

With much progress, comes much responsibility.



American Vanguard Corporation
2017/18 Sustainability Report



Corporate Sustainability Strategy

American Vanguard is committed to safely and responsibly operating our manufacturing facilities, developing our products, and managing our footprint. We recognize the importance of our role and effect on the planet – from our local communities to the global environment. Our Core Values, summarized here and described throughout this report, have guided the development of our sustainability strategy.

Our initial Sustainability Report was published in 2012, covering the years 2009 – 2011, and described the issues of resource conservation, biodiversity, public policy, product safety and compliance in conjunction with our environmental, social and operational performance. In the intervening years, we have continued to manage our strategic approach around these material issues, while striving for higher levels of performance and improvement and staying focused on our Core Values.

American Vanguard Core Values	
SAFETY	
	We embrace a “Safety-First” culture at all levels of our organization
MAKING A DIFFERENCE	
	Our employees are Making a Difference in our industry and the communities we serve 
PRECISION AG	
	We are Raising AgChem to Precision Ag with industry-leading technology-based solutions
STAKEHOLDERS	
	Our Engagement with Stakeholders is the key to impactful, meaningful initiatives 
STEWARDSHIP AND CONSERVATION	
	We prioritize Stewardship and Conservation in our operations and product programs

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CEO Statement



As the CEO of a specialty chemical company, I am often asked what we can possibly say about sustainability that would be compelling. After all, our industry is often unfairly perceived as being on the wrong side of the issue. In fact, we have a strong story to tell. We want our audiences – employees,

neighbors, stockholders, customers and business partners – to know what we are doing both today and tomorrow to ensure that **we meet our social responsibility toward others and the environment.**

Once limited to protection of natural resources, the term “sustainability” has evolved to include many issues, including treatment and development of people, community outreach, legal compliance, environmental stewardship, and the advancement of expanding social issues. Rather than attempt to cover every imaginable facet of sustainability within this report, we think it best to start with our core values – safety, employees, innovation, stakeholder engagement and stewardship – and then describe how they have helped us to become responsible corporate citizens. Also, rather than relying solely upon platitudes and aspirational language, we have collected success stories and metrics to illustrate our achievements.

Our discussion begins with **our commitment to safety.** We have safely and successfully operated highly-regulated chemical manufacturing facilities for **50 years.** We could not have done so without an unerring commitment toward ensuring that our activities are safe – to workers, visitors, and neighbors. This discipline starts with our plants and permeates everything we do, from science-backed product testing, development and stewardship, to our industry-leading closed delivery systems. We are ideal stewards of our products. We know how they are made and what they can do, and we carry that knowledge from factory to farm.

Also critical to our enterprise is our **commitment to our employees.** It is the loyalty, energy and dedication of our team that enables us to compete and succeed. In a market populated by larger competitors, we have distinguished ourselves as a destination for people who want to make a difference. Within American Vanguard, we give people the tools to succeed, a chance to be heard, and room to grow. We do this through generous health benefits, an

innovative wellness program, stock ownership programs, 401K retirement program, tuition reimbursement for career-related studies and on-the-job training. We try to make a difference in our employees’ lives, so that we can make a difference as a company.

“ In a market populated by larger competitors, we have distinguished ourselves as a destination for people who want to make a difference. ”

Further, **we pursue technology innovation with an eye toward social responsibility.** Thousands of laboratory studies and university field trials support the safety and efficacy profile of our product lines. In addition, our chemists continue to develop new formulations to enhance product safety and effectiveness. Also, we remain industry leaders in closed delivery systems, which serve to reduce risk of exposure to users and applicators. Our newest technology, called SIMPAS™, enables prescription application of multiple products at variable rates based upon actual yield and field data, so that growers can apply only what they need, where they need it – thus optimizing the environmental footprint and reducing waste.

In addition, **we place a strong emphasis on engagement with our stakeholders,** including not only stockholders but also customers, suppliers, peers, universities, government agencies, and neighboring communities. In fact, with the publication of this report, we will be polling these stakeholders to elicit their input on what they would like to see in future sustainability reports of the Company.

Finally, we are committed to **continuous improvement of key performance metrics,** such as emissions of greenhouse gases (GHGs), consumption of resources (water, fuels), production of wastes, and recycling/ reclamation rates. We also include discussion of goals for future improvement on these metrics. In closing, I am pleased to present our 2017/18 Sustainability Report for your consideration. We believe that we have a compelling story to tell and expect that our story will get even better over time.

Sincerely,
Eric G. Wintemute
Chairman and CEO



Company Profile

American Vanguard Corporation (the Company) is a diversified specialty and agricultural products company focusing on crop protection, turf and ornamental markets, and public health applications. The Company has continued its successful strategy of acquiring or licensing both new and well-established product lines that serve numerous high valued market niches. New product development and international expansion also provide an additional stimulus for growth. Through skillful marketing, diligent product registration, quality manufacturing, American Vanguard has positioned itself to meet the needs of a world demanding ever-increasing quantities of agricultural products for human food, animal feed, natural fibers and alternative fuels.

American Vanguard's wholly-owned subsidiary, AMVAC Chemical Corporation (AMVAC) serves U.S. and international growers through development and manufacturing of products for agricultural, commercial, and turf use. AMVAC also develops patented closed delivery and precision application technologies that also address the complex challenges that growers face on a daily basis. The Company is committed to protecting public and animal health, safeguarding the food we consume from damaging pests and disease, while enhancing the overall quality of the environment where we live and work.

GLOBAL HEADQUARTERS
Newport Beach, California, USA
MANUFACTURING
Axis, Alabama, USA Los Angeles, California, USA Marsing, Idaho, USA Hannibal, Missouri, USA
SUBSIDIARIES
AMVAC Chemical Corporation GemChem, Inc. ("GemChem") AMVAC Mexico Sociedad de Responsabilidad Limitada AMVAC de Costa Rica Sociedad de Responsabilidad Limitada AMVAC do Brasil Representações Ltda AMVAC C.V. AMVAC Netherlands BV Envance Technologies, LLC AMVAC Singapore Pte, Ltd OHP Inc. Grupo AgriCenter TyraTech, Inc.



