5,178)
Income before provision for income taxes and loss on equity method investment	35,965	27,141	18,447
Provision for income taxes	(8,561)	(8,166)	(3,080)
Income before loss on equity method investment	27,404	18,975	15,367
Loss from equity method investment	—	(388)	(125)
Net income	$ 27,404	$ 18,587	$ 15,242
Earnings per common share—basic	$ 0.94	$ 0.62	$ 0.52
Earnings per common share—assuming dilution	$ 0.92	$ 0.61	$ 0.51
Weighted average shares outstanding—basic	29,234	29,811	29,450
Weighted average shares outstanding—assuming dilution	29,872	30,410	29,993

See summary of significant accounting policies and notes to consolidated financial statements.

AMERICAN VANGUARD CORPORATION

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
Years ended December 31, 2022, 2021 and 2020
(In thousands)

	2022	2021	2020
Net income	$ 27,404	$ 18,587	$ 15,242
Other comprehensive gain (loss)			
Foreign currency translation adjustment, net of tax effects	1,602	(4,462)	(3,624)
Comprehensive income	$ 29,006	$ 14,125	$ 11,618

See summary of significant accounting policies and notes to consolidated financial statements.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
Years ended December 31, 2022, 2021 and 2020
(In thousands, except share data)

	Common Stock		Additional Paid-in	Accumulated Other Comprehensive	Retained	Treasury Stock		AVD
	Shares	Amount	Capital	loss	Earnings	Shares	Amount	Total
Balance, December 31, 2019	**33,233,614**	**$ 3,324**	**$ 90,572**	**$ (5,698)**	**$ 274,118**	**3,061,040**	**$ (18,160)**	**$ 344,156**
Stocks issued under ESPP	49,668	5	716	—	—	—	—	721
Cash dividends on common stock ($0.04 per share)	—	—	—	—	(1,178)	—	—	(1,178)
Foreign currency translation adjustment, net	—	—		(3,624)				(3,624)
Stock based compensation	—	—	6,561	—	—	—	—	6,561
Stock options exercised, grants, termination, and vesting of restricted stock units (net of shares in lieu of taxes)	639,151	65	(1,207)	—	—	—	—	(1,142)
Net income	—	—	—	—	15,242	—	—	15,242
Balance, December 31, 2020	**33,922,433**	**3,394**	**96,642**	**(9,322)**	**288,182**	**3,061,040**	**(18,160)**	**360,736**
Stocks issued under ESPP	50,782	4	739	—	—	—	—	743
Cash dividends on common stock ($0.08 per share)	—	—	—	—	(2,384)	—	—	(2,384)
Foreign currency translation adjustment, net	—	—	—	(4,462)				(4,462)
Stock based compensation	—	—	6,880	—	—	—	—	6,880
Stock options exercised, grants, termination, and vesting of restricted stock units (net of shares in lieu of taxes)	275,003	28	(2,811)	—	—	—	—	(2,783)
Shares repurchased	—	—	—	—	—	300,000	(4,579)	(4,579)
Net income	—	—	—	—	18,587	—	—	18,587
Balance, December 31, 2021	**34,248,218**	**3,426**	**101,450**	**(13,784)**	**304,385**	**3,361,040**	**(22,739)**	**372,738**
Stocks issued under ESPP	51,240	4	833	—	—	—	—	837
Cash dividends on common stock ($0.10 per share)	—	—	—	—	(3,044)	—	—	(3,044)
Foreign currency translation adjustment, net	—	—	—	1,602	—	—	—	1,602
Stock based compensation	—	—	5,684	—	—	—	—	5,684
Stock options exercised, grants, termination, and vesting of restricted stock units (net of shares in lieu of taxes)	146,736	14	(1,254)	—	—	—	—	(1,240)
Shares repurchased	—	—	(1,079)	—	—	1,668,852	(32,923)	(34,002)
Net income	—	—	—	—	27,404	—	—	27,404
Balance, December 31, 2022	**34,446,194**	**$ 3,444**	**$ 105,634**	**$ (12,182)**	**$ 328,745**	**5,029,892**	**$ (55,662)**	**$ 369,979**

See summary of significant accounting policies and notes to consolidated financial statements.

AMERICAN VANGUARD CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS
Years ended December 31, 2022, 2021 and 2020
(In thousands)

	2022	2021	2020
Cash flows from operating activities:			
Net income	$ 27,404	$ 18,587	$ 15,242
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization of property, plant and equipment and intangible assets	22,138	22,229	19,902
Loss on disposal of property, plant and equipment	268	194	119
Amortization of other long-term assets	3,573	3,943	3,947
Amortization and accretion of deferred loan fees and discounted liabilities	289	359	309
Provision for bad debts	1,171	649	1,002
Provision for inventory obsolescence	340	1,034	738
Loan principal and interest forgiveness	—	(672)	—
Fair value adjustment of contingent consideration	610	758	250
Decrease in environmental liability	—	(167)	(1,155)
Stock-based compensation	5,684	6,880	6,561
Deferred income taxes	(5,278)	(2,090)	969
Changes in liabilities for uncertain tax positions or unrecognized tax benefits	(1,441)	(1,783)	(2,092)
Change in equity investment fair value	732	790	(717)
Loss from equity method investment	—	388	125
Bargain purchase gain	—	(171)	(4,657)
Non-cash lease expense	68	286	18
Foreign currency transaction (gains) losses	(29)	(225)	126
Changes in assets and liabilities associated with operations, net of business combinations:			
(Increase) decrease in net receivables	(6,447)	(24,347)	15,407
(Increase) decrease in inventories	(29,560)	8,323	6,683
(Increase) decrease in income tax receivable, net	(4,910)	6,051	(287)
(Increase) decrease in prepaid expenses and other assets	(3,082)	(4,581)	140
Increase (decrease) in accounts payable	1,704	8,783	(8,199)
Increase in deferred revenue	47,551	19,280	36,803
(Decrease) increase in accrued program costs	(2,449)	17,877	(2,517)
Increase in other payables and accrued expenses	90	3,986	1,607
Payment of contingent consideration	(1,321)	—	—
Net cash provided by operating activities	57,105	86,361	90,324
Cash flows from investing activities:			
Capital expenditures	(13,261)	(9,518)	(11,249)
Proceeds from disposal of property, plant and equipment	84	—	—
Acquisitions of businesses and product lines	—	(10,000)	(19,342)
Intangible assets	(1,293)	(524)	(4,014)
Investment	—	—	(1,190)
Net cash used in investing activities	(14,470)	(20,042)	(35,795)
Cash flows from financing activities:			
Payments under line of credit agreement	(254,000)	(186,569)	(168,400)
Borrowings under line of credit agreement	253,000	131,000	126,776
Payment of contingent consideration	(68)	(1,301)	(1,227)
Net receipt from the issuance of common stock under ESPP	837	743	721
Net receipt from the exercise of stock options	827	172	1,603
Net payment from common stock purchased for tax withholding	(2,067)	(2,955)	(2,745)
Repurchase of common stock	(34,002)	(4,579)	—
Payment of cash dividends	(2,787)	(2,382)	(1,168)
Net cash used in financing activities	(38,260)	(65,871)	(44,440)
Net increase in cash and cash equivalents	4,375	448	10,089
Effect of exchange rate changes on cash and cash equivalents	(332)	(86)	(747)
Cash and cash equivalents at beginning of year	16,285	15,923	6,581
Cash and cash equivalents at end of year	$ 20,328	$ 16,285	$ 15,923

See summary of significant accounting policies and notes to the consolidated financial statements.

(1) Description of Business and Summary of Significant Accounting Policies

American Vanguard Corporation (the "Company" or "AVD") is primarily a specialty chemical manufacturer that develops and markets safe and effective products for agricultural, commercial and consumer uses. The Company manufactures and formulates chemicals for crops, human and animal protection. The consolidated financial statements include the accounts of the Company and its subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. The Company operates within a single operating segment.

All U.S. Dollar amounts reflected in the notes to the consolidated financial statements are presented in thousands, except per share data.

The Company believes that the combination of its cash flows from future operations, current cash on hand and the availability under the Company's credit facility will be sufficient to meet its working capital and capital expenditure requirements and will provide the Company with adequate liquidity to meet its anticipated operating needs for at least the next 12 months from the issuance of these consolidated financial statements. Although operating activities are expected to provide cash, to the extent of growth in the future, its operating and investing activities will use cash and, consequently, this growth may require the Company to access some or all of the availability under the credit facility. It is also possible that additional sources of finance may be necessary to support additional growth.

Based on similar economic and operational characteristics, the Company's business is aggregated into one reportable category. Selective enterprise information is as follows:

	2022	2021	2020
Net sales:			
U.S. crop	$ 288,624	$ 263,632	$ 211,357
U.S. non-crop	76,709	78,605	60,367
Total U.S.	365,333	342,237	271,724
International	244,282	215,439	186,980
Total net sales	$ 609,615	$ 557,676	$ 458,704
Gross profit:			
U.S. crop	$ 132,509	$ 109,568	$ 92,723
U.S. non-crop	35,257	37,443	27,842
Total U.S.	167,766	147,011	120,565
International	73,586	67,036	52,025
Total gross profit	$ 241,352	$ 214,047	$ 172,590

Due to elements inherent to the Company's business, such as differing and unpredictable weather patterns, crop growing cycles, changes in product mix of sales and ordering patterns that may vary in timing, measuring the Company's performance on a quarterly basis (for example, gross profit margins on a quarterly basis may vary significantly) even when such comparisons are favorable, is not as good an indicator as full-year comparisons.

***Out-of-period adjustment to 2021 consolidated statements of operations*—**In Australia, the Company sells its products to distribution companies as well as directly to growers via third-party agents. The Company identified errors related to the classification of third-party agent's commission amounts. The Company evaluated these errors and the impact to previously issued financial statements and concluded that the adjustments and impact of this classification error is not material to any previously issued quarterly or annual financial statements. However, to improve the consistency and comparability of the financial statements, management has recorded an out-of-period adjustment to previously reported financial statement line items and related disclosures in this report. The third-party agents' commission in the amount of $804 was reclassified from net sales to operating expenses. The impact was an increase in net sales and gross profit in the amount of $804 and an offsetting increase in operating expenses in the same amount. This adjustment to the 2021 consolidated statements of operations did not have any impact on operating income, net income, and earnings per common share.

Reclassifications—Certain prior years' amounts have been reclassified to conform to the current year's presentation.

