

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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 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: 000-21467

ALTO INGREDIENTS, INC.
(Exact name of registrant as specified in its charter)

Delaware	41-2170618
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
1300 South Second Street, Pekin, Illinois	61554
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (916) 403-2123

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

Title of each Class	Trading Symbol	Name of Exchange on Which Registered
Common Stock, \$0.001 par value	ALTO	The Nasdaq Stock Market LLC (Nasdaq Capital Market)

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

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

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

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

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

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

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 and non-voting common equity held by nonaffiliates of the registrant computed by reference to the closing sale price of such stock, was approximately \$266.5 million as of June 30, 2022, the last business day of the registrant's most recently completed second fiscal quarter.

As of March 13, 2023, there were 75,144,522 shares of the registrant's common stock, \$0.001 par value per share, and 896 shares of the registrant's non-voting common stock, \$0.001 par value per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE: Part III incorporates by reference certain information from the registrant's proxy statement (the "Proxy Statement") for the 2023 Annual Meeting of Stockholders to be filed on or before May 1, 2023.

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CAUTIONARY STATEMENT

All statements included or incorporated by reference in this Annual Report on Form 10-K, other than statements or characterizations of historical fact, are forward-looking statements. Examples of forward-looking statements include, but are not limited to, statements concerning projected net sales, costs and expenses and gross margins; projected additional earnings before interest, taxes, depreciation and amortization; our ability to timely and successfully implement our strategic initiatives; our ability to continue as a going concern; our accounting estimates, assumptions and judgments; the demand for specialty alcohols and essential ingredients; the competitive nature of and anticipated growth in our industry; production capacity and goals; our ability to consummate acquisitions, if any, and integrate their operations successfully; and our prospective needs for additional capital. These forward-looking statements are based on our current expectations, estimates, approximations and projections about our industry and business, management's beliefs, and certain assumptions made by us, all of which are subject to change. Forward-looking statements can often be identified by words such as "anticipates," "expects," "intends," "plans," "predicts," "believes," "seeks," "estimates," "may," "will," "should," "would," "could," "potential," "continue," "ongoing," similar expressions and variations or negatives of these words. These statements are not guarantees of future performance and are subject to risks, uncertainties and assumptions that are difficult to predict. Therefore, our actual results could differ materially and adversely from those expressed in any forward-looking statements as a result of various factors, some of which are listed under "Risk Factors" in Item 1A of this report. These forward-looking statements speak only as of the date of this report. We undertake no obligation to revise or update publicly any forward-looking statement for any reason, except as otherwise required by law.

PART I

Item 1. Business.

Business Overview

We are a leading producer and distributor of specialty alcohols and essential ingredients, and the largest producer of specialty alcohols in the United States.

We operate five alcohol production facilities. Three of our production facilities are located in Illinois, one is located in Oregon and another is located in Idaho. We have an annual alcohol production capacity of 350 million gallons, comprised of 210 million gallons of fuel-grade ethanol and up to 140 million gallons of specialty alcohols. We market and distribute all of the alcohols produced at our facilities as well as fuel-grade ethanol produced by third parties. In 2022, we marketed and distributed approximately 420 million gallons combined of our own alcohols as well as fuel-grade ethanol produced by third parties, and over 1.6 million tons of essential ingredients.

We report our financial and operating performance in three segments: (1) marketing and distribution, which includes marketing and merchant trading for company-produced alcohols and essential ingredients on an aggregated basis, and sales of fuel-grade ethanol sourced from third parties, (2) Pekin production, which includes the production and sale of alcohols and essential ingredients produced at our three production facilities located in Pekin, Illinois, which we refer to as our Pekin Campus, and (3) Other production, which includes the production and sale of renewable fuel and essential ingredients produced at all of our other production facilities on an aggregated basis, none of which are individually so significant as to be considered a separately reportable segment.

Our mission is to expand our business as a leading producer and distributor of specialty alcohols and essential ingredients. We intend to accomplish this goal in part by investing in our specialized and higher value specialty alcohol production and distribution infrastructure, expanding production in high-demand essential ingredients, expanding and extending the sale of our products into new regional and international markets, building efficiencies and economies of scale and by capturing a greater portion of the value stream.

Our wholly-owned subsidiary, Eagle Alcohol Company LLC, or Eagle Alcohol, specializes in break bulk distribution of specialty alcohols. Eagle Alcohol purchases bulk alcohol from suppliers and then stores, denatures, packages, and resells alcohol products in smaller sizes, including tank trucks, totes, and drums, that typically garner a premium price to bulk alcohols. Eagle Alcohol delivers products to customers in the beverage, food, industrial and related-process industries via its own dedicated trucking fleet and common carrier.