626 EMPLOYEES
as of 12/31/2018

\$454 MILLION
2018 Revenue

American Vanguard
founded in
1969

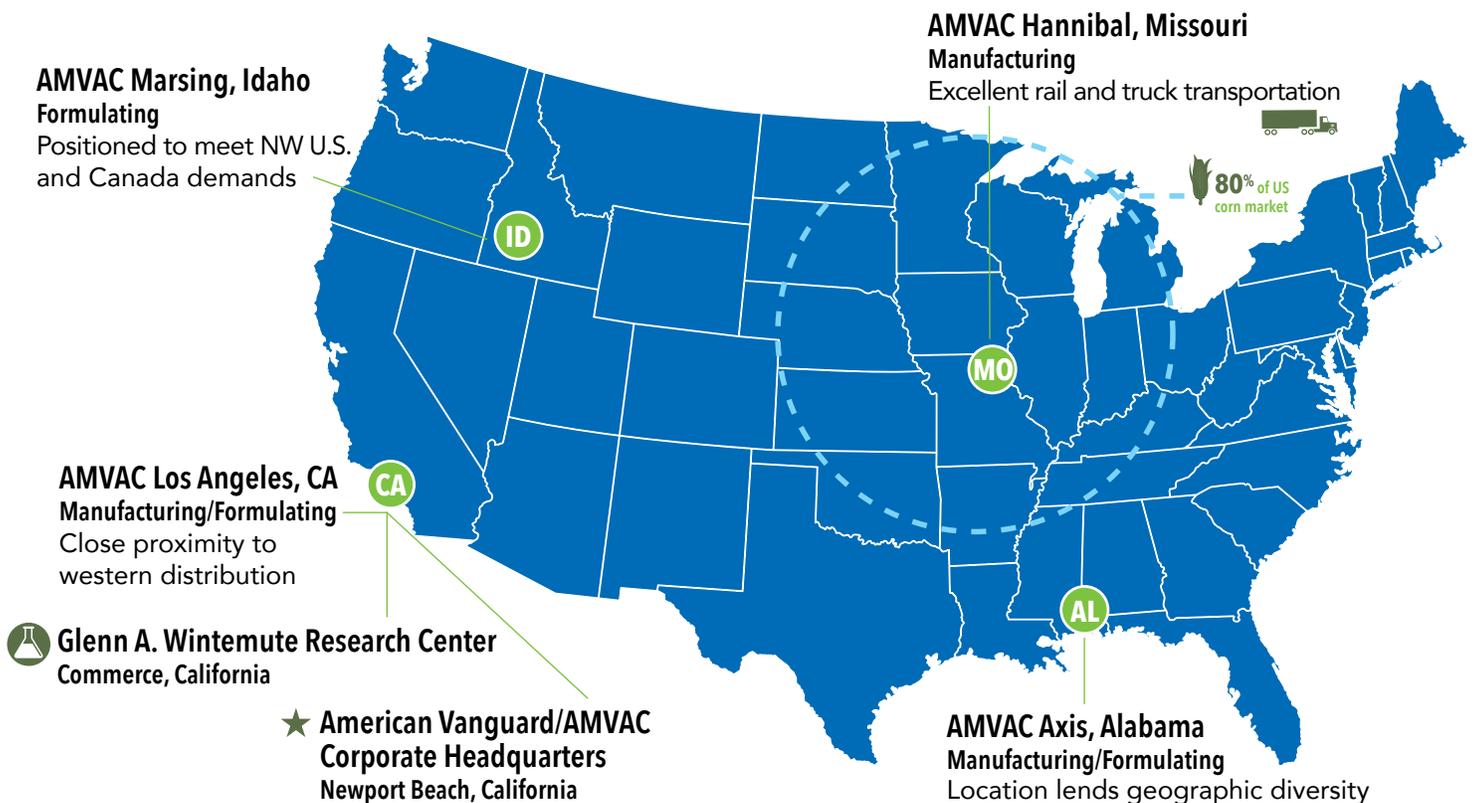
Operations and Supply Chain

AMVAC operates four manufacturing and formulation facilities strategically located in the U.S. that provide flexible production of high-quality products. Our commitment to safe, efficient operations is demonstrated in the strategies, decisions, and ultimately the culture of responsibility and accountability at each of our locations.

In addition to manufacturing a large percentage of our products in our U.S. facilities, we source raw materials, intermediates and finished products from partners both domestic and foreign. As with any prudent business, we regularly revisit make-versus-buy decisions. However, while many of our competitors had extended their sourcing to Asia, particularly China, over the past several years, we have done so conservatively. In fact, while over half of the pesticide products used in the United States come from China, our imports from that country are closer to ten percent. Further, to the extent that we continue to source from China, we have formed a local procurement team who maintain relationships with Chinese and other Asian suppliers. As the supply chain changes, we continually

reach out to reliable third party suppliers throughout the globe and, wherever possible, establish multiple sources for goods. In addition, we make full use of our own production facilities whenever possible and economical.

At AMVAC, we source raw materials through GemChem, Inc., a Connecticut-based wholly-owned subsidiary of American Vanguard. GemChem and our Logistics and Transportation Departments manage every aspect required for the safe, secure and cost-efficient sourcing, logistics, transporting and handling of the high quality raw materials used in our products. We have long-standing relationships with many key supply and logistics partners, including toll manufacturers and formulators, conducting quality assurance reviews that include raw materials sampling and analysis. In addition, we review the quality and security-related policies, procedures and operations of our partners, including their compliance with federal transportation and security requirements, the Foreign Corrupt Practices Act and similar laws.



“AMVAC’s portfolio of proven, market-leading brands enhance agricultural productivity and safeguard public health.”





Products



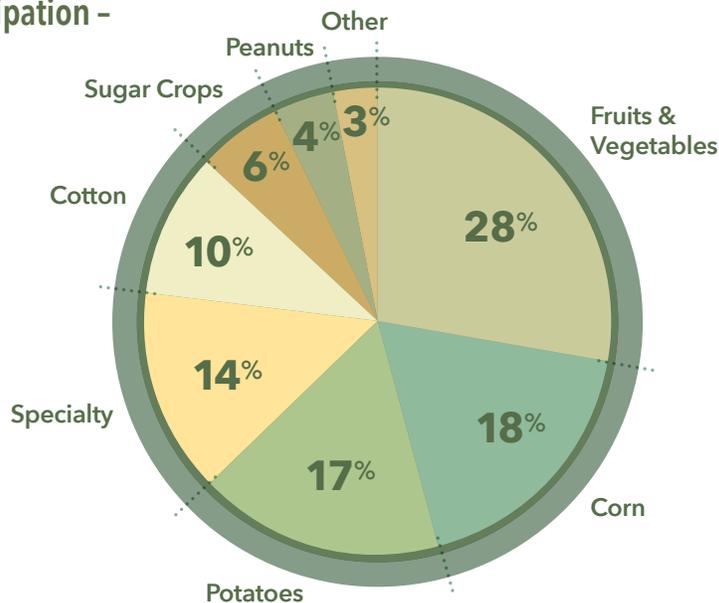
American Vanguard is committed to providing a variety of sustainable and beneficial solutions that enable abundant agricultural production, effective public health protection, and valued turf, ornamental and commercial pest control. Along with modern agricultural practices, our products help farmers to maximize the yield from existing farmlands to conserve natural lands, while protecting crops, retaining soil moisture and nutrients, and improving crop quality across the globe.

We also create tailor-made solutions to meet the growing needs of non-agricultural customers. Golf courses and commercial greenhouses benefit from our turf and ornamental products, while public health agencies use our insecticides to protect against vector-borne diseases such as West Nile Virus. Pest control operators use our products to combat termites, bed bugs and other pests.

Our long-standing efforts to develop and market biological, microbial and essential oil-based products have been enhanced with the acquisitions of Grupo AgriCenter and OHP, Inc. in 2017, and TyraTech in 2018. These investments demonstrate our increased focus and commitment to established and emerging biological and microbial products in the U.S. and international markets.

We maintain and actively support our products' domestic and international registrations, whether proprietary or generic. In the U.S., for example, our products are registered with the Environmental Protection Agency in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). These registrations require ongoing scientific study and risk analysis to ensure the products are in compliance with government regulations and do not pose an unreasonable risk of harm to people or the environment when used according to label instructions. Our focus on U.S.-based manufacturing helps ensure consistent product quality and availability.

AMVAC Diversified Participation - as of 12/31/2017



Product Stewardship

Our Product Stewardship program is among the best in the crop protection industry. We work with and train growers, develop and expand technology, and invest in and support new and more efficient products, as part of our commitment to minimize our impact on the environment while maintaining maximum results. Our teams identify issues and face them head on to create solutions – to increase yields, address emerging and restrictive regulations, minimize resistance, and improve manufacturing efficiency. These efforts are ingrained in our culture and operations and described here, and also throughout this report as part of our Core Values.

Integrated Pest Management

Integrated Pest Management (IPM) is a system that coordinates pest control methods with pest and environmental information to economically and safely prevent unacceptable levels of pest damage with the least possible hazard to people, property, and the environment. IPM seeks to balance environmental and economic concerns, taking into account resource sustainability and health and environmental safety as well as crop yields and profit. While IPM is a long-established approach, what matters to AMVAC are our results – putting the approach into practice in partnership with distribution, retail, end-users, extension programs and others. We have created a sustainable business model with customer relationships that go beyond partnerships – we are interdependent because of the high value we provide each other.

Fumigants

We work with growers to provide training on proper fumigant use, handling and management to minimize any drift resulting from application. Our carefully designed processes ensure our customers use the necessary amount and not a drop more, while Farm Management Plans help growers understand and deal with new regulations governing use of our products.