Cost of Sales— Cost of sales is the Company's capitalized cost of inventory procurement and production that is sold in the respective periods. These costs include direct labor, materials, and manufacturing overhead, Additionally the Company also includes such cost centers as Health and Safety, Environmental, Maintenance and Quality Control in cost of sales.

Operating Expenses—Operating expenses include cost centers for Selling, General and Administrative, Research, Product Development, and Regulatory, and outbound Freight, Delivery and Warehousing.

	2022	2021	2020
Selling	$ 52,512	$ 49,409	$ 42,389
General and administrative:			
Other	51,671	47,971	36,084
Proxy contest activities	1,785	—	—
Amortization	13,953	13,713	12,744
Research, product development and regulatory	31,816	28,855	26,310
Freight, delivery and warehousing	48,964	43,324	36,812
Total operating expenses	$ 200,701	$ 183,272	$ 154,339

Advertising Expense—The Company expenses advertising costs in the period incurred. Advertising expenses, which include promotional costs, are recognized as selling expenses in the consolidated statements of operations and were $5,836, $5,201 and $4,833 in 2022, 2021 and 2020, respectively.

Cash and Cash Equivalents—Cash and cash equivalents include short-term investments, which are highly liquid investments with maturities of three months or less when purchased. The Company maintains cash and cash equivalent balances that exceed federally insured limits with a number of financial institutions. When evaluating cash and cash equivalents for current expected credit losses, the Company reviews factors such as historical experience with defaults, losses, credit ratings, term and macroeconomic trends, including current conditions and forecasts to the extent they are reasonable and supportable.

Inventories—The Company values its inventories at lower of cost or net realizable value. Cost is determined by the first-in, first-out ("FIFO") or average cost method, including material, labor, factory overhead and subcontracting services. The Company writes down its inventory carrying values as a result of net realizable value assessments of slow moving and obsolete inventory and other annual adjustments to ensure that its standard costs continue to closely reflect actual cost. The Company recorded an inventory reserve allowance of $3,015 and $2,675 at December 31, 2022 and 2021, respectively.

The components of inventories, net of reserve allowance, consist of the following:

	2022	2021
Finished products	$ 155,128	$ 138,159
Raw materials	29,062	16,147
Total inventories, net	$ 184,190	$ 154,306

Leases— The Company has operating leases for warehouses, manufacturing facilities, offices, cars, railcars and certain equipment for which operating lease right-of-use ("ROU") assets and corresponding lease liabilities are recorded. The Company measures ROU assets throughout the lease term at the carrying amount of the lease liability, plus initial direct costs, plus (minus) any prepaid (accrued) lease payments, less the unamortized balance of lease incentives received. The lease liabilities are measured at the present value of the unpaid lease payments at the lease commencement date. Leases that include both lease and non-lease components are accounted for as a single lease component for each asset class, except for warehouse leases.

The minimum payments under operating leases are recognized on a straight-line basis over the lease term in the consolidated statements of operations. Operating lease expenses related to variable lease payments are recognized in cost of sales or as operating expenses in a manner consistent with the nature of the underlying lease and as the events, activities, or circumstances in the lease agreement occur. Leases with a term of less than 12 months are not recognized on the consolidated balance sheets, and the related lease expenses are recognized in the consolidated statements of operations on a straight-line basis over the lease term.

The accounting for leases requires management to exercise judgment and make estimates in determining the applicable discount rate, lease term and payments due under a lease. Most of our leases do not provide an implicit interest rate, nor is it available to us from our lessors. As an alternative, the Company uses our estimated incremental borrowing rate, which is derived from information available at the lease commencement date, including publicly available data, in determining the present value of lease payments. The Company also estimated the fair value of the lease and non-lease components for some of our warehouse leases based on market data and cost data.

The lease term includes the non-cancellable period of the lease plus any additional periods covered by either an option to extend (or not terminate) that the Company is reasonably certain to exercise. The Company has leases with a lease term ranging from 1 year to 20 years.

The operating leases of the Company do not contain major restrictions or covenants such as those relating to dividends or additional financial obligations. Finance leases are immaterial to the consolidated financial statements. There were no lease transactions with related parties during 2022, 2021 and 2020.

The operating lease expense for the years ended December 31, 2022, 2021 and 2020 was $6,531, $6,053 and $5,662, respectively. Lease expenses related to variable lease payments and short-term leases were immaterial. Additional information related to operating leases are as follows:

	Year Ended December 31, 2022	Year Ended December 31, 2021	Year Ended December 31, 2020
Cash paid for amounts included in the measurement of lease liabilities	$ 6,450	$ 5,750	$ 5,657
ROU assets obtained in exchange for new liabilities	$ 4,468	$ 18,521	$ 6,309

The weighted-average remaining lease term and discount rate related to the operating leases as of December 31, 2022 and 2021 were as follows:

	December 31, 2022	December 31, 2021
Weighted-average remaining lease term (in years)	5.93	6.72
Weighted-average discount rate	4.00%	4.02%

Future minimum lease payments under non-cancellable operating leases as of December 31, 2022 were as follows:

2023	$ 6,073
2024	5,204
2025	4,688
2026	3,464
2027	2,387
Thereafter	6,194
Total lease payments	$ 28,010
Less: imputed interest	(3,239)
Total	$ 24,771
Amounts recognized in the consolidated balance sheets:	
Operating lease liabilities, current	$ 5,279
Operating lease liabilities, long term	$ 19,492

Revenue Recognition— The Company recognizes revenue when control of the ordered goods or services are transferred to its customers in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services. The Company sells its products mainly to distributors and retailers. The products include insecticides, herbicides, soil fumigants, fungicides and biologicals. In addition, the Company recognizes royalty income related to licensing arrangements which qualify as functional licenses rather than symbolic licenses. Upon signing a new licensing agreement, the Company typically receives up-front fees, which are generally characterized as non-refundable royalties. These fees are recognized as revenue upon the execution of the license agreements. Minimum royalty fees are recognized once the Company has an enforceable right for payment. Sales-based royalty fees are typically recognized when the sales occur. The Company calculates and accrues estimated royalties based on the contractual terms and correspondence with the licensees regarding actual sales. Based on similar economic and operational characteristics, the Company's business is aggregated into one reportable segment. Selective enterprise information of sales disaggregated by category and geographic region is as follows:

	2022	2021	2020
Net sales:			
U.S. crop	$288,624	$263,632	$211,357
U.S. non-crop	76,709	78,605	60,367
Total U.S.	365,333	342,237	271,724
International	244,282	215,439	186,980
Total net sales	$609,615	$557,676	$458,704
Timing of revenue recognition:			
Goods and services transferred at a point in time	$609,409	$557,176	$455,726
Goods and services transferred over time	206	500	2,978
Total net sales	$609,615	$557,676	$458,704

Contract Assets— Contract assets relate to royalties earned on certain functional licenses granted for the use of the Company's intellectual property and amounted to $3,100 and $3,900 at December 31, 2022 and 2021, respectively. The short-term and long-term contract assets of $2,098 and $1,002 are included in other receivables and other assets, respectively, on the consolidated balance sheets as of December 31, 2022. As of December 31, 2021, the short-term and long-term assets amounted to $1,825 and $2,075, respectively.

Accrued Program Costs— The Company offers various discounts to customers based on the volume purchased within a defined period, other pricing adjustments, some grower volume incentives or other key performance indicator driven payments, which are usually made at the end of a growing season, to distributors, retailers or growers. The Company describes these payments as "Programs." Programs are a critical part of doing business in both the U.S. crop and non-crop chemicals marketplaces. These discount Programs represent variable consideration. Revenues from sales are recorded at the net sales price, which is the transaction price net of the impact of Programs and includes estimates of variable consideration. Variable consideration includes amounts expected to be paid to its customers, estimated using the expected value method. Each quarter management compares individual sale transactions with Programs to determine what, if any, estimated program liabilities have been incurred. Once this initial calculation is made for the specific quarter, sales and marketing management, along with executive and financial management, review the accumulated Program balance and, for volume driven payments, make assessments of whether or not customers are tracking in a manner that indicates that they will meet the requirements set out in agreed upon terms and conditions attached to each Program. Following this assessment, management will make adjustments to the accumulated accrual to properly reflect the Company's best estimate of the liability at the balance sheet date. Programs are paid out predominantly on an annual basis, usually in the final quarter of the financial year or the first quarter of the following year.

Customer Prepayments— From time to time, the Company receives prepayments from customers which are recorded as customer prepayments on the Company's consolidated balance sheets. The Company does not recognize revenue on any such payments unless and until the customer places binding purchase orders, the goods are shipped, and control is transferred to the customer. Revenue recognized for the years ended December 31, 2022, 2021, and 2020 that were included in the customer prepayments balance at the beginning of 2022, 2021, and 2020 was $63,064, $37,779, and $5,652, respectively.

Allowance for Doubtful Accounts or Current Expected Credit Losses— The Company maintains an allowance to cover its Current Expected Credit Losses ("CECL") on its trade receivables, other receivables and contract assets arising from the possible failure of customers to make contractual payments. The Company estimates credit losses expected over the life of its trade receivables, other receivables and contract assets based on historical information combined with current conditions that may affect a customer's ability to pay and reasonable and supportable forecasts. In most instances, the Company's policy is to write-off trade receivables when they are deemed uncollectible. The vast majority of the Company's trade receivables, other receivables and contract assets are less than 365 days. Under the CECL impairment model, the Company develops and documents its allowance for credit losses on its trade receivables based on multiple portfolios. The determination of portfolios is based primarily on geographical location, type of customer and aging.

Debt Issuance Costs— The Company capitalizes costs incurred with borrowing and records debt issuance costs as a reduction to the debt amount. These costs in connection with the Company's revolving line of credit are amortized on a straight-line basis over the life of the borrowing and included in interest expense.

Property, Plant and Equipment and Depreciation— Property, plant and equipment includes the cost of land, buildings, machinery and equipment, office furniture and fixtures, automobiles, construction projects and significant improvements to existing plant and equipment. Interest costs related to significant construction projects are capitalized at the Company's current weighted average effective interest rate. Expenditures for minor repairs and maintenance are expensed as incurred. When property or equipment is sold or otherwise disposed of, the related cost and accumulated depreciation are removed from the respective accounts and the gain or loss realized on disposition is reflected in operations. All plant and equipment are depreciated using the straight-line method, utilizing the estimated useful property lives.

Intangible Assets— The primary identifiable intangible assets of the Company relate to assets associated with its product and business acquisitions. All the Company's intangible assets are amortizing assets with finite lives. The estimated useful life of an identifiable intangible asset is based upon several factors including the effects of demand, competition, and expected changes in the marketability of the Company's products.

Business Combinations— The Company uses its best estimates and assumptions to assign fair value to the tangible and intangible assets acquired and liabilities assumed at the acquisition date. The Company's estimates are inherently uncertain and subject to refinement. During the measurement period, which may be up to one year from the acquisition date, the Company may record adjustments to the fair value of these tangible and intangible assets acquired and liabilities assumed, with the corresponding offset to goodwill or an adjustment to the gain from a bargain purchase. In addition, when appropriate uncertain tax positions and tax-related valuation allowances are initially recorded in connection with a business combination as of the acquisition date. The Company continues to collect information and reevaluates these estimates and assumptions quarterly and records any adjustments to the Company's preliminary estimates to goodwill or an adjustment to the gain from a bargain purchase, provided that the Company is within the measurement period. Upon the conclusion of the measurement period or final determination of the fair value of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to the Company's consolidated statement of operations.

From time to time, certain of our acquisition agreements include contingent earn-out arrangements, which are generally based on the achievement of future income thresholds. The fair values of these earn-out arrangements are included as part of the purchase price of the acquired companies on their respective acquisition dates. For each transaction, the Company engages third-party valuation specialists to assist it in making estimates of the fair value of contingent earn-out payments, both as part of the initial purchase price and at each subsequent financial statement date until the end of the related performance period. The Company records the estimated fair value of contingent consideration as a liability on the consolidated balance sheets.

We review and re-assess the estimated fair value of contingent consideration on a quarterly basis, and the updated fair value could be materially different from the initial estimates or prior quarterly amounts. Changes in the estimated fair value of our contingent earn-out liabilities are reported in operating results.

Asset Acquisitions— If an acquisition of an asset or group of assets does not meet the definition of a business, the transaction is accounted for as an asset acquisition rather than a business combination. An asset acquisition does not result in the recognition of goodwill and transaction costs are capitalized as part of the cost of the asset or group of assets acquired. The Company uses its best estimates and assumptions to assign fair value to the tangible and intangible assets acquired and liabilities assumed at the acquisition date. The acquisitions costs are allocated to the assets acquired on a relative fair value basis.

Impairment— The carrying values of long-lived assets other than goodwill are reviewed for impairment annually and/or whenever events or changes in circumstances indicate that the carrying value of such assets may not be recoverable. The Company evaluates recoverability of an asset group by comparing the carrying value to the future undiscounted cash flows that it expects to generate from the asset group. If the comparison indicates that the carrying value of an asset group is not recoverable, measurement of the impairment loss is based on the fair value of the asset. There were no circumstances that would indicate any impairment of the carrying value of these long-lived assets and no material impairment losses were recorded in 2022, 2021, or 2020.

The Company reviews goodwill for impairment utilizing either a qualitative or quantitative assessment. If the Company decides that it is appropriate to perform a qualitative assessment and concludes that the fair value of a reporting unit more likely than not exceeds its carrying value, no further evaluation is necessary. If the Company performs a quantitative assessment, the Company compares the fair value of a reporting unit with its carrying amounts and recognizes an impairment charge for the amount that the carrying amount exceeds the reporting unit's fair value. The Company annually tests goodwill for impairment in the beginning of the fourth quarter, or earlier if triggering events occur. The Company did not record any impairment losses in 2022, 2021, or 2020.

Fair Value of Financial Instruments— The accounting standard for fair value measurements provides a framework for measuring fair value and requires expanded disclosures regarding fair value measurements. Fair value is defined as the price that would be received for an asset or the exit price that would be paid to transfer a liability in the principal or most advantageous market in an orderly transaction between market participants on the measurement date. This accounting standard established a fair value hierarchy, which requires an entity to maximize the use of observable inputs, where available. The following summarizes the three levels of inputs required:

- 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 Company did not have any significant Level 1 investments as of December 31, 2022 and 2021, except for its equity investment in Clean Seed Capital Group Ltd. (see Note 16 – Equity Investments).

The carrying amount of receivables, payables and other amounts arising out of the normal course of business approximates fair value because of the relatively short maturity of such instruments. The carrying amount of the Company's short-term and long-term borrowings, which are considered Level 2 liabilities, approximates fair value based on current rates and terms available to the Company for similar debt.

The Company's contingent earn-out liabilities in connection with its acquisitions are measured at fair value on a recurring basis using significant unobservable inputs classified within Level 3. The Company may use various valuation techniques depending on the terms and conditions of the contingent consideration including a Monte-Carlo simulation. This simulation uses probability distribution for each significant input to produce hundreds or thousands of possible outcomes and the results are analyzed to determine probabilities of different outcomes occurring. Refer to Note 10 for a reconciliation of the Company's contingent consideration.

Foreign Currency Translation— Certain international operations use the respective local currencies as their functional currency, while other international operations use the U.S. Dollar as their functional currency. The Company considers the U.S. Dollar as its reporting currency. Translation adjustments for subsidiaries where the functional currency is its local currency are included in other comprehensive gain (loss). Foreign currency transaction gains (losses) resulting from exchange rate fluctuation on transactions denominated in a currency other than the functional currency are reported in earnings. Assets and liabilities of the foreign operations denominated in local currencies are translated at the rate of exchange at the balance sheet date. Revenues and expenses are translated at the weighted average rate of exchange during the period. Translations of intercompany loans of a long-term investment nature are included as a component of translation adjustment in other comprehensive gain (loss).

Income Taxes—The Company utilizes the liability method of accounting for income taxes as set forth in ASC 740. Under the liability method, deferred taxes are determined based on the temporary differences between the financial statement and tax basis of assets and liabilities using tax rates expected to be in effect during the years in which the basis differences reverse. A valuation allowance is recorded when it is more likely than not that some of the deferred tax assets will not be realized. In determining the need for valuation allowances, the Company considers projected future taxable income and the availability of tax planning strategies. If in the future the Company determines that it would not be able to realize its recorded deferred tax assets, an increase in the valuation allowance would be recorded, decreasing earnings in the period in which such determination is made.

The Company assesses its income tax positions and records tax benefits for all years subject to examination based upon the Company's evaluation of the facts, circumstances, and information available at the reporting date. For those tax positions where there is greater than 50% likelihood that a tax benefit will be sustained, the Company has recorded the largest amount of tax benefit that may potentially be realized upon ultimate settlement with a taxing authority that has full knowledge of all relevant information. For those income tax positions where there is less than 50% likelihood that a tax benefit will be sustained, no tax benefit has been recognized in the consolidated financial statements.

Per Share Information—Basic earnings per share ("EPS") is computed as net income divided by the weighted average number of shares of common stock outstanding during the period. Diluted EPS reflects potential dilution to EPS that could occur if securities or other contracts, which, for the Company, consists of restricted stock grants and options to purchase shares of the Company's common stock, are exercised as calculated using the treasury stock method.

The components of basic and diluted earnings per share were as follows:

	2022	2021	2020
Numerator:			
Net income	$ 27,404	$ 18,587	$ 15,242
Denominator:			
Weighted average shares outstanding—basic	29,234	29,811	29,450
Dilutive effect of stock options and grants	638	599	543
Weighted average shares outstanding—diluted	29,872	30,410	29,993

For the years ended December 31, 2022, 2021, and 2020, no options or grants were excluded from the computation.

Use of Estimates—The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities (including those related to litigation), and revenues, at the date that the consolidated financial statements are prepared. Significant estimates relate to the allowance for doubtful accounts, inventory reserves, impairment of long-lived assets, investments and goodwill, assets acquired, and liabilities assumed in connections with business combinations and asset acquisitions, accrued program costs, stock-based compensation and income taxes. Actual results could materially differ from those estimates.

Total comprehensive income—In addition to net income, total comprehensive income includes changes in equity that are excluded from the consolidated statements of operations and are recorded directly into a separate section of stockholders' equity on the consolidated balance sheets. For the years ended December 31, 2022, 2021, and 2020, total comprehensive income consisted of net income and foreign currency translation adjustments.

Stock-Based Compensation—The Company estimates the fair value of share-based payment awards on the date of grant. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service periods in the Company's consolidated statements of operations.

Stock-based compensation expense recognized during the period is based on the fair value of the portion of share-based payment awards that is ultimately expected to vest during the period. Stock-based compensation expense recognized is reduced for estimated forfeitures. Estimated forfeitures recognized in the Company's consolidated statements of operations reduced compensation expense by $370, $320, and $222 for the years ended December 31, 2022, 2021, and 2020, respectively. The Company estimates that 18% of both restricted stock grants and performance-based restricted shares that are currently subject to vesting will be forfeited. These estimates are reviewed quarterly and revised as necessary.

The Company uses the Black-Scholes option-pricing model ("Black-Scholes model") to value option grants using the following weighted average assumptions (i.e. risk-free interest rate, dividend yield, volatility and average lives). There were no stock options granted during 2022, 2021 or 2020.

The expected volatility and expected life assumptions are complex and use subjective variables. The variables take into consideration, among other things, actual and projected employee stock option exercise behavior. The Company estimates the expected term or vesting period using the "safe harbor" provisions of Staff Accounting Bulletin ("SAB") 107 and SAB 110. The Company used historical volatility as a proxy for estimating expected volatility.

The Company values restricted stock grants using the Company's traded stock price at closing on the date of grant. The weighted average grant-date fair values of restricted stock grants during 2022, 2021, and 2020 were $23.53, $20.00, and $14.39, respectively.

Recently Issued Accounting Guidance:

Accounting Standards Adopted

In November 2021, the Financial Accounting Standards Board (the "FASB") issued ASU No. 2021-10, "Disclosures by Business Entities about Government Assistance." This ASU codifies new requirements to disclose information about the nature of certain government assistance received, the accounting policy used to account for the transactions, the location in the financial statements where such transactions were recorded, and significant terms and conditions associated with such transactions. The guidance is effective for annual periods beginning after December 15, 2021. Effective January 1, 2022, the Company adopted ASU No. 2021-10 on a prospective basis. The adoption of this standard was not material to the Company's consolidated financial statements.

Accounting Standards Not Yet Adopted

In March 2020, the FASB issued ASU 2020-04 Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting, as amended and supplemented by subsequent ASUs (collectively, "ASU 2020-04" and "ASU 2022-06"), which provides practical expedients for contract modifications and certain hedging relationships associated with the transition from reference rates that are expected to be discontinued. This guidance is applicable for borrowing instruments, which use LIBOR as a reference rate, and is available through December 31, 2024. The Company has evaluated this ASU and does not expect its adoption to have a material impact on its consolidated financial statements.