Closed Delivery Systems

Closed delivery systems help AMVAC and our customers harness technology to apply the correct and necessary amounts of granular insecticides. These systems mine and examine data to develop placement, timing, and rates of product delivery relative to yield and quality of harvest, which can sometimes result in decreases in the amount of AMVAC products used. The systems enable consistent and predictable remote application of the products, and allow products to be applied below ground to minimize risk to birds and wildlife. In addition, the product is delivered in sealed application containers, which limits worker exposure during transfer and management of product. AMVAC works with our customers to continually upgrade technology and systems to maximize product efficiency.

Grupo AgriCenter Founded on Environmental and Social Responsibility



In 2017, AMVAC Netherlands BV acquired Grupo AGRICenter (Agricenter), a well-established distributor of multiple crop protection products in seven Central American and Caribbean countries, which effectively tripled the Company's Latin American presence. Agricenter's success is centered on its proven customer-focused consulting and problem solving services, along with its balanced product mix and commitment to innovation, social responsibility and environmental awareness. Agricenter partners with Greenplants Corp., a developer of unique plant nutrient and micronutrient formulations, and is the distributor of several leading companies of the Crop Protection business.

Agricenter has been committed to corporate social responsibility, employee development, environmental health, and occupational safety since its founding in 2001. Agricenter became the first Latin American agricultural chemical company to achieve Carbon Neutral certification in 2017.

OHP: A Success Story

OHP Launches and Expands BioSolutions Product Line

In keeping with AMVAC's strategy of expansion via well-established and highly valued acquisitions, in October 2017 AMVAC acquired OHP Inc., a leading provider of technology-based pesticide solutions for greenhouse and nursery production applications. In addition to offering conventional insecticides, fungicides, miticides, herbicides and plant growth regulators, in 2017 OHP formally launched OHP Biosolutions, a portfolio of microbial and biological products, many of which are reduced risk products, compatible with beneficial insects and carry short restricted entry intervals (REI).

OHP's history of marketing biological products dates back to 1995, when it began selling Azatin XL biological insecticide which contains azadirachtin, and now markets an enhanced Azatin O formulation as well as products with biological active ingredients neem oil, copper hydroxide, fatty acid soaps, natural pyrethrins, and strains of naturally occurring fungi and bacteria, such as *Bacillus thuringiensis*. OHP's portfolio now includes nine biological products, seven of which are OMRI Listed® and allowed under organic standards, after review by the Organic Materials Review Institute. OHP is constantly seeking new technology based biological products for its portfolio with several currently under evaluation. The biological portion of OHP's portfolio continues to expand as the products are incorporated into programs which are either exclusively biological in scope or rotated with conventional chemistries.



Since 2016, OHP has been developing a biological insecticide/miticide that combines refined canola oil with natural pyrethrins, a group of six natural-plant chemicals extracted from the seed cases of the pyrethrum daisy. Introduced in 2018, *Pycana*™ harnesses the combined modes of action of pyrethrins and botanical oils for broad spectrum control of insects and mites on flowers, shrubs, fruits and vegetables grown in greenhouses, shadehouses, hoop houses and container nurseries. OHP is in the process of obtaining OMRI Listing for *Pycana*, and is focusing additional research and development work on effectiveness against additional pests, crop safety, and compatibility with other OHP biological products.



Natural pyrethrins are a group of six natural-plant chemicals extracted from the seed cases of the pyrethrum daisy, *Chrysanthemum (tanacetum) cinerariaefolium* (Asteraceae). Ground flower heads and pyrethrum extracts have been used as botanical insecticides for centuries. Natural pyrethrins are effective against pests in specialty crops, however they rapidly degrade in the environment by ultraviolet light and oxidation. Botanical oils inhibit the natural degradation of pyrethrins, while the combination of the two has a synergistic effect, and has become a promising tool for growers, while less likely to lead to insect resistance compared to frequent use of synthetic pyrethroid compounds.



Tone at the Top

As stewards of the resources to which we have been entrusted by our stockholders, we believe that it is imperative to ensure that our corporate governance is clear, consistent and well ordered. This commitment begins at the top with our Board of Directors and carries on through all levels of management and operations. As an NYSE-listed public company, we are required to adopt and regularly certify that we are in compliance with the most rigorous listing standards of all the public exchanges. Over the past five years, we have consistently earned the highest possible rating for corporate governance from Institutional Shareholder Services. And for good reason. Seven of our eight directors are fully independent and are drawn from diverse professions, including federal governance at U.S. Environmental Protection Agency (USEPA), public accounting, corporate litigation, investment banking and agrichemicals. At present, there are no related party transactions involving our directors. Further, none of our directors serve on the board of three or more public companies; so they have the time to focus on American Vanguard. Not surprisingly, our directors consistently attend at least 75% of all board and committee meetings.

All of our board committees have charters that spell out the scope of their authority. Our Audit Committee contains two audit committee experts and has designated not only an independent registered public accounting firm to audit our financial performance (namely, BDO USA, LLC) but also a highly-regarded public accounting firm to serve as internal auditor (namely, Deloitte Touche). The Audit Committee also has specific responsibility for overseeing management's handling and resolution of potential Code of Conduct violations.

Our Compensation Committee is committed to "pay for performance" in its role of designing and overseeing

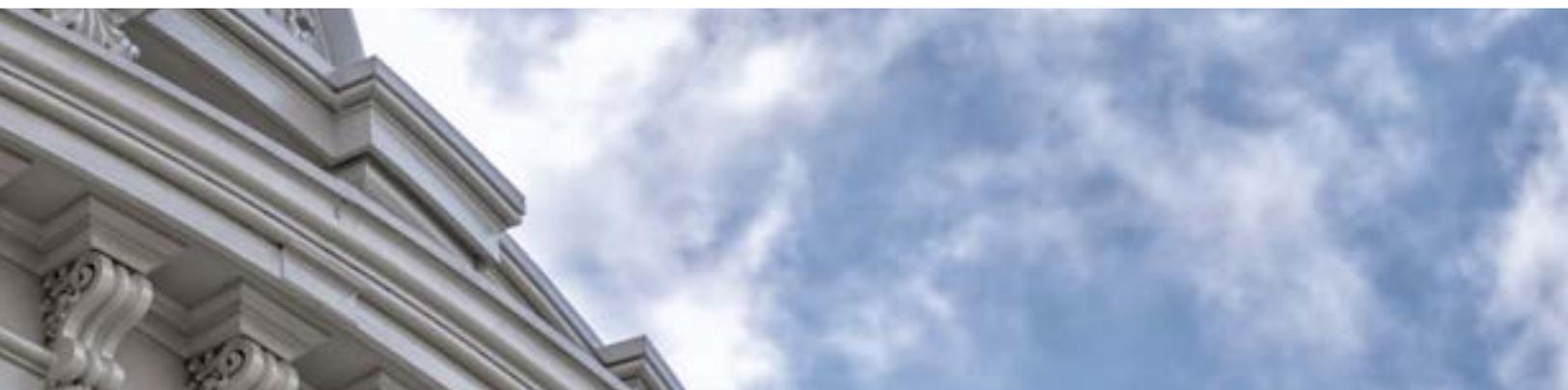
both executive and director compensation, which it regularly benchmarks through an independent compensation consultant. Over the past five years, we have received over 90% approval rating by our stockholders for our executive compensation practices, which are set forth in our annual proxy.

In addition, our Nominating & Corporate Governance Committee keeps board members and management current on best practices for self-evaluation, continuing education and tenure considerations, all of which are covered in the Company's written Corporate Governance Guidelines. We have also formed a Finance Committee which reviews and oversees material acquisitions and divestitures, as well as changes to our credit agreement and capital raising activities.