(2) Property, Plant and Equipment

Property, plant and equipment at December 31, 2022 and 2021 consist of the following:

	2022	2021	Estimated useful lives
Land	$ 2,757	$ 2,756	
Buildings and improvements	20,794	19,844	10 to 30 years
Machinery and equipment	142,980	132,159	3 to 15 years
Office furniture, fixtures and equipment	13,231	10,094	3 to 10 years
Automotive equipment	1,584	1,832	3 to 6 years
Construction in progress	5,897	8,199	
Total gross value	187,243	174,884	
Less accumulated depreciation	(116,331)	(108,773)	
Total net value	$ 70,912	$ 66,111	
Domestic	66,268	61,533	
International	4,644	4,578	
Total net value	$ 70,912	$ 66,111	

For the years ended December 31, 2022, 2021, and 2020, the Company's aggregate depreciation expense related to property, plant and equipment was $7,974, $8,530, and $7,466, respectively. For the years ended December 31, 2022, 2021, and 2020, the Company eliminated from assets and accumulated depreciation $416, $658 and $1,400 of fully depreciated assets, respectively.

(3) Long-Term Debt

Long-term debt of the Company at December 31, 2022 and 2021 is summarized as follows:

	2022	2021
Revolving line of credit	$ 52,300	$ 53,300
Less debt issuance costs	(823)	(1,060)
	$ 51,477	$ 52,240

Principal payments on long-term debt at December 31, 2022 of $52,300 are due in August 2026.

The Company's main bank is Bank of the West, a wholly owned subsidiary of BMO Financial Group. Bank of the West has been the Company's bank for more than 30 years and is the syndication manager for the Company's loans.

The Company and certain of its affiliates are parties to a revolving line of credit agreement entitled the "Third Amended and Restated Loan and Security Agreement" dated as of August 5, 2021 (the "Credit Agreement"), which is a senior secured lending facility among AMVAC, the Company's principal operating subsidiary, as Borrower Agent (including the Company and AMVAC BV), as Borrowers, on the one hand, and a group of commercial lenders led by Bank of the West as administrative agent, documentation agent, syndication agent, collateral agent, sole lead arranger and book runner, on the other hand. The Credit Agreement consists of a line of credit of up to $275,000, an accordion feature of up to $150,000, a letter of credit and swingline sub-facility (each having limits of $25,000) and has a maturity date of August 5, 2026. The Credit Agreement amends and restates the previous credit facility, which had a maturity date of June 30, 2022. With respect to key financial covenants, the Credit Agreement contains two: namely, borrowers are required to maintain a Total Leverage ("TL") Ratio of no more than 3.5-to-1, during the first three years, stepping down to 3.25-to-1 as of September 30, 2024, and a Fixed Charge Coverage Ratio of at least 1.25-to-1. In addition, to the extent that it completes acquisitions totaling $15 million or more in any 90-day period, AMVAC may step-up the TL Ratio by 0.5-to-1, not to exceed 4.00-to-1, for the next three full consecutive quarters. Acquisitions below $50 million no longer require Agent consent. Distributions to the Company's stockholders are limited to net income for the four fiscal quarter period ending on the fiscal quarter immediately prior to the fiscal quarter in which the current distribution was declared.

The Company's borrowing capacity varies with its financial performance, measured in terms of Consolidated EBITDA as defined in the Credit Agreement, for the trailing twelve-month period. Under the Credit Agreement, revolving loans bear interest at a variable rate based, at borrower's election with proper notice, on either (i) LIBOR plus the "Applicable Margin" which is based upon the Total Leverage ("TL") Ratio ("LIBOR Revolver Loan") or (ii) the greater of (x) the Prime Rate, (y) the Federal Funds Rate plus 0.5%, and (z) the Daily One-Month LIBOR Rate plus 1.00%, plus, in the case of (x), (y) or (z) the Applicable Margin ("Adjusted Base Rate Revolver Loan"). Interest payments for LIBOR Revolver Loans are payable on the last day of each interest period (either one-, three- or six- months, as selected by the borrower) and the maturity date, while interest payments for Adjusted Base Rate Revolver Loans are payable on the last business day of each month and the maturity date. The interest rate on December 31, 2022, was 5.67%.

At December 31, 2022, according to the terms of the Credit Agreement, as amended, and based on our performance against the most restrictive covenant listed above, the Company had the availability to increase its borrowings by up to $200,372. This compares to an available borrowing availability of $178,705 as of December 31, 2021. The level of borrowing capacity is driven by three factors: (1) our financial performance, as measured in EBITDA for trailing twelve-month period, (2) the inclusion of proforma EBITDA related to acquisitions completed during the preceding twelve months and (3) the leverage covenant (being the number of times EBITDA the Company may borrow under its credit facility agreement).

The Company and the Lenders entered into an amendment to the Credit Agreement ("Amendment"), effective March 9, 2023, whereby LIBOR was replaced by SOFR with a credit spread adjustment of 10.0 bps for all SOFR periods. The revolving loans now bear interest at a variable rate based at borrower's election with proper notice, on either (i) SOFR plus 0.1% per annum and the "Applicable Margin" or (ii) the greater of (x) the Prime Rate, (y) the Federal Funds Rate plus 0.5%, and (z) the Daily One-Month SOFR Rate plus 1.10%, plus, in the case of (x), (y) or (z) the Applicable Margin ("Adjusted Base Rate Revolver Loan"). In addition, the Amendment waived the minimum fixed charge coverage ratio ("FCCR") requirement for the year ended December 31, 2022, and adjusted the terms of the FCCR for the periods ending March 31, 2023 and June 30, 2023. The Company was in compliance with all other debt covenants as of December 31, 2022.

Substantially all the Company's assets are pledged as collateral under the Credit Agreement, as amended.

(4) Income Taxes

The provisions for income taxes are:

	2022	2021	2020
Current:			
Federal	$ 7,439	$ 6,684	$ (1,197)
State	2,173	2,149	(3)
Foreign	3,943	1,106	2,831
Deferred:			
Federal	(2,763)	(2,369)	2,177
State	(1,243)	(1,039)	403
Foreign	(988)	1,635	(1,131)
Total	$ 8,561	$ 8,166	$ 3,080

Total income tax expense differed from the amounts computed by applying the U.S. Federal income tax rate of 21.0% to income before income tax expense, as a result of the following:

	2022	2021	2020
Computed tax expense at statutory federal rates	$ 7,553	$ 5,619	$ 3,874
Increase (decrease) in taxes resulting from:			
State taxes, net of federal income tax benefit	1,493	1,485	559
Unrecognized tax benefits	(1,441)	(1,783)	(2,092)
Bargain purchase gain on business acquisition	—	(35)	(978)
Income tax credits	(1,342)	(1,206)	(812)
Foreign tax rate differential	785	262	2,145
Stock based compensation	55	208	377
Global intangible low-taxed income	—	162	—
Change in valuation allowance	379	3,304	—
Return to provision	(693)	(651)	71
Nondeductible / (deductible) expenses	989	(103)	(111)
Gross receipts taxes	602	567	—
Other	181	337	48
Total	$ 8,561	$ 8,166	$ 3,080

Income before provision for income taxes and losses on equity investments are:

	2022	2021	2020
Domestic	$ 28,739	$ 21,212	$ 11,858
International	7,226	5,929	6,589
Total	$ 35,965	$ 27,141	$ 18,447

Temporary differences between the consolidated financial statements' carrying amounts and tax bases of assets and liabilities that give rise to significant portions of the net deferred tax liability at December 31, 2022 and 2021 relate to the following:

	2022	2021
Deferred tax assets		
Inventories	$ 2,401	$ 1,777
Program accrual	8,277	9,098
Vacation pay accrual	772	792
Accrued bonuses	1,707	1,250
Bad debt expense	1,450	1,361
Stock compensation	1,414	1,532
Domestic NOL carryforward	609	675
Foreign NOL carryforward	2,554	1,718
Tax credits	842	807
Lease liability	6,209	6,718
Accrued expenses	570	723
Unrealized foreign exchange loss	3,220	3,847
Section 174 capitalized costs	4,600	—
Other	—	744
Deferred tax assets	$ 34,625	$ 31,042
Less valuation allowance	(3,853)	(4,262)
Deferred tax assets, net	$ 30,772	$ 26,780
Deferred tax liabilities		
Plant and equipment, principally due to differences in depreciation and capitalized interest	$ 36,158	$ 37,113
Lease assets	6,079	6,600
Prepaid expenses	1,685	1,666
Deferred revenue	777	1,014
Other	529	123
Deferred tax liabilities	$ 45,228	$ 46,516
Total net deferred tax liabilities	$ 14,456	$ 19,736

As of December 31, 2022, the Company maintained a full valuation allowance against its net deferred income tax assets related to the Company's operations in Brazil, Spain, and Ukraine totaling $3,853. The valuation allowance decreased by $409 for the year ended December 31, 2022, of which $788 relates to unrealized foreign exchange losses and foreign currency translation included in other comprehensive income for 2022, partially offset by $379 included in the provision for income taxes for 2022. As of December 31, 2021, the Company recorded a full valuation allowance against the net deferred income tax assets related to the Company's operations in Brazil totaling $4,262, of which $3,304 is included in the provision for income taxes for 2021 and $958 related to unrealized foreign exchange losses included in other comprehensive income for 2021.

Gross foreign NOLs related to the Company's foreign operations were $8,342 and $5,491 for the years ended December 31, 2022 and 2021, respectively. Substantially all of the Company's foreign NOLs can be carried forward indefinitely.

Gross domestic federal and state NOLs available across all jurisdictions in which we operate were $3,622 and $3,733 as of December 31, 2022 and 2021, respectively. The Company's federal and state NOLs expire over varying intervals in the future and are subject to annual limitation in accordance with IRC Section 382.

The following is a roll-forward of the Company's total gross unrecognized tax benefits, not including interest and penalties, for the years ended December 31, 2022 and 2021 included in other liabilities, excluding current installments on the Company's consolidated balance sheets:

	2022	2021
Balance at beginning of year	$ 2,426	$ 3,222
Additions for tax positions related to the current year	225	223
Additions for tax positions related to the prior years	5	56
Reduction for tax positions related to the prior years	(745)	(971)
Effect of exchange rate changes	95	(104)
Balance at end of year	$ 2,006	$ 2,426

The Company recognizes accrued interest and penalties related to unrecognized tax benefits in the provision for income taxes in the Company's consolidated financial statements. As of December 31, 2022, 2021, and 2020 the Company had $2,161, $2,909, and $4,195, respectively in interest and penalties related to unrecognized tax benefits on its consolidated balance sheets.