In short, our board works with management across many fronts in ensuring that the Company is conducting its affairs ethically, prudently and strategically. While the Board does not manage the Company's operations on a day-to-day basis, it does exercise well-informed oversight through regular communication, both formal (as in the case of regular and special meetings) and informal (as in the case of the Lead Director's attendance at management's executive committee meetings). We believe that the best way to ensure that good governance will take root in an organization is to maintain open communication, frequent reporting and calls to accountability. That, in a nutshell, is the culture of our governance.

Risk Management

Our board takes seriously its responsibility for overseeing risk management. It does so not only because it is a mandate of the SEC (U.S. Securities and Exchange Commission), but also because it is good business.



Risks change over time and, as such, they require continual monitoring. To that end, several years ago the board established its own Risk Committee which meets at each regular board meeting. Although only three members of the board are formal members of the Risk Committee, all members attend meetings of that committee.

From time to time, management conducts a comprehensive risk assessment to identify areas of material risk, whether insurable or not. Working with the Risk Committee, the Risk Manager and CEO assign a senior executive to manage each risk, that is, to secure necessary resources, find and implement mitigation measures, and make persons accountable for implementing those measures. Further, mitigating the risk is one of the executive's SMARTgoals and is included as part of his or her annual performance evaluation (which, in turn, is linked to that executive's incentive compensation). Senior management regularly briefs the Risk Committee on such things as new legislation, legal proceedings, regulatory actions and the like. Through this process, management and the Board continuously work to make risk management a part of the Company's culture.

Our most material risks include: an adverse regulatory climate; optimizing inventory levels while minimizing under-absorption manufacturing costs; succession planning/bench strength; maintaining competitiveness of product offerings; vulnerability to environmental event; undervaluation by the market; sustainable growth through licensing, acquisitions and current product lines; and cyber security.

Public Policy

Because we distribute and sell specialty chemicals, our industry tends to draw a great deal of attention from

activist groups, policy-makers, legislators and litigants. Laws and regulations, both domestic and foreign are in a state of continual flux. Judicial and administrative proceedings at the local, state, federal and international levels continue to grow and change in number and in scope. Further, regulatory agencies review product registrations and petitions on an ongoing basis. All of these activities require the Company to be kept well informed and involved on many fronts. Accordingly, we participate in trade groups, such as CropLife America and the American Chemistry Society, where we can benefit from the shared understanding of other companies in our industry. At the core of our involvement, however, we stress one, consistent theme – namely, that of sound science. Our products are supported by GLP (good laboratory practice) studies to ensure product safety and efficacy before they ever get to market. We are committed to ensuring that regulatory agencies, legislators and NGOs (non-governmental organizations) should be guided by scientific principles, rather than solely by political agendas or rhetoric.

We believe further that advances in agriculture will come through science and not policy. For example, precision agriculture, which has taken hold of the industry within the past three years, calls upon companies like ours to find solutions for increasing crop health and yield while optimizing crop inputs. More than ever, growers and agronomists are looking for ways to use data – relating to yield, field conditions, crop pests, and the like – to improve their efficiency while honoring the environment by tailoring their solutions to meet specific conditions, rather than applying a single solution, e.g., a fixed application rate, for all conditions. As you will read in our section on Technology Innovation, we are actively working in prescriptive application technology by developing systems like SIMPAS™ and products for use in SIMPAS.



“ We prioritize Stewardship and Conservation in our operations and product programs. ”



Company Core Values

We at American Vanguard Corporation are committed to global leadership in sustainability. Throughout our organization, we strive to improve the lives and well-being of our employees and communities, as well as our customers. Our corporate sustainability strategy is built on several core values, summarized below, and detailed in the sections to follow:

- **Safety** – Our “safety-first” culture starts within highly-regulated manufacturing plants, continues into the design of science-backed products and extends to market-leading delivery systems.
- **Making a Difference** – By rewarding achievement and giving our workers a voice, we attract employees who want to make a difference in their careers, in the company and in the communities that we serve.

- **Raising AgChem to Precision Ag** – Building upon decades of improved formulations, application methods and delivery systems, we have entered the realm of precision agriculture with SIMPAST™, a new technology that enables growers to prescriptively apply multiple crop inputs only where they are needed, thereby maximizing yields while improving the environmental footprint.
- **Stakeholder Engagement** – We recognize that the key to being a good corporate citizen is open and continuous engagement with our many stakeholders, including employees, customers, suppliers, regulators, partners, university and other researchers, peers, communities and investors.
- **Stewardship and Conservation** – We use data-backed programs to manage our resource consumption and emissions and strive to minimize our carbon emissions, efficiently manage utilities, conserve resources, and ensure responsible disposal practices.



OSHA Regional Administrator presents VPP Star flag to AMVAC Marsing



Sustainability in agriculture is a key part of AMVAC's vision and success and is rooted in a commitment to protect the health and safety of our communities, customers, and employees. Sound processes, collaboration, and communication are the foundation of our robust safety and health programs.

We strive to maintain a culture of individual responsibility for maintaining a workplace free of injury or illness so all employees are invested in a shared vision of employee health and safety.

“ We embrace a “Safety-First” culture at all levels of our organization. ”

Following a continuous improvement process that is customized to each of our U.S. manufacturing and formulating facilities, our safety professionals provide process and policy support, perform regular safety inspections, and measure and monitor success. We provide a comprehensive training program to ensure employees recognize hazards specific to their job responsibilities and ensure employees are prepared to perform their jobs safely. On-the-job and monthly safety training is provided on a variety of safety topics to further ensure employees can demonstrate safe work practices. We are continually reviewing and improving our safety



policies, procedures, and training materials and methods.

In the event of any on-the-job injury, we conduct a thorough root cause investigation to prevent future accidents and injuries. As part of a Job Safety Analysis process, investigations and corrective actions are documented and communicated to prevent recurrence through best practice training.

In future reports, we will provide additional transparency in injury and illness rates at our plants and other locations, including trends, goals and implementation of additional programs.

A Success Story: Marsing



In June 2018, Eric Harbin, Regional Administrator, Occupational Safety and Health Administration (OSHA) visited AMVAC Marsing to recognize the plant as an OSHA Voluntary

Protection Program (VPP) Star Worksite, the highest level of achievement in the VPP program. Marsing recertified its VPP Star status, which has been achieved since 2003, via a rigorous application and on-site evaluation process, and is one of only 14 worksites in Idaho to achieve Star status.

VPP Star status is, “OSHA’s official recognition of outstanding efforts of employers and employees who demonstrate exemplary achievement in the prevention and control of occupational safety and health hazards, and the development, implementation and continuous improvement of their safety and health management system.”

This achievement was a result of every Marsing employee’s dedication and commitment to safety and was especially noteworthy during a year that saw Marsing’s production increase by approximately 20% from 2017 to 2018.

Safely Integrating Closed Delivery and Precision Application Systems in Modern Agriculture

For many years, AMVAC has led the industry in closed delivery system technology that feature factory-sealed containers that are transported, used and returned for reuse and recycling without being opened by the user in the field. In the case of AMVAC's patented Lock'N Load® and SmartBox® systems, the sealed container locks into place on the planter unit and is dispensed through interlocking valves into the planter. Thus, the user/applicator is not exposed to product at point of use because he or she does not ever breach the seal and expose product to the open air.

In addition to providing a measure of worker safety at point of use, SmartBox containers are part of a multi-row planting system, consisting of booms, cabling, meters



variable rates, as per an agronomist's prescription. Synchronizing liquid application with seed at time of plant can cut the rate of application by 75% or more. And for added security SmartBox, Lock'N Load and SIMPAS SmartCartridge containers are factory sealed and never opened at point of use.

With a further advancement in technology, our Ultimus system will allow users to track how much and where each crop input is used and to return partially used containers



and a computing system that enables growers to apply a single product with the benefit of GPS mapping. The grower can manually control how much is applied in the field, based upon his or her knowledge of the terrain and conditions. This technology represented an important step in the development of precision agriculture, as it gave the grower the ability to control the rate based upon a mapped location. The more precise one can be in applying crop inputs, the less the chance of over application, product residue and potential runoff.