It is expected that the amount of unrecognized tax benefits will change and $1,680 of unrecognized tax benefits is expected to be released within the next twelve months due to expiration of the statute of limitations.

The Company believes it is more likely than not that the deferred tax assets detailed in the table above, exclusive of those in Brazil, Spain and Ukraine with the previously mentioned full valuation allowances, will be realized in the normal course of business. It is the intent of the Company that undistributed earnings of foreign subsidiaries are permanently reinvested. The amount of undistributed earnings was $17,012 as of December 31, 2022. Upon distribution of earnings in the form of dividends or otherwise, the Company may still be subject to state income taxes and withholding taxes payable to the various foreign countries. Determination of the unrecognized deferred tax liability is not practical due to the complexities of a hypothetical calculation.

The Company is subject to U.S. federal income tax as well as to income tax in multiple state jurisdictions. Federal income tax returns of the Company are subject to Internal Revenue Service ("IRS") examination for the 2019 through 2021 tax years. State income tax returns are subject to examination for the 2018 through 2021 tax years. The Company has foreign income tax returns subject to examination.

Beginning in 2022, The Tax Cuts and Jobs Act of 2017 ("TCJA"), requires taxpayers to capitalize and amortize research and development expenditures pursuant to Internal Revenue Code, or IRC, Section 174, which resulted in increases in the Company's deferred tax asset balance and cash tax payments in the amount of $4,600 and $6,180 for the year ended December 31, 2022, respectively.

(5) Litigation and Environmental

The Company records a liability on its consolidated financial statements for loss contingencies when a loss is known or considered probable, and the amount can be reasonably estimated. When determining the estimated loss or range of loss, significant judgment is required to estimate the amount and timing of a loss to be recorded. The Company recognizes legal expense in connection with loss contingencies as incurred.

DBCP Cases

Over the course of the past 30 years, AMVAC and/or the Company have been named or otherwise implicated in a number of lawsuits concerning injuries allegedly arising from either contamination of water supplies or personal exposure to 1, 2-dibromo-3-chloropropane ("DBCP"). DBCP was manufactured by several chemical companies, including Dow Chemical Company, Shell Oil Company and AMVAC (which ceased manufacture in about 1980) and was approved by the USEPA to control nematodes. DBCP was also applied on banana farms in Latin America. The USEPA suspended registrations of DBCP in October 1979, except for use on pineapples in Hawaii. That suspension was partially based on 1977 studies by other manufacturers that indicated a possible link between male fertility and exposure to DBCP among their factory production workers involved with producing the product.

Nicaraguan DBCP Matters

According to court filings in Chinandega, Nicaragua, 85 suits alleging personal injury allegedly due to exposure to DBCP and involving approximately 3,592 plaintiffs have been filed against AMVAC and other parties. Of these cases, only two – Flavio Apolinar Castillo et al. v. AMVAC et al., No. 535/04 and Luis Cristobal Martinez Suazo et al. v. AMVAC et al., No. 679/04 (which were filed in 2004 and involve 15 banana workers) – have been served on AMVAC. The company objected to personal jurisdiction and due process in those matters and demanded that the claims be litigated in the United States. The local court denied these objections in 2007, AMVAC appealed the denial, and, to the company's knowledge, there has been no activity in these matters since that time. To date, plaintiffs have not had success in enforcing Nicaraguan judgments against domestic companies before U.S. courts. Nevertheless, AMVAC intends to defend these claims vigorously. Furthermore, the Company does not believe that a loss is either probable or reasonably estimable and has not recorded a loss contingency for these matters.

Delaware DBCP Cases

Chavez & Marquinez. Two cases were filed independently in 2012 by the same law firm (HendlerLaw, P.C.) in Louisiana and Delaware involving claims on behalf of banana workers for personal injury allegedly arising from exposure to DBCP. Through several years of law and motion practice, the number of plaintiffs in the actions has been reduced from about 2,750 to 290 banana workers from Costa Rica, Ecuador, Guatemala and Panama, and both cases have been consolidated before the United States District Court for the District of Delaware (USDC DE No. 1:12-CV-00695 & 00697). Discovery commenced in 2018 and has consisted largely of seeking medical examinations from the remaining plaintiffs. In December 2022, defendants in this matter filed a motion for summary judgment against the Ecuadorian plaintiffs under the theory that the statute of limitations for negligence barred the action. Briefing on the motion is set to conclude in March 2023. At this stage in the proceedings, the Company does not believe that a loss is probable or reasonably estimable and has not recorded a loss contingency for these matters.

Hawaiian DBCP Matters

Patrickson, et. al. v. Dole Food Company, et al. In October 1997, AMVAC was served with two complaints in which it was named as a defendant, filed in the Circuit Court, First Circuit, State of Hawai'i and in the Circuit Court of the Second Circuit, State of Hawai'i (two identical suits) entitled Patrickson, et. al. v. Dole Food Company, et. al ("Patrickson Case") alleging damages sustained from injuries (including sterility) to banana workers caused by plaintiffs' exposure to DBCP while applying the product in their native countries. Other named defendants include: Dole Food Company, Shell Oil Company and Dow Chemical Company. After several years of law and motion activity the parties stipulated that, because it was not named as a defendant in an earlier class action matter that gave rise to the tolling of the statute of limitations, AMVAC should be dismissed from this matter. Thus, we expect that the Company will be dismissed with prejudice from this action as soon as the court issues an order. There has been no activity in this matter since November 2018. Further, the Company does not believe that a loss is probable or reasonably estimable and has not recorded a loss contingency for this matter.

Adams v. Dole Food Company et al. On approximately November 23, 2007, AMVAC was served with a suit filed by two former Hawaiian pineapple workers (and their spouses), alleging cancer due to DBCP exposure; the action is captioned Adams v. Dole Food Company et al in the First Circuit for the State of Hawaii. Plaintiff alleges that they were exposed to DBCP between 1971 and 1975. AMVAC denies that any of its product could have been used at the times and locations alleged by these plaintiffs. Following the dismissal of Dole Food Company on the basis of the exclusive remedy of worker's compensation benefits, plaintiffs appealed the dismissal. The court of appeals subsequently remanded the matter to the lower court in February 2014, effectively permitting plaintiffs to amend their complaint to circumvent the workers' compensation bar. There has been no activity in the case since that time, and there is no estimated date of determination. The Company does not believe that a loss is either probable or reasonably estimable and has not recorded a loss contingency for this matter.

Other Matters

Department of Justice ("DOJ") and Environmental Protection Agency Investigation. On November 10, 2016, AMVAC was served with a grand jury subpoena from the United States Attorney's Office for the Southern District of Alabama, seeking documents regarding the importation, transportation, and management of a specific pesticide. The Company retained defense counsel to assist in responding to the subpoena and otherwise in defending the Company's interests. AMVAC is cooperating in the investigation. After interviewing multiple witnesses (including three employees before a grand jury in February 2022) and making multiple document requests, the DOJ identified the Company and a manager-level employee as targets of the government's investigation. DOJ's investigation focused on potential violations of two environmental statutes, the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA") and the Resource Conservation and Recovery Act ("RCRA"), as well as obstruction of an agency proceeding and false statement statutes. In March 2022, the individual target entered into a plea agreement relating to provision of false information in a government proceeding. In July 2022, the DOJ sent correspondence to the Company's counsel to the effect that it was focusing on potential RCRA violations relating to the reimportation of Australian containers in 2015. Our defense counsel spoke with DOJ on the subject in early October, and the DOJ, which expressed an interest in resolving the matter, stated that it would get back to the Company with its position.

The governmental agencies involved in this investigation have a range of civil and criminal penalties they may seek to impose against corporations and individuals for violations of FIFRA, RCRA and other federal statutes including, but not limited to, injunctive relief, fines, penalties and modifications to business practices and compliance programs, including the appointment of a monitor. If violations are established, the amount of any fines or monetary penalties which could be assessed and the scope of possible non-monetary relief would depend on, among other factors, findings regarding the amount, timing, nature and scope of the violations, and the level of cooperation provided to the governmental authorities during the investigation. As a result, the Company cannot yet anticipate the timing or predict the ultimate resolution of this investigation, financial or otherwise or whether it could have a material adverse effect on our business prospects, operations, financial condition and cash flow; accordingly, we have not recorded a loss contingency for this matter.

Pitre etc. v. Agrocentre Ladauniere et al. On February 11, 2022, a strawberry grower named Les Enterprises Pitre, Inc. filed a complaint in the Superior Court, District of Labelle, Province of Quebec, Canada, entitled *Pitre, etc. v. Agrocentre Ladauniere, Inc. etal, including Amvac Chemical Corporation*, seeking damages in the amount of approximately $5 million arising from stunted growth of, and reduced yield from, its strawberry crop allegedly from the application of Amvac's soil fumigant, Vapam, in spring of 2021. Examinations of plaintiff were held in mid-August 2022, during which plaintiff in effect confirmed that he had planted his seedlings before expiration of the full time interval following product application (as per the product label), that he had failed to follow the practice of planting a few test seedlings before planting an entire farm, and that he had placed his blind trust in his application adviser on all manner of timing and rate. The company believes that the claims have no merit and intends to defend the matter. At this stage in the proceedings, there is not sufficient information to form a judgment as to either the probability or amount of loss; thus, the company has not set aside a reserve in connection with this matter.

Catalano v. AMVAC Chemical Corp. On June 6, 2022, AMVAC was served with a summons and complaint for a matter entitled Andrew Catalano and Ruth Catalano v. AMVAC in the Superior Court of the State of California, County of Orange (30-2022-01263987-CU-PL-CXC) in which plaintiff, who worked as a professional applicator of pesticides, including Orthene (for which AMVAC is registrant) seeks damages for an injury (specifically, cardiomyopathy) allegedly arising from his exposure to this product. AMVAC is unaware of any link between cardiovascular disease and Orthene (which has been commercially available for over 30 years) and believes that this case has no merit and intends to defend it vigorously. The Company filed an answer in early July, including multiple affirmative defenses. Further, the parties are exchanging document requests, and plaintiffs have been unable to supply any data establishing a causal link between use of this product and the heart condition that plaintiff alleges. At this stage, there is not sufficient information to form a judgment as to either the probability or amount of any loss; thus, the company has not set aside a reserve in connection with this matter.

Notice of Intention to Suspend DCPA. On April 28, 2022, the USEPA published a notice of intent to suspend ("NOITS") DCPA, the active ingredient of an herbicide marketed by the Company under the name Dacthal. The agency cited as the basis for the suspension that the Company did not take appropriate steps to provide data studies requested in support of the registration review. In fact, over the course of several years, the Company cooperated in performing the vast majority of the nearly 90 studies requested by USEPA and had been working in good faith to meet the agency's schedule. After an appeals court (the Environmental Appeals Board) clarified the proper standard for use at the hearing (namely, whether registrant took appropriate steps to respond to the data call-in), a hearing was held in January 2023 before the ALJ, by which time USEPA had narrowed the scope of its claim to nine outstanding studies, all of which have been started by the Company and none of which are necessary for USEPA to commence its risk assessment. The parties are now preparing post-hearing briefs, after the submission of which the ALJ will render a decision. During the course of these proceedings, AMVAC has been free to make, sell and distribute both the technical grade material and end-use product and may continue to do so unless and until there is an adverse ruling at both the trial and appellate level (if any). The Company believes that a loss is neither probable nor estimable and, consequently, has not set aside a reserve in connection with this matter.

(6) Employee Deferred Compensation Plan and Employee Stock Purchase Plan

The Company maintains a deferred compensation plan ("the Plan") for all eligible employees. The Plan calls for each eligible employee, at the employee's election, to participate in an income deferral arrangement under Internal Revenue Code Section 401(k). The plan allows eligible employees to make contributions, which cannot exceed 100% of compensation, or the annual dollar limit set by the Internal Revenue Code. The Company matches the first 5% of employee contributions. The Company's contributions to the Plan amounted to $2,409, $2,273 and $2,172 in 2022, 2021 and 2020, respectively.

During 2001, the Company's Board of Directors adopted the AVD Employee Stock Purchase Plan (the "ESPP Plan"). The Plan allows eligible employees to purchase shares of common stock through payroll deductions at a discounted price. An original aggregate number of approximately 1,000,000 shares of the Company's Common Stock, par value $0.10 per share (subject to adjustment for any stock dividend, stock split or other relevant changes in the Company's capitalization) were allowed to be sold pursuant to the Plan, which is intended to qualify under Section 423 of the Internal Revenue Code. The Plan allows for purchases in a series of offering periods, each six months in duration, with new offering periods (other than the initial offering period) commencing on January 1 and July 1 of each year. The initial offering period commenced on July 1, 2001. Pursuant to action taken by the Company's Board of Directors on December 10, 2010, the expiration of the Plan was extended to December 31, 2013. The Plan was amended and restated on June 30, 2011, following stockholders' ratification of the extended expiration date. The Plan was amended as of June 6, 2018, following stockholders' ratification of a ten-year extension to the expiration date (which now stands at December 31, 2028). Under the Plan, as amended as of June 6, 2018, 995,000 shares of the Company's common stock were authorized. As of December 31, 2022, 2021, and 2020, 491,940, 543,180, and 593,962 shares, respectively, remained available under the plan. The expense recognized under the Plan was immaterial during the years ended December 31, 2022, 2021 and 2020, respectively.

Shares of common stock purchased through the Plan in 2022, 2021 and 2020 were 51,240, 50,782 and 49,668, respectively.

(7) Major Customers and International Sales

In 2022, there were three domestic customers that accounted for 18%, 13% and 8%, respectively, of the Company's consolidated sales. In 2021, there were three domestic customers that accounted for 17%, 14%, and 8% of the Company's consolidated sales. In 2020, there were three domestic customers that accounted for 17%, 12% and 10% of the Company's consolidated sales.

The Company primarily sells its products to distributors, buying cooperatives, other co-operative groups and, in certain territories, end users, and extends credit based on an evaluation of the customer's financial condition. The Company had three significant domestic customers who each accounted for approximately 15%, 3% and 3% of the Company's receivables as of December 31, 2022. The Company had three significant domestic customers who each accounted for approximately 11%, 4% and 4% of the Company's receivables as of December 31, 2021. The Company has long-standing relationships with its customers and the Company considers its overall credit risk for accounts receivables to be minimal.

The Company's receivables, excluding allowances for doubtful accounts, by geography as of December 31, 2022 and 2021 are summarized as follows:

	2022	2021
Domestic receivables	$ 65,825	$ 66,987
International receivables	105,619	95,872
Total receivables	$ 171,444	$ 162,859

International sales for 2022, 2021 and 2020 were as follows:

	2022	2021	2020
South and Central America	$ 124,525	$ 108,975	$ 102,281
Mexico	45,995	40,724	33,517
Asia	26,588	26,234	19,290
Australia	19,674	21,061	9,902
Canada	14,860	10,377	10,572
Africa	8,840	3,468	6,072
Middle East	1,836	2,357	3,054
Europe	1,964	2,243	2,292
Total international net sales	$ 244,282	$ 215,439	$ 186,980

(8) Product and Business Acquisitions

During the year ended December 31, 2022, the Company did not complete any acquisitions.

The Company completed one product acquisition during the year ended December 31, 2021. The acquisition was completed on July 1, 2021, for $10,000 in cash consideration. The acquisition was accounted for as an asset acquisition and the $10,000 in consideration was allocated as follows: product registrations and product rights $8,225, trade names and trademarks $1,650, and prepaid assets $125.

During the year ended December 31, 2020, the Company completed two acquisitions:

On October 2, 2020, the Company completed the acquisition of all outstanding stock of the Agrinos Group Companies ("Agrinos"), except for Agrinos AS. Agrinos has operating entities in the U.S., Mexico, India, Brazil, China, Ukraine, and Spain. Agrinos is a fully integrated biological input supplier with proprietary technology, manufacturing capacity, and global distribution capabilities. At closing, the Company paid cash consideration of $3,125, which was net of cash acquired of $1,813. The acquisition was accounted for as a business combination and resulted in a bargain gain. The purchase consideration was allocated as follows:

Trade receivables	$ 2,277
Inventory and other current assets	5,371
Property, plant, and equipment	5,141
Product registrations and product rights	50
Liabilities assumed	(4,886)
Bargain	(4,828)
Total	$ 3,125

Agrinos was acquired out of bankruptcy. This provided the Company with an opportunity to acquire Agrinos at an advantageous purchase price which was below the fair value of Agrinos' net assets acquired, resulting in the bargain purchase gain. The liabilities assumed include liabilities of $407 related to income tax matters.

On October 8, 2020, the Company completed the acquisition of all outstanding stock of AgNova Technologies Pty Ltd ("AgNova"). AgNova is an Australian entity that sources, develops, and distributes specialty crop protection and production solutions for agricultural and horticultural producers, and for selected non-crop users. The purchase price consideration was as follows:

Cash	$	16,997
Less cash acquired		(157)
Contingent consideration		1,052
Total consideration	$	17,892

The fair value of the contingent consideration was estimated using a Monte Carlo Simulation. The acquisition was accounted for as a business combination and the purchase consideration was allocated as follows:

Trade receivables	$	1,508
Inventory and other current assets		5,698
Property, plant, and equipment		73
Product registrations and product rights		8,327
Trade names and trademarks		351
Distribution agreements		3,584
Customer relationships and customer lists		386
Goodwill		4,618
Liabilities assumed		(6,653)
Total consideration	$	17,892

The liabilities assumed include liabilities of $3,857 related to income tax matters.

Cash paid at closing for the asset acquisitions and business combinations was funded through our revolving line of credit. Pro-forma financial information is not included herein as the pro-forma impact of the acquisitions is not material.

(9) Intangible Assets and Goodwill

The following schedule represents intangible assets recognized in connection with product acquisitions (See Note 1 for the Company's accounting policy regarding intangible assets):

	Amount
Intangible assets at December 31, 2019	$ 198,261
Additions during fiscal 2020	12,675
Write offs	(41)
Impact of movement in exchange rates	(637)
Amortization expense	(12,744)
Intangible assets at December 31, 2020	197,514
Additions during fiscal 2021	10,524
Measurement period adjustment	4,226
Impact of movement in exchange rates	(710)
Amortization expense	(13,713)
Intangible assets at December 31, 2021	197,841
Additions during fiscal 2022	1,292
Impact of movement in exchange rates	(516)
Amortization expense	(13,953)
Intangible assets at December 31, 2022	$ 184,664
Goodwill at December 31, 2019	$ 46,673
Additions during fiscal 2020	8,830
Other	617
Impact of movement in exchange rates	(4,012)
Goodwill at December 31, 2020	52,108
Measurement period adjustment	(4,054)
Impact of movement in exchange rates	(1,794)
Goodwill at December 31, 2021	46,260
Impact of movement in exchange rates	750
Goodwill at December 31, 2022	$ 47,010
Intangible assets and goodwill at December 31, 2022	$ 231,674

The following schedule represents the gross carrying amount and accumulated amortization of intangible assets and goodwill. Product rights and trademarks are amortized over their expected useful lives of 25 years. Customer lists are amortized over their expected useful lives of nine to ten years. The amortization expense is included in operating expenses on the consolidated statements of operations.

	2022			2021		
	Gross	Accumulated Amortization	Net Book Value	Gross	Accumulated Amortization	Net Book Value
Product Rights	$272,339	$ 121,209	$151,130	$271,632	$ 110,090	$161,542
Trademarks	40,459	11,615	28,844	40,578	9,870	30,708
Customer Lists	11,204	6,514	4,690	10,966	5,375	5,591
Total intangibles assets	324,002	139,338	184,664	323,176	125,335	197,841
Goodwill	47,010	—	47,010	46,260	—	46,260
Total intangibles and goodwill	$371,012	$ 139,338	$231,674	$369,436	$ 125,335	$244,101
Domestic	194,395	92,352	102,043	193,091	84,477	108,614
International	176,617	46,986	129,631	176,345	40,858	135,487
Total intangibles and goodwill	$371,012	$ 139,338	$231,674	$369,436	$ 125,335	$244,101

The following schedule represents future amortization charges related to intangible assets:

Year ending December 31,	Amount
2023	$ 13,299
2024	13,001
2025	12,819
2026	12,713
2027	12,476
Thereafter	120,356
	$ 184,664

(10) Contingent Consideration

The following schedule represents the Company's contingent consideration liability under acquisitions agreements:

	Amount
Obligations under acquisition agreements at December 31, 2019	$ 1,244
Additional obligations acquired	2,044
Fair value adjustment	250
Accretion of discounted liabilities	16
Payments on existing obligations	(1,227)
Foreign exchange effect	141
Obligations under acquisition agreements at December 31, 2020	2,468
Purchase price adjustment	(955)
Fair value adjustment	758
Accretion of discounted liabilities	(8)
Payments on existing obligations	(1,301)
Foreign exchange effect	(176)
Obligations under acquisition agreements at December 31, 2021	786
Fair value adjustment	610
Accretion of discounted liabilities	27
Payments on existing obligations	(1,389)
Foreign exchange effect	(34)
Obligations under acquisition agreements at December 31, 2022	$ —

(11) Commitments

We enter into various obligations in the ordinary course of business, generally of a short-term nature. They primarily relate to purchase commitments for inventory and orders submitted for equipment for our production plants as well as service agreements.