We continue to refine the technology to automatically apply only what is needed, where it is needed with our innovative SIMPAS™ and Ultimus™ systems, currently in development. An acronym for Smart Integrated Multi-Row Precision Application System, SIMPAS will enable users to automatically apply multiple crop inputs, packaged in SmartCartridge™ containers, in multiple rows, at

to the Company for processing credits for returns. With the incentive of receiving a credit, the user is more likely to return partially used (along with fully used) containers to the Company for proper reuse, as appropriate, and represents a leap forward in stewardship of pesticide containers.



“Our employees
are Making a
Difference in our
industry and the
communities
we serve.”





Employee Development and Engagement

Our diverse workforce is critical to the success of our business and our employees are attracted to our facie environment and culture of innovation, creativity, and flexibility. We share our employees' commitment and drive to make a difference in the world through positive contributions to science, agriculture, and society around us. We strive to recruit, cultivate and retain the best people to work in a supportive environment where all employees can flourish. We value the sharing of ideas and the initiative to speak freely at all levels of the organization. Continually improving the way we work together and develop our skilled workforce and leaders remains a focus for our ongoing success.

In addition to our approximately 626 employees, AMVAC utilizes temporary contract labor in certain situations to perform various duties, mostly related to product packaging. The contract work force is clearly informed of the temporary nature of their employment and is compensated fairly for the work they perform.



Every year, AMVAC Axis employees, families and friends support the American Cancer Society by raising funds and participating in the Making Strides Against Breast Cancer walk to raise awareness and "bring people together to make a difference for everyone who has been touched by breast cancer".



South East Cotton Crop Team celebrates with a traditional crawfish boil.



Team building to integrate Brazilian distributors Defensive and Agrovant, the newest additions to the American Vanguard family of companies.

Code of Conduct and Ethics

AMVAC's Code of Conduct and Ethics applies to all employees company-wide, including the Board of Directors, and addresses a variety of issues including harassment and discrimination, political activity, conflicts of interest, environmental responsibility, and compliance. A copy of the Code is available on the Company intranet and the American Vanguard website (www.american-vanguard.com) and employees are periodically trained on Code provisions. Employees are encouraged to report activities or actions that do not conform to the Code and are provided access to EthicsPoint, a central reporting system that can receive reports via phone or intranet 24 hours per day, 364 days per year. All reports are confidential and fully investigated by the Audit Committee of the Board, for securities or accounting issues, or by the Office of the General Counsel for all other matters.

Compensation and Benefits

In addition to wages, incentive compensation, paid vacation, life and disability insurance, annual merit increases and a 401K plan with a 5% match, we provide an exceptional package of other benefits. For example, we are one of the only public companies that make annual awards of equity to our entire, fulltime workforce, both domestic and foreign. Through equity awards, we enable our employees to share in our success and to take a longer term view of the company more in keeping with that of our other shareholders. In addition, all employees are eligible to participate in the company's employee stock purchase plan, under which, through payroll deductions, participants may accumulate shares of the company's common stock at a discount.

Our domestic health program is among the most generous among those offered by public companies. In addition to our dental and vision benefits, we offer a medical plan, which is self-insured by the company, and features access to the largest networks of providers in the U.S. and includes unusually low copays, deductible amounts and annual out-of-pocket maximums. In addition, on average the company pays in excess of 95% of the cost of claims and has kept the low, monthly premium for the past several years, despite significant increases in healthcare costs nationally. Employees may also elect to subscribe to a high deductible savings plan, toward which the company makes an annual contribution, and from which the employee may accumulate a fund for payment of healthcare costs that can be used beyond the current plan year.



EMPLOYEE BENEFITS

We provide some of the most generous employee benefits, including: Company-paid vacation, life and disability insurance, wellness program, employee assistance program, tuition, and training.



Health, Dental and Vision Insurance



Tuition Reimbursement



401K Retirement Contribution



Life and Disability Insurance



Training



Employee Stock Purchase Plan



Group Premium Subsidies*



Employee Assistance Program



Company Stock-Based Incentives and Offers



Wellness Program

Company Subsidizes 95% of Group Medical Premiums with extremely low copays and deductibles and makes a majority contribution towards the high deductible health plan.

AMVAC Fellowship Program Benefits Both Employees and the Company



Lisiane Zeni joined AMVAC in 2013 as Formulation Chemist in the Technology Department at AMVAC's Glenn A. Wintemute Research Center in Commerce, California. Already equipped with

a Master's degree in analytical chemistry, Lisiane soon identified a great opportunity to better transfer laboratory scale processes to the manufacturing plant by pursuing a Master's in chemical engineering.

With the support of AMVAC's Fellowship Program and the mentorship of her supervisor, Humberto Lopez, Director of Formulation and Johann Venter, Vice President of Technology, Lisiane earned a Master of Science in Chemical Engineering from University of Southern California (USC) in 2017. AMVAC's fostering and flexible environment helped Lisiane balance the two-and-a-half year challenge of attending one of the top graduate schools in engineering with working full-time and raising a family. (Featured in *Chemical Engineering News*, March 28, 2016). It was during her last semester at USC that Lisiane and husband Diego learned they were expecting their second child. AMVAC's generous health insurance benefits and maternity leave policies also gave peace of mind to Lisiane, who continued to attend evening classes.

Lisiane was born and raised in Brazil, surrounded by soybean fields and, as a child, developed a true passion for agriculture. Joining the graduate program at USC brought her one-step closer to her personal and career goal of helping feed the world through innovative technology. She felt a true sense of honor and value upon her acceptance into AMVAC's Fellowship Program.

“ I am certain that the knowledge and skills acquired have enabled me to make an even more meaningful contribution towards the growth of the organization.”

Lisiane said, “I am extremely thankful and honored that AMVAC encouraged, supported and provided me the golden opportunity to advance my career. I am certain that the knowledge and skills acquired have enabled me to make an even more meaningful contribution towards the growth of the organization.”

When asked to describe AMVAC's direction in formulation development, Lisiane said, “A great variety of product formulations and wide range of application equipment should serve to ensure that our current and future agricultural scenario will regularly create new challenges, and opportunities, for formulation scientists to deliver innovative products that stand out from our competition. It is a big and exciting challenge!”



Wellness Program

Since 2010, AMVAC’s employee wellness program has emphasized the benefits of a healthy, active lifestyle and has enjoyed increased employee engagement with an ever-evolving program. As of 2018, the program has included:

- Biometric testing
- Health risk assessment
- Health, nutrition, and fitness coaching
- Lifestyle management programs
- Activity, weight-loss, and healthy cooking challenges
- Educational outreach via videos, books, speakers, on-line programs
- Stress-relief techniques
- Financial planning
- Races, mud runs, and fun runs that benefit local charitable causes
- Fitness center at Los Angeles Manufacturing Plant



A Success Story: Beverly Robinson, Axis, AL Manufacturing Plant



In 2016, AMVAC Purchasing Manager Beverly Robinson had been experiencing weight loss, lack of sleep, and feeling lethargic, all symptoms that she attributed to stress. Upon her return from a well-deserved vacation with her family, Beverly participated in AMVAC’s annual On-Site Fasting Biometric Screening event.

Shortly after the biometric screening at AMVAC, Beverly received a call from a Health Coach regarding her results, which indicated a glucose level three times above the normal level. With that information, and Beverly’s description of her recent symptoms, the Health Coach strongly urged Beverly seek immediate medical attention. Upon examination by her physician, it turned out that she was at risk of suffering from diabetic ketoacidosis, a

serious but treatable condition from complications related to diabetes. Beverly received medical treatment from her physician, along with medication and a health regimen to control her diabetes.

Beverly is extremely grateful for AMVAC’s Employee Wellness Program. **“The program saved my life and I’m thankful for our health insurance”**, Beverly said. Recently, Beverly joined AMVAC’s volunteer Employee Wellness Team, with a mission to encourage employee participation, promote wellness at our Axis, AL facility, and improve the overall health of her colleagues.