(12) Research and Development

Research and development expenses which are included in operating expenses were $10,829, $10,354 and $8,757 for the years ended December 31, 2022, 2021 and 2020, respectively.

(13) Equity Plan Awards

Under the Company's Equity Incentive Plan of 1993, as amended ("the Plan"), all employees are eligible to receive non-assignable and non-transferable restricted stock, options to purchase common stock, and other forms of equity. As of December 31, 2022, the number of securities remaining available for future issuance under the Plan is 1,524,567.

The below tables illustrate the Company's stock-based compensation, unamortized stock-based compensation, and remaining weighted average period for the years ended December 31, 2022, 2021 and 2020. This projected expense will change if any stock options and restricted stock are granted or cancelled prior to the respective reporting periods, or if there are any changes required to be made for estimated forfeitures.

	Stock-Based Compensation	Unamortized Stock-Based Compensation	Remaining Weighted Average Period (years)
December 31, 2022			
Restricted Stock	$ 4,407	$ 6,585	1.8
Unrestricted Stock	499	217	0.4
Performance-Based Restricted Stock	778	2,441	1.8
Total	$ 5,684	$ 9,243	
December 31, 2021			
Restricted Stock	$ 5,682	$ 6,804	1.8
Unrestricted Stock	421	187	0.4
Performance-Based Restricted Stock	777	2,888	1.8
Total	$ 6,880	$ 9,879	
December 31, 2020			
Restricted Stock	$ 3,166	$ 6,954	1.9
Unrestricted Stock	461	183	0.4
Performance-Based Restricted Stock	2,934	3,352	1.9
Total	$ 6,561	$ 10,489	

The Company also granted stock options in past periods. All outstanding stock options are fully vested and exercisable and no expense was recorded during the years ended December 31, 2022, 2021 and 2020.

Restricted and Unrestricted Stock

A summary of nonvested restricted and unrestricted stock is presented below:

	December 31, 2022		December 31, 2021	
	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested shares at January 1st	817,290	$ 17.04	820,624	$ 16.64
Granted	256,417	23.53	295,619	20.00
Vested	(262,521)	17.84	(244,651)	19.23
Forfeited	(69,136)	18.58	(54,302)	17.11
Nonvested shares at December 31st	742,050	$ 18.86	817,290	$ 17.04

Performance-Based Restricted Stock

A summary of nonvested performance-based stock is presented below:

	December 31, 2022		December 31, 2021	
	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested shares at January 1st	379,061	$ 16.43	391,771	$ 16.26
Granted	83,190	23.63	102,043	20.03
Additional granted based on performance achievement	(68,484)	16.87	71,180	20.53
Vested	(51,308)	17.09	(175,087)	19.78
Forfeited	(23,760)	17.21	(10,846)	16.89
Nonvested shares at December 31st	318,699	$ 18.05	379,061	$ 16.43

Performance Based Restricted Stock Granted in 2022— During the year ended December 31, 2022, the Company issued a total of 83,190 performance-based shares to employees. The shares granted during 2022 have an average fair value of $23.63. The fair value was determined by using the publicly traded share price as of the market close on the date of grant and Monte Carlo valuation method. The Company will recognize as expense the value of the performance-based shares over the required service period from grant date. The shares will cliff vest on April 20, 2025, with a measurement period commencing January 1, 2022, and ending December 31, 2024. Eighty percent of these performance-based shares are based upon the financial performance of the Company, specifically, an earnings before interest and tax (“EBIT”) goal weighted at 50% and a net sales goal weighted at 30%. The remaining 20% of performance-based shares are based upon AVD stock price appreciation over the same performance measurement period. The EBIT and net sales goals measure the relative growth of the Company’s EBIT and net sales for the performance measurement period, as compared to the median growth of EBIT and net sales for an identified peer group. The stockholder return goal measures the relative growth of the fair market value of the Company’s stock price over the performance measurement period, as compared to that of the Russell 2000 Index and the median fair market value of the common stock of the comparator companies, identified in the Company’s 2021 Proxy Statement. All parts of these awards vest in three years but are subject to reduction to a minimum (or even zero) for recording less than the targeted performance and to increase to a maximum of 200% for achieving in excess of the targeted performance.

Performance Based Restricted Stock Granted in 2021— During the year ended December 31, 2021, the Company issued a total of 102,043 performance-based shares to employees. The shares granted during 2021 have an average fair value of $20.03. The fair value was determined by using the publicly traded share price as of the market close on the date of grant and Monte Carlo valuation method. The Company will recognize as expense the value of the performance-based shares over the required service period from grant date. The shares will cliff vest on April 16, 2024, with a measurement period commencing January 1, 2021, and ending December 31, 2023. Eighty percent of these performance-based shares are based upon the financial performance of the Company, specifically, an EBIT goal weighted at 50% and a net sales goal weighted at 30%. The remaining 20% of performance-based shares are based upon AVD stock price appreciation over the same performance measurement period. The EBIT and net sales goals measure the relative growth of the Company’s EBIT and net sales for the performance measurement period, as compared to the median growth of EBIT and net sales for an identified peer group. The stockholder return goal measures the relative growth of the fair market value of the Company’s stock price over the performance measurement period, as compared to that of the Russell 2000 Index and the median fair market value of the common stock of the comparator companies, identified in the Company’s 2020 Proxy Statement. All parts of these awards vest in three years but are subject to reduction to a minimum (or even zero) for recording less than the targeted performance and to increase to a maximum of 200% for achieving in excess of the targeted performance.

Performance Based Restricted Stock Granted in 2020— During the year ended December 31, 2020, the Company issued a total of 160,706 performance-based shares to employees. The shares granted during 2020 have an average fair value of $14.29. The fair value was determined by using the publicly traded share price as of the market close on the date of grant and Monte Carlo valuation method. The Company will recognize as expense the value of the performance-based shares over the required service period from grant date. The shares will cliff vest on May 13, 2023, with a measurement period commencing October 1, 2020, and ending March 31, 2023. Eighty percent of these performance-based shares are based upon the financial performance of the Company, specifically, an EBIT goal weighted at 50% and a net sales goal weighted at 30%. The remaining 20% of performance-based shares are based upon AVD stock price appreciation over the same performance measurement period. The EBIT and net sales goals measure the relative growth of the Company's EBIT and net sales for the performance measurement period, as compared to the median growth of EBIT and net sales for an identified peer group. The stockholder return goal measures the relative growth of the fair market value of the Company's stock price over the performance measurement period, as compared to that of the Russell 2000 Index and the median fair market value of the common stock of the comparator companies, identified in the Company's 2020 Proxy Statement. All parts of these awards vest in three years but are subject to reduction to a minimum (or even zero) for recording less than the targeted performance and to increase to a maximum of 200% for achieving in excess of the targeted performance.

In 2022, the Company assessed the likelihood of achieving the performance measures based on peer group information currently available for the performance-based shares granted in 2020. Based on the performance thus far, the Company has concluded that it is likely that the performance measure based on EBIT will not be met and net sales will be met at 150% of targeted performance and have recorded the related additional expense in 2022. The performance shares based on market price are expected to be met at 166% of targeted performance. The effect of market conditions for performance shares based on market are included in the grant date fair value valuation and no additional expenses were recognized in 2022.

During 2022, the Company concluded that the performance measure based on EBIT and net sales for the performance-based shares granted in 2019, when compared to the peer group, was met at 0% for EBIT and 123.8% for net sales of targeted performance and all related additional expenses were recorded as of December 31, 2022. The 2019 performance shares based on market price was met at 28.5%; however, the market condition is reflected in the grant date fair value valuation and no additional expenses were recognized. As a result, 68,484 shares were forfeited since the Company did not achieve performance targets when compared to the peer group.

Stock Options

Under the terms of the Company's ISOP, under which options to purchase common stock can be issued, all employees are eligible to receive non-assignable and non-transferable options to purchase shares. The exercise price of any option may not be less than the fair market value of the shares on the date of grant; provided, however, that the exercise price of any option granted to an eligible employee owning more than 10% of the outstanding common stock may not be less than 110% of the fair market value of the shares underlying such option on the date of grant. No options granted may be exercisable more than ten years after the date of grant.

In 2022, 2021 and 2020, no options were granted.

Incentive Stock Option Plans

Activity of the incentive stock option plans:

	Number of Shares	Weighted Average Price Per Share
Balance outstanding, December 31, 2019	332,823	$ 9.14
Options exercised	(196,736)	7.79
Options forfeited	(13,000)	7.50
Balance outstanding, December 31, 2020	123,087	11.48
Options exercised	(15,051)	11.41
Balance outstanding, December 31, 2021	108,036	11.49
Options exercised	(39,140)	11.49
Balance outstanding, December 31, 2022	68,896	$ 11.49

Outstanding stock options at December 31, 2022, summarized by exercise price:

Exercise Price Per Share	Outstanding Weighted Average		
	Number of Shares	Remaining Life (Months)	Exercise Price
Outstanding stock options, December 31, 2022	68,896	24	$ 11.49

Performance Incentive Stock Option Plan

Activity of the performance incentive stock option plan:

	Number of Shares	Weighted Average Price Per Share
Balance outstanding, December 31, 2019	120,782	$ 11.49
Options exercised	(6,124)	11.49
Balance outstanding, December 31, 2021 and 2020	114,658	$ 11.49
Options exercised	(32,850)	11.49
Balance outstanding, December 31, 2022	81,808	$ 11.49

All the performance incentive stock options outstanding as of December 31, 2022, have an exercise price per share of $11.49 and a remaining life of 24 months.

The total intrinsic value of options exercised during 2022, 2021, and 2020 was $877, $119, and $1,393, respectively. Cash received from stock options exercised during 2022, 2021, and 2020 was $827, $172, and $1,533, respectively. All outstanding options are fully vested and the intrinsic value amounted to $1,540 as of December 31, 2022.