Employee Development and Training

We strive to bring our employees' potential to life through a culture of continuous learning and we are committed to empowering employees to succeed in their careers. We provide an extensive array of training, such as safety training in both general and job-specific topics or communication, management and other 'soft skills'. We support employee attendance at workshops and conferences that enhance employees' skills and value to the Company. Employees are encouraged to pursue personal and professional growth opportunities whether on the job, in the classroom or by connecting with peers.

Driving Employee Engagement and Corporate Culture

AMVAC continues our commitment to our talented employees by encouraging positive engagement throughout our pipeline. In an initiative supported by our Executive Team, we are enhancing internal communication by launching our first internal mobile application, **AMVAC Connect**. As our workforce grows globally and multi-generationally, the timely dissemination of crucial information within our organization becomes more of a priority.

AMVAC Connect is a convenient platform by which to communicate information about our products, employee benefits and corporate news. More importantly, **AMVAC Connect** promotes our core values, recognizes employee achievements and involvement in our local communities, and is invaluable in driving our corporate culture of team recognition, spirit and collaboration globally.

With the use of modern technology, we are sharing the responsibility of communication to our widely distributed workforce and delivering a sense of purpose and motivation throughout our team as we continue our work towards a more sustainable workplace and future.

Human Rights



American Vanguard is an equal opportunity employer that respects the rights of each of us as individuals, regardless of age, race, color, gender, sexual orientation, citizenship, religion, national origin, or disability, and in addition to any other characteristic protected by federal, state, and local laws. We operate in a region of low risk for human rights abuses with all of our manufacturing facilities located in the U.S. We are unequivocally opposed to the use of child labor or forced labor, while supporting an individual's personal liberty to freely associate without fear of retribution. We believe all employees have a right to work in an environment that is free from discrimination, harassment, and fear of retribution. Our company-wide policy prohibits such behavior, and we train employees regularly to prevent workplace discrimination, harassment and retribution.

“In 2018, we devoted approximately 15% of our product development budget to biological and biorational products.”





Technology Innovation

Innovation and technological advancements and successes involve the talent and efforts of employees across the company and are truly a result of successful cross-functional teamwork.

On the Forefront of Precision Agriculture with SIMPAS™ and Ultimus™

Now a multi-billion dollar initiative, precision agriculture has become the central focus for technology development in the industry. Through precision agriculture, growers, equipment manufacturers and innovators attempt to harness data and related technologies – whether through GPS mapping, yield recordation or the tracking of crop inputs – to make planting, treating and harvesting crops more efficient, while improving yield. In contrast with older methods of planting and treating, which were largely mechanical applications of single rate inputs, such as seeds, fertilizer and insecticide, precision application technology informs the grower of where he or she is on a specific field, the history of crop planting and yield on that field, and what and where to apply inputs on that field with precision. In a sense, it is a kind of smart farming through technology.



AMVAC takes a prescription approach with SIMPAS

AMVAC is working at the forefront of precision agriculture through its innovative SIMPAS™ system that will enable users to apply multiple crop inputs, whether liquid or granule, in multiple rows, at variable rates, as per an agronomist's prescription, automatically. This system marries input history, yield history and GPS mapping with crop planting and serves as a way to place the right product in the right places in the right amounts, whether they be insecticides, fertilizer, biologicals or micronutrients.



We have taken the technology even further with ultra-low rate meters, enabling growers to use as little as one ounce of liquid input per acre and to measure that use with unprecedented accuracy. In addition, we have developed a pulsing mechanism that releases, for example, a liquid fertilizer, in synchronization with the seed. By spraying material only with the seed and stopping the flow in between seeds, this mechanism leads to an extremely efficient, lower rate application. Finally, the company has advanced this technology to include the Ultimus system, by which, through RFID technology, we are able to track each SmartCartridge container from point of manufacture to the field, then to track how much material is used by the grower, then track how much material is left in each container. This way, the grower knows what he or she has used and can even return partially used containers for a credit. To our knowledge, SIMPAS and Ultimus are the most comprehensive and advanced technologies within the realm of precision agriculture.

Product Development Investments with an Eye toward Sustainability

AMVAC has made several investments to create, improve, and market more sustainable solutions through in-house Product Development, public-private research partnerships, joint ventures and investments in innovative research-based organizations. In 2018, we devoted approximately 15% of our product development budget to biological and biorational products. AMVAC is currently developing our long-term biological strategy to provide a solid direction, departmental alignment, and commitment of resources for sustainable product solutions.

In 2016, AMVAC Netherlands BV invested in Belgian-based **Biological Products for Agriculture (Bi-PA)**, to develop and commercialize crop protection and animal health products based on microbial organisms or plant extracts. As a shareholder in Bi-PA, AMVAC is developing a plant extract product to control various insect pests in a range of crops as well as a micro-organisms to control diseases in fruit and nut crops.



ENVANCE™ Technologies, AMVAC's joint venture with TyraTech, Inc., has brought several natural products to market with patented technology that control insect pests by inhibition of

insect-specific cell receptors, with no detrimental effects on humans or animals. Several of these products are successfully marketed through The Home Depot® and other retailers. AMVAC's ProVerde™ line of botanical oil-based insecticides, developed by TyraTech, are sold to control crawling and flying insects in homes, schools, restaurants, hospitals and offices.

Ecozin® Plus is botanical insecticide approved for organic farming to control certain insects and pests in many food and fiber crops. Its active ingredient, azadirachtin, is derived from the oil found in neem tree seeds. Use of



Our ProVerde™ line of products controls crawling and flying insects in homes, schools, restaurants, hospitals and offices.

neem oil has been passed down through many generations for medicinal, cosmetic, and pesticidal purposes. AMVAC registered its first azadirachtin product in 1999; registered Ecozin in 2008; and has seen an increased interest in Ecozin Plus over the past 10 years for nematode control in organic production of strawberries, grapes, tomatoes and other high value crops. Currently, AMVAC's product development efforts include combining azadirachtin with conventional products, resulting in better pest control as well as a reduction in amounts of more traditional chemistry applied.

Several potential biological products are in various stages by AMVAC and our partner organizations:

AMVAC is funding cutting edge research at several Universities such as **Iowa State** and **Cornell** to develop biological and biorational products. AMVAC teams are working closely with companies such as **Biotor Labs** in Central America to determine the value and broad applicability of microbial technologies to deliver more sustainable crop solutions to farmers in the US and around the world. The Product Development Team has developed a number of proprietary assays to evaluate other microbial sources for commercialization in a range of fungicides and insecticides.

A new area of study is being investigated for additional investment around biostimulation of key crops to enhance yields and improving cropping efficiency, hence improving sustainability.

A Success Story: HC Products

Our Technology, Product Development, and Commercial Teams have worked to bring to market high concentration formulations of AMVAC’s granular soil insecticides, AZTEC® HC and SmartChoice® HC. Higher concentrations result in a reduced number of product containers compared to more dilute concentrations of the same products, which in turn results in a reduction of container quantity, handling of containers and transportation from our production facilities to distributors and to growers. And because the products are delivered in our patented SmartBox® closed delivery



system and returnable containers, it also means reduction in the quantity of spent SmartBoxes returned by growers to distributors and back to our formulation facility to be cleaned and refilled. Concentrated formulations can save as much as 50% over the original formulations.

UP TO 50% SAVINGS WITH HC PRODUCTS

Cost • Time • Travel • Energy • Labor • Packaging

Non-HC Product

Twice as much non-HC product required to treat

Twice as much labor required to handle product

Twice as many vehicles required to transport product

Twice as many empty returned packages

With HC Product

Half as much HC product required to treat

Half as much labor required to handle product

Half as many vehicles required to transport product

Half as many empty returned packages

“Our Engagement with Stakeholders is the key to impactful, meaningful initiatives.”





Stakeholder Development and Engagement

Engaging with our stakeholders benefits all of us – the Company as well as our customers, employees, investors, suppliers, and neighbors, to name a few. Consistent communication and engagement varies depending on the stakeholder -- there is no one point of contact with all stakeholders. Many internal groups and individuals are responsible for interacting with our stakeholders via direct communication, social media and online announcements, training, evaluations, and many other avenues. We gain

valuable information and feedback from each interaction, and use this information to hone and improve our strategies, products and operations. For example, plant management and other key personnel work with community action committees and emergency responders in areas where we operate, while our Investor Relations group communicates with analysts and institutional investors at investor conferences.

Stakeholder	Engagement	Key Issues
Employees	<ul style="list-style-type: none"> • Company intranet and interactive smartphone app • Cross-functional team meetings • Wellness program • Training and education • Regular performance reviews 	<ul style="list-style-type: none"> • Compensation • Benefits • Company strategy • Employee satisfaction and well-being • Employee development
Customers/End-Users	<ul style="list-style-type: none"> • Product training • Product research and development • Trade shows • User groups • Task force 	<ul style="list-style-type: none"> • Product quality • Product use • Distribution • Waste minimization • Security
Analysts/Institutional Investors	<ul style="list-style-type: none"> • Quarterly updates • Presentation at conferences • Website 	<ul style="list-style-type: none"> • Financial stability • Risk management
Communities	<ul style="list-style-type: none"> • Community action committees • Volunteerism • Training and education 	<ul style="list-style-type: none"> • Safe operation • Environmental compliance • Waste minimization • Resource conservation
Suppliers, Contractors and other Third Parties	<ul style="list-style-type: none"> • Supplier audits and reviews • Signed declarations 	<ul style="list-style-type: none"> • Timely and ensured supply • Product quality • Security • Fair labor practices
Government Agencies	<ul style="list-style-type: none"> • Policy discussions • Inspections • Product registrations • Data submissions 	<ul style="list-style-type: none"> • Product approval • Compliance

We also encourage participation and cooperation among industry peers through strategic industry organizations such as CropLife America® (CLA), National Pest Management Association®, Agricultural Retailers Association®, National Association of Manufacturers®, Responsible Industry for a Sound Environment® (RISE), American Mosquito Control Association and many other

national and regional organizations. Our executives either currently hold or have held leadership positions in many industry organizations, thereby enabling the environmental and product stewardship that customers and society expect. Currently, AMVAC's vice president and chief administrative officer, Timothy Donnelly serves on the CropLife America Strategic Operations Committee.



A Success Story: Naled

Naled Reaction Improvements Enable Successful Campaign Against Post-Hurricane Mosquito Outbreaks

AMVAC’s Technology and Engineering Teams collaborated in 2016 to modernize and improve the reactions to manufacture naled, the active ingredient in Dibrom® public health insecticide, used by U.S. government agencies and mosquito control districts. This cross-functional Team focused on the efficiency of certain reactions, creative

in the aftermath of the 2017 Atlantic hurricanes in the south and southeast. The massive rainfall and flooding from Hurricanes Harvey and Irma created ideal breeding conditions for mosquito infestation. Hurricane Harvey alone rained 33 trillion gallons of water, mostly upon Texas, and created a fertile habitat for mosquito breeding (Scientific American, Sept. 17, 2017). Mosquitoes in such conditions can inflict up to 100 bites per minute on the unprotected, which, in turn, can bring rescue efforts to a halt. Working with our distributor and several federal agencies, including



process improvements and targeted capital investments. The result is an optimized process with improved yields and quality, and which is also more energy efficient.

A direct benefit of this effort was AMVAC’s ability to assist the U.S. government’s response to the public health threats

FEMA (Federal Emergency Management Administration), CDC (Center for Disease Control), DoD (Department of Defense), and HHS (Department of Health and Human Services), AMVAC Teams worked around the clock to produce and deliver Dibrom® to applicators, who successfully treated four million acres in Texas.

Partners in Development, Partners in Innovation

In order to bring SIMPAS and Ultimus to market, AMVAC has teamed up with a number of partners in both technology and agriculture. At present, Trimble Agriculture, a leader in GPS and precision application technologies, is assisting in the development of a universal interface which will enable SIMPAS to be connected to, and receive instruction from, any ISO-based tractor control console. With this component, SIMPAS can be plugged into most tractors and be instructed by factory-furnished controls without the need for additional displays or controls.

Also, during 2018, AMVAC worked in collaboration with J.R. Simplot, a leading grower, to conduct SIMPAS field trials on about 4,000 acres in Colorado and Utah to demonstrate that the system can prescriptively apply product. We are also conducting trials in cooperation with Asmus Farm Supply and other growers to beta test SIMPAS on 4,000 acres of corn in the Midwest. AMVAC will then use the expertise of XSInc to provide data analysis on these trials. Over the course of these field trials, AMVAC has continued to work with industry peers to assemble a portfolio of products that will be packaged in SmartCartridge containers and made available with the SIMPAS system commencing with the planned 2020 commercial launch.

“Five Decades of Sustainable,
Responsible Growth.”





Stewardship and Conservation

As a company committed to sustainable modern agriculture, American Vanguard has a fundamental responsibility to minimize our environmental footprint and preserve our natural resources. Our U.S. manufacturing and formulating plants are subject to numerous federal, state, and local laws and regulations, some of which require registration, permitting, and reporting. Our environmental managers work with our Technology and Production Teams to build continuously improving programs adapted to these different regulatory agencies. They regularly conduct environmental training for employees and inspect all facility operations to ensure appropriate control measures are in place that effectively minimize risk and hazards.

We strive to improve the efficiency of all our operations and monitor and manage our performance using key indicators. While some data is estimated, such as water use at our Axis, AL facility, we strive to conserve and carefully manage our resources, whether directly measured, or not.

For the purposes of comparing year-on-year performance, we have provided actual and normalized data for certain indicators that are directly affected by manufacturing output, such as energy consumption and waste generation. For this report, data is normalized to revenue; we may utilize a more direct production-related normalization factor in future reports.

Greenhouse Gas Emissions

AMVAC's greenhouse gas inventory includes Scope 1 direct sources, such as combustion emissions, and Scope 2 indirect sources, such as purchased electricity and natural gas. The Climate Registry Default Emission Factors, May 2018 were utilized for fuels, while U.S. EPA's eGRID2016 data summary tables were utilized for electricity-related emission rates.

Our electricity usage and GHG emissions will show similar trends because the great majority of our GHG emissions are attributed to purchased electricity.

GHG Emissions-Scope 1 and 2 Total (metric tonnes CO ₂ e)	2016	2017
Actual	9,103.88	9,179.50
Normalized (per \$ revenue)	0.000029	0.000026

Energy

Energy for our manufacturing and formulating operations is mainly supplied by electricity and natural gas. Electricity is supplied to our facilities from the local grid. While actual electricity consumption increased from 2016 to 2017, along with an increase in production, normalized electricity use declined.

Electricity (kilowatt hours)	2016	2017
Actual	13,723,207	13,989,561
Normalized (per \$ revenue)	0.0440	0.0394

Natural gas consumption also increased from 2016 to 2017, primarily from an increase in production at the Axis facility. However, actual natural consumption increased by about 19%, while the normalized increase was less than 5%. This section does not include our Hannibal, MO operations, which operate under a manufacturing and shared services agreement. We intend to include environmental performance data for the Hannibal facility in future years.

Natural gas (therms)	2016	2017
Actual	404,092	480,721
Normalized (per \$ revenue)	0.00129	0.00135

Water Use

Water is supplied to our Los Angeles facility from a public water source and is used for production, sanitary purposes and human consumption. The Los Angeles plant also captures rainwater which is largely used for production purposes.

A combination of well water and public water are supplied to the Axis, AL facility by the adjacent facility, via a shared services agreement. The water usage data, unchanged from 2016 to 2017, is estimated and is based on the amount specified in this shared service agreement. Terms of the agreement are negotiated on a periodic basis.