(14) Accumulated Other Comprehensive Loss

The following table lists the beginning balance, annual activity and ending balance of foreign currency translation adjustment included as a component of accumulated other comprehensive loss:

Balance, December 31, 2019	$ (5,698)
Foreign currency translation adjustment, net of tax effects of $2,521	(3,624)
Balance, December 31, 2020	(9,322)
Foreign currency translation adjustment, net of tax effects of $76	(4,462)
Balance, December 31, 2021	(13,784)
Foreign currency translation adjustment, net of tax effects of ($245)	1,602
Balance, December 31, 2022	$ (12,182)

(15) Equity Method Investment

On August 2, 2016, AMVAC BV entered into a joint venture with Huifeng (Hong Kong) Ltd, which is a wholly owned subsidiary of the Huifeng Group. The resulting entity, Hong Kong JV, was intended to focus on activities such as market access and technology transfer between the two members. AMVAC BV is a 50% owner of the entity.

On June 27, 2017, both AMVAC BV and Huifeng (Hong Kong) Ltd. made individual capital contributions of $950 to the Hong Kong JV. As of December 31, 2021, 2020 and 2019, the Company's ownership position in the Hong Kong JV was 50%. The Company utilizes the equity method of accounting with respect to this investment.

On July 7, 2017, the Hong Kong JV purchased the shares of Profeng Australia, Pty Ltd. ("Profeng"), for a total consideration of $1,900. The purchase consists of Profeng Australia, Pty Ltd Trustee and Profeng Australia Unit Trust. Both Trust and Trustee were previously owned by Huifeng (via its wholly owned subsidiary Huifeng (Hong Kong) Ltd). For the years ended December 31, 2022, 2021, and 2020, the Company recognized losses of $0, $388 (including a full impairment charge of $288 of the Company's remaining book value of its Hong Kong JV investment) and $125, respectively, as a result of the Company's ownership position in the Hong Kong JV. The Hong Kong JV is an inactive entity.

(16) Equity Investments

In February 2016, AMVAC BV made an equity investment of $3,283 in Biological Products for Agriculture ("Bi-PA"). Bi-PA develops biological plant protection products that can be used for the control of pests and disease of agricultural crops. As of December 31, 2022, 2021 and 2020, the Company's ownership position in Bi-PA was 15%. Since this investment does not have readily determinable fair value, the Company has elected to measure the investment at cost less impairment, if any, and to record an increase or decrease for changes resulting from observable price changes in orderly transactions for the identical or a similar investment of Bi-PA. The Company periodically reviews the investment for possible impairment. The Company recorded an impairment charge in the amount of $399 during the year ended December 31, 2021. There were no impairment or observable price changes on the investment during the years ended December 31, 2022 and 2020. The investment is recorded within other assets on the consolidated balance sheets and amounted to $2,884 as of December 31, 2022 and 2021.

On April 1, 2020, AMVAC purchased 6.25 million shares, an ownership of approximately 8%, of common stock of Clean Seed Capital Group Ltd. (TSX Venture Exchange: "CSX") for $1,190. The shares are publicly traded, have a readily determinable fair value, and are considered a Level 1 investment. The fair value of the stock amounted to $784 and $1,516 as of December 31, 2022 and 2021, respectively, and the Company recorded losses of $732 and $391 and a gain of $717 for the years ended December 31, 2022, 2021 and 2020, respectively. The investment is recorded within other assets on the consolidated balance sheets and amounted to $784 and $1,516 as of December 31, 2022 and 2021, respectively.

(17) Share Repurchase Programs

The Company periodically repurchases shares of its common stock under a board-authorized repurchase program through a combination of open market transactions and accelerated share repurchase ("ASR") arrangements.

On August 22, 2022, pursuant to a Board of Directors resolution, the Company entered into an ASR to repurchase $20,000 of its common stock. Under the ASR agreement, the Company paid $20,000 and immediately received an initial delivery of 802,810 shares in the amount of $16,000, based on a price of $19.93 per share, which represented 80% of the notional amount of the ASR based on the closing price of the Company's common stock on the New York Stock Exchange ("NYSE") on August 22, 2022. On December 14, 2022, the ASR was completed, and pursuant to the settlement terms of the ASR, the Company received an additional 131,892 shares of its common stock. The average price paid for all of the shares delivered under the ASR was $21.40 per share.

On March 8, 2022, pursuant to a Board of Directors resolution, the Company announced its intention to repurchase an aggregate number of up to 1,000,000 shares of its common stock, par value $0.10 per share, in the open market over the succeeding one year, subject to limitations and restrictions under applicable securities laws. During 2022, the Company purchased 734,150 shares of its common stock for a total of $14,002 at an average price of $19.07 per share.

On August 30, 2021, pursuant to a Board of Directors resolution, the Company announced its intention to repurchase an aggregate number of 300,000 shares of its common stock, par value $0.10 per share, in the open market over the succeeding six months. During 2021, the Company purchased 300,000 shares of its common stock for a total of $4,579 at an average price of $15.26 per share.

The shares and respective amount are recorded as treasury shares on the Company's consolidated balance sheets. The table below summarized the number of shares of the Company's common stock that were repurchased during the years ended December 31, 2022 and 2021. The Company did not repurchase any of its common stock in 2020.

Year ended	Total number of shares purchased	Average price paid per share	Total amount paid
December 31, 2022	1,668,852	$ 20.37	$ 34,002
December 31, 2021	300,000	$ 15.26	$ 4,579

(18) Supplemental Cash Flows Information

	2022	2021	2020
Supplemental cash flow information:			
Cash paid during the year for:			
Interest	$ 3,834	$ 3,520	$ 5,313
Income taxes, net	$ 19,960	$ 5,796	$ 3,881
Non-cash transactions:			
ROU assets in exchange for lease liabilities	$ 4,468	$ 18,521	$ 6,309
Deferred consideration in connection with business and asset acquisitions	$ 610	$ 758	$ 2,630
Cash dividends declared and included in accrued expenses	$ 851	$ 594	$ 592

Exhibit 21

AMERICAN VANGUARD CORPORATION AND SUBSIDIARIES
LISTING OF SUBSIDIARIES

Subsidiaries of the Company and the jurisdiction in which each company was incorporated are listed below. Unless otherwise indicated parenthetically, 100% of the voting securities of each subsidiary are owned by the Company. All companies indicated with an asterisk (*) are subsidiaries of AMVAC. All of the following subsidiaries are included in the Company's consolidated financial statements:

AMVAC Chemical Corporation	California
GemChem, Inc.	California
2110 Davie Corporation (formerly ABSCO Distributing)	California
AMVAC Chemical UK Ltd*	England
AMVAC do Brasil Representácoes Ltda*	Brazil
Amvac Mexico S. De R.L. De C.V.*	Mexico
AMVAC de Costa Rica Srl	Costa Rica
AVD International LLC*	Delaware
AMVAC Netherlands BV*	Netherlands
Envance Technologies, LLC*	Delaware
OHP Inc.*	California
Amvac Colombia SAS	Columbia
AgriCenter S.A	Costa Rica
Tyratech, Inc.	Delaware
American Vanguard Australia PTY Ltd	Australia
Amvac Singapore PTE Ltd	Singapore
AMVAC do Brazil 3p LTDA	Brazil
Amvac Canada ULC	Canada
Amvac Hong Kong Limited	Hong Kong
AgNova Technologies Pty Ltd	Australia
Agrinos Biotech (Shanghai) Co., LTD	China
Agrinos do Brazil Fertilizantes Biologicos LTDA	Brasil
Agrinos India Private Limited	India
Agrinos Ukraine LLC	Ukraine
Agrinos Iberia S.L.	Spain
Bioderpac SA de CV	Mexico

Exhibit 23

Consent of Independent Registered Public Accounting Firm

American Vanguard Corporation
Newport Beach, California

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-125813, 333-102381, 333-76218, and 333-64220) of American Vanguard Corporation of our reports dated March 16, 2023, relating to the consolidated financial statements and schedule, and the effectiveness of American Vanguard Corporation's internal control over financial reporting, which appear in this Form 10-K.

/s/ BDO USA, LLP

Costa Mesa, California

March 16, 2023

Exhibit 31.1

AMERICAN VANGUARD CORPORATION

CHIEF EXECUTIVE OFFICER CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Eric G. Wintemute, certify that:

1. I have reviewed this report on Form 10-K of American Vanguard Corporation;
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 consolidated 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 Company as of, and for, the periods presented in this report;
4. The Company's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Company 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 Company, 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 Company's disclosure controls and procedures, and presented in this report our conclusions about the effectiveness of the disclosures 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 Company's internal control over financial reporting that occurred during the Company's most recent fiscal quarter (the Company's fourth fiscal quarter in the case of an Annual Report) that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting; and
5. The Company's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Company's auditors and the audit committee of Company's board of directors:
   (a) all significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting which are reasonably likely to adversely affect the Company'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 Company's internal control over financial reporting.

Date: March 16, 2023

/s/ Eric G. Wintemute

Eric G. Wintemute
Chief Executive Officer and Chairman of the Board

Exhibit 31.2

AMERICAN VANGUARD CORPORATION

CHIEF FINANCIAL OFFICER CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, David T. Johnson, certify that:

1. I have reviewed this report on Form 10-K of American Vanguard Corporation;
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 consolidated financial condition, results of operations and cash flows of the Company as of, and for, the periods presented in this report;
4. The Company's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Company 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 Company, 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 Company's disclosure controls and procedures, and presented in this report our conclusions about the effectiveness of the disclosures 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 Company's internal control over financial reporting that occurred during the Company's most recent fiscal quarter (the Company's fourth fiscal quarter in the case of an Annual Report) that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting; and

5. The Company's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Company's auditors and the audit committee of Company's board of directors:

   (a) all significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting which are reasonably likely to adversely affect the Company'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 Company's internal control over financial reporting.

Date: March 16, 2023

/s/ David T. Johnson

David T. Johnson
Chief Financial Officer and Principal Accounting Officer

Exhibit 32.1

AMERICAN VANGUARD CORPORATION

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350 AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of American Vanguard Corporation (the "Company") on Form 10-K for the period ending December 31, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned Chief Executive Officer and Chief Financial Officer of the Company hereby certify, pursuant to 18 U.S.C. 1350, as adopted pursuant to 906 of the Sarbanes-Oxley Act of 2002 that based on their knowledge (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and (2) the information contained in the Report fairly represents, in all material respects, the financial condition and results of operations of the Company as of and for the periods covered in the Report.

/s/ ERIC G. WINTEMUTE

Eric G. Wintemute,
Chief Executive Officer and Chairman of the Board

/s/ DAVID T. JOHNSON

David T. Johnson
Chief Financial Officer and Principal Accounting Officer

March 16, 2023

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to American Vanguard Corporation and will be retained by American Vanguard Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

The foregoing certification is being furnished to the Securities and Exchange Commission as an exhibit to the Form 10-K and shall not be considered filed as part of the Form 10-K.