Water Use Continued

The Marsing, ID facility obtains potable and production water from an on-site well. The great majority of water pumped from the on-site well is used for irrigation of surrounding alfalfa fields and is not included in the consumption values, below. In our 2011 Report on Sustainability, irrigation water consumption was estimated at approximately 55 million gallons per year, and has been more closely managed since that time. We continue our efforts to better conserve irrigation water and provide a better consumption estimate in the future.

Water - Public and Well (gallons)	2016	2017
Actual	15,916,981	15,398,272
Normalized (per \$ revenue)	0.0510	0.0434

Wastewater

While each manufacturing plant strives to conserve and recycle water and to minimize the generation of wastewater, all locations discharge certain types of wastewater.

The Marsing plant does not discharge any process wastewater and discharges only sanitary wastewater to the local sewer district.

The Los Angeles plant captures and uses as much rainfall as possible with the remaining amount pre-treated and discharged to the local sanitation district in compliance with a permit. However, in rainy years, such as the winter of 2016, a larger-than-typical amount of captured rainwater required pre-treatment and discharge. The Axis plant also captures rainwater in production containment dikes, which is contained, sampled, and analyzed. Wastewater is pumped to a neighboring company for treatment and discharge under the terms of a shared services agreement and in compliance with state permits. While certain process wastewater can also be treated under the shared services agreement, most process wastewater is accounted for in the sections on hazardous and non-hazardous waste, further below.

Wastewater (gallons)	2016	2017
Actual	8,336,470	7,350,811
Normalized (per \$ revenue)	0.0267	0.0207

Non-Hazardous Waste

Non-hazardous wastes generated from our operations include certain process wastewater, spent vapor and liquid phase activated carbon, universal waste (such as used oil and fluorescent light bulbs), and ordinary trash. The decrease of non-hazardous waste from 2016 to 2017 was due to improved waste stream segregation that resulted in less waste overall.

Non-Hazardous Waste (pounds)	2016	2017
Actual	2,390,354	1,843,251
Normalized (per \$ revenue)	0.0077	0.0052

Hazardous Waste

Our internal Technology Team works closely with our Manufacturing and Environmental Teams to minimize the amount of waste generated at each plant. We continue to invest significant resources to fine-tune our manufacturing processes, improve waste segregation, and improve our formulation and packaging lines.

Our manufacturing processes generate a variety of waste regulated as hazardous, including off-specification products, personal protective equipment containing hazardous residues, hazardous by-products and spent solvents. Hazardous wastes are shipped off-site and treated at permitted, regulated treatment facilities or recovered for fuel blending.

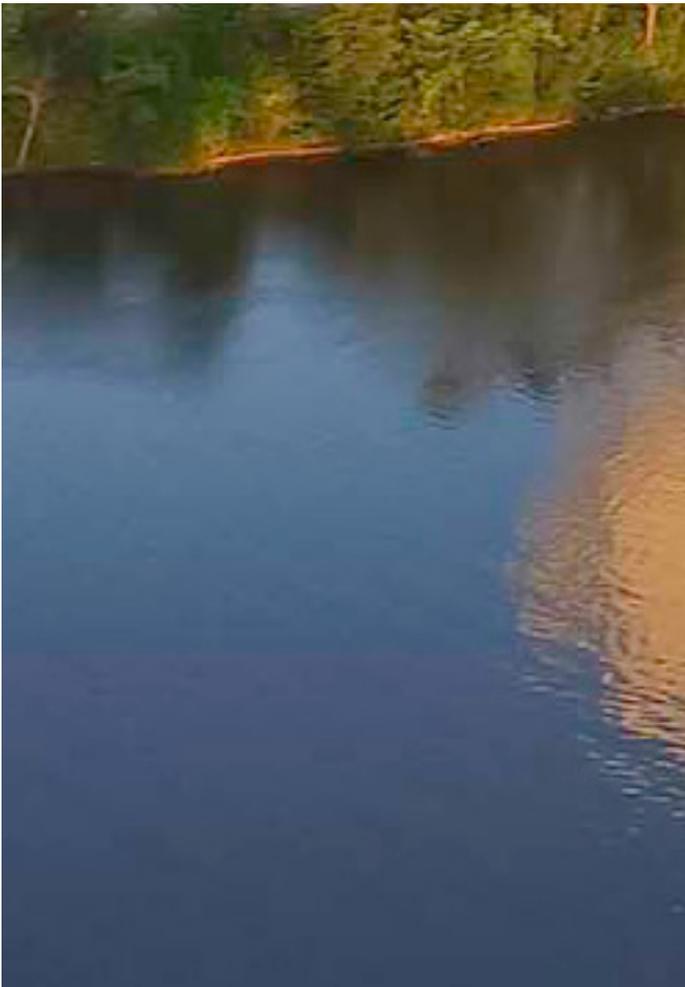
The varying mix of products manufactured at the Axis facility can play a large role in the amount of hazardous waste generated. The increase in hazardous waste in 2017 was mostly due to a three to four times increase in the production of two products, both of which are associated with higher rates of hazardous waste generation. The Axis facility has implemented many successful waste minimization projects and will continue to strive to decrease the amount of hazardous waste generated from all production activities.

Hazardous Waste (pounds)	2016	2017
Actual	4,488,652	9,974,729
Normalized (per \$ revenue)	0.0144	0.0281

A Success Story: Collaborating to Improve Efficiencies and Reduce Waste

Since 2013, AMVAC Manufacturing, Environmental and Technology Teams collaborated to reduce the risk, cost, and environmental impact posed by the off-site transportation, treatment, and disposal of hazardous and non-hazardous waste.

The most notable achievements were made at the Axis, Alabama plant. Through a combination of manufacturing process improvements, treatability assessments and more effective segregation, several projects amounted to a substantial reduction in hazardous and non-hazardous waste generation and off-site management. Due to varying rates of waste generated per product and greatly varying production from year to year, waste savings are discussed on a basis of pound of waste per pound of product (lb. waste/lb. product)



Process Wastewater

- Tokuthion – from 2013 – 2016, tokuthion waste managed off-site decreased by 30%. Although the waste generation rate increased 23% in 2017, compared to 2016, it is still below the 2013 level.
- Nemacur® production greatly increased in 2017. One factor contributing to AMVAC's ability to increase production by such a large amount was the 90% decrease in waste generation, compared to 2015/2016, when Nemacur production began.

Organic Waste

- Tribufos – from 2013 – 2017, tribufos waste managed off-site decreased by over 70%

DDVP Process Improvements

- DDVP production has typically generated a small amount of waste and off-specification product. Process improvements have greatly improved the yield and quality of DDVP and, since 2016, have nearly eliminated all waste from this process.



About this Report

This report contains operational data and information about sustainability initiatives at American Vanguard Corporation and its subsidiary AMVAC Chemical Corporation. In preparing this report and our sustainability strategy, we gathered feedback from a variety of internal and external stakeholders and will continue to expand this communication to reflect the greatest relevance and interests of our target audiences.

Operational data in this report was compiled from AMVAC's manufacturing and formulating facilities in the U.S. Data was compiled from various internal sources based on direct measurement and/or service provider information for January 1, 2016 through December 31, 2017. Data integrity and reliability is maintained through a periodic review of the systems used to collect the information and we make continual efforts to improve the quality of data, i.e. striving for measured data rather than estimated.

We intend to update this report frequently, as we implement new initiatives, expand existing programs and update performance indicators. Future reporting will include metrics to better measure our growing operations, such as our domestic and global supply chain and our international subsidiaries. Future reporting will more closely align to the standards of the Global Reporting Initiative (GRI) and other widely accepted and recognized organizations. We will also reevaluate third-party independent verification for future reports.

We welcome your feedback on this report. Please send your questions and comments to: Kelly Willmott, Director, Environment Safety & Health at KellyW@amvac-chemical.com.

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