Production Segments

We produce specialty alcohols, fuel-grade ethanol and essential ingredients, focusing on four key markets: *Health, Home & Beauty*; *Food & Beverage*; *Essential Ingredients*; and *Renewable Fuels*. Products for the *Health, Home & Beauty* market include specialty alcohols used in mouthwash, cosmetics, pharmaceuticals, hand sanitizers, disinfectants and cleaners. Products for the *Food & Beverage* market include grain neutral spirits used in alcoholic beverages and vinegar as well as corn germ used for corn oils. Products for *Essential Ingredients* market include dried yeast, corn gluten meal, corn gluten feed, corn germ, and distillers grains and liquid feed used in commercial animal feed and pet foods. We also sell yeast for human consumption. Products for the *Renewable Fuels* market include fuel-grade ethanol and distillers corn oil used as a feedstock for renewable diesel and biodiesel fuels. Our specialty alcohols for the *Food & Beverage* and *Health, Home & Beauty* markets represented approximately 10% and 4%, respectively, of our sales in 2022 from our two production segments.

We produce our alcohols and essential ingredients at our production facilities described below. Our production facilities located in Illinois are in the heart of the Corn Belt, benefit from low-cost and abundant feedstock and enjoy logistical advantages that enable us to provide our products to both domestic and international markets via truck, rail or barge. Our production facilities located in Oregon and Idaho are near their respective fuel and feed customers, offering significant timing, transportation cost and logistical advantages.

Our production facilities were operating for all of 2022. On January 1, 2023, we temporarily hot-idled our Magic Valley production facility due to extreme natural gas prices, other unfavorable market conditions and to facilitate the installation of our new high protein systems. As market conditions change, we may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility.

Production Facility	Location	Annual Alcohol Production Capacity (estimated, in gallons)	
		Fuel-Grade Ethanol	Specialty Alcohol
Pekin Campus	Pekin, IL	110,000,000	140,000,000
Magic Valley	Burley, ID	60,000,000	—
Columbia	Boardman, OR	40,000,000	—

Marketing and Distribution Segment

We market and distribute all of the alcohols and essential ingredients we produce at our facilities. We also market and distribute alcohol produced by third parties.

We have extensive and long-standing customer relationships, both domestic and international, for our specialty alcohols and essential ingredients. These customers include producers and distributors of ingredients for cosmetics, sanitizers and related products, distilled spirits producers, food products manufacturers, producers of personal health/consumer health and personal care hygiene products, and global trading firms.

Our renewable fuel customers are located throughout the Western and Midwestern United States and consist of integrated oil companies and gasoline marketers who blend fuel-grade ethanol into gasoline. Our customers depend on us to provide a reliable supply of fuel-grade ethanol and manage the logistics and timing of delivery. Collectively, our customers require fuel-grade ethanol volumes in excess of the supplies we produce at our facilities. We secure additional fuel-grade ethanol supplies from third-party ethanol producers. We arrange for transportation, storage and delivery of fuel-grade ethanol purchased by our customers through our agreements with a variety of third-party service providers in the Western United States as well as in the Midwest.

We market our essential ingredient feed products to dairies and feedlots, in many cases located near our production facilities. These customers use our feed products for livestock as a substitute for corn and other sources of starch and protein. We sell our corn oil to poultry and biodiesel customers. We do not market essential ingredients from other producers.

See “Note 5 – Segments” to our Notes to Consolidated Financial Statements included elsewhere in this report for financial information about our business segments.

Company History

We are a Delaware corporation formed in February 2005. Our common stock trades on The Nasdaq Capital Market under the symbol “ALTO”. Our Internet website address is <http://www.altoingredients.com>. Information contained on our website is not part of this Annual Report on Form 10-K. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to such reports filed with or furnished to the Securities and Exchange Commission and other Securities and Exchange Commission filings are available free of charge through our website as soon as reasonably practicable after the reports are electronically filed with, or furnished to, the Securities and Exchange Commission.

Business Strategy

Our goal is to expand our business as a leading producer and distributor of specialty alcohols and essential ingredients. The key elements of our business and growth strategy to achieve this objective include:

- *Focus on our customer relationships.* Although we continue to produce more fuel-grade ethanol than specialty alcohols, we have repositioned our business to focus on expanding the production and sale of specialty alcohols and essential ingredients. As a result, our business is now more service-oriented and focused on specialty products compared to a price-oriented business focused on commodity products. We strive to make our business ever more customer-centric to enable our premium services to support premium prices and new differentiated and higher-margin products.
- *Increase our break bulk capabilities.* With the addition of Eagle Alcohol, we have further diversified our business to include break bulk distribution of specialty alcohols. We can now store, denature, package and resell alcohol in smaller sizes, including tank trucks, totes and drums, that typically garner a premium price to bulk specialty alcohols. We deliver these products to customers in the *Health, Home & Beauty, Food & Beverage* and related-process industries using our own trucking fleet and common carrier.
- *Expand product offerings.* We are pursuing initiatives to broaden our product offerings to appeal to a wider range of customers and uses in our key markets. For example, we have secured ISO 9001, ICH Q7 and EXCiPACT certifications at all of our Pekin Campus production facilities. These certifications appeal to customers with stringent quality demands and enable us to offer alcohol certified for use as an active pharmaceutical ingredient, or API, and as an excipient—an inactive component of a drug or medication, such as solvents, carriers or tinctures—in the pharmaceutical industry. All ingredients we produce for use in beverages, human and pet foods are third-party certified for ISO 9001 and hazard analysis and critical control points (HACCP). In addition, all of our alcohols with pharmaceutical end-uses are ICH Q7, EXCiPACT and ISO 9001 certified, and our animal feed production, including at our Oregon and Idaho facilities, has undergone third-party Food Safety Modernization Act (FSMA) auditing. We are reviewing additional certifications and product positioning within our key markets to expand the range of customers we serve and the uses our products support.
- *Implement new equipment and technologies.* We are evaluating and plan to implement new equipment and technologies to increase our production yields, improve our operating efficiencies and reliability, reduce our overall carbon footprint, diversify our products and revenues, and increase our profitability as financial resources and market conditions justify these investments. In February 2023, we completed Together for Sustainability, or TFS, certification at our Pekin Campus, which is an initiative to raise corporate social responsibility (CSR) standards in our industry. We are also conducting Scope 1 and 2 greenhouse gas emissions (GHG) third party verification for all of our production facilities for 2021 and 2022. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Current Initiatives and Outlook.”
- *Evaluate and pursue strategic opportunities.* We are examining opportunities to expand our business such as joint ventures, strategic partnerships, synergistic acquisitions and other opportunities. We intend to pursue these opportunities as financial resources and business prospects make these opportunities desirable.

Competitive Strengths

We are the largest producer of specialty alcohols in the United States. We believe that our competitive strengths include:

- *Our customer and supplier relationships.* We have extensive and long-standing close customer and supplier relationships, both domestic and international, for our specialty alcohols and essential ingredients. We have an excellent reputation for developing specialty alcohols under stringent quality control standards, particularly at our Pekin Campus. Our quality management systems are supported by ISO 9001, ICH Q7, TFS and EXCiPACT certifications which are viewed by our customers as important attestations of our quality control standards.
- *Barriers to entry.* Our production facilities use specialized equipment, technologies and processes to achieve stringent quality controls, higher yields and efficient production of alcohols and essential ingredients. Our specialized equipment, technologies and processes, together with our quality management certifications, strict regulatory requirements, and close customer and supplier relationships create significant barriers to entry to new market participants.
- *Our experienced management.* Our senior management team has a proven track record with significant operational and financial expertise and many years of experience in the alcohol production industry. Our senior executives have successfully navigated a wide variety of business and industry-specific challenges and deeply understand the business of successfully producing and marketing specialty alcohols and essential ingredients.
- *The strategic location of our Midwest production facilities.* We operate three distinct but integrated production facilities at our Pekin Campus in the Midwest. We are able to participate from that location in the largest regional specialty alcohol market in the United States as well as international markets. In addition:
 - We believe that our Midwest location enhances our overall hedging opportunities with a greater correlation to the highly-liquid physical and paper markets in Chicago.
 - Our Midwest location provides excellent logistical access via rail, truck and barge. In particular, barge access via the Illinois River to the Mississippi River enables us to efficiently bring our products to international markets.

- The relatively unique wet milling process at one of our production facilities at our Pekin Campus allows us to extract the highest use and value from each component of the corn kernel. As a result, the wet milling process generates a higher level of cost recovery from corn than that produced at a dry mill.
- Our Midwest location allows us deep market insight and engagement in major specialty alcohol, fuel-grade ethanol, pet food and feed markets, thereby improving pricing opportunities.

We believe that these competitive strengths will help us attain our goal of expanding our business as a leading producer and distributor of specialty alcohols and essential ingredients.

Overview of Our Key Markets and Market Opportunity

We produce specialty alcohols, fuel-grade ethanol and essential ingredients, focusing on four key markets: *Health, Home & Beauty*; *Food & Beverage*; *Essential Ingredients*; and *Renewable Fuels*.

Health, Home & Beauty

Our products for the health, home and beauty markets include specialty alcohols used in mouthwash, cosmetics, pharmaceuticals, hand sanitizers, disinfectants and cleaners. We offer a variety of specialty alcohols for the health, home and beauty markets, depending on usage and regulatory requirements, including API-grade, United States Pharmacopeia, or USP, -grade ethyl alcohols, and industrial-grade ethyl alcohol.

In 2020, we expanded our range of available product offerings within the health, home and beauty markets through quality management systems certifications. We have ISO 9001, ICH Q7 and EXCiPACT certifications at each of our Pekin Campus production facilities, all of which are viewed as important attestations of quality control standards. In particular, our ICH Q7 certification qualifies our specialty alcohols for use as an API, and our EXCiPACT certification qualifies our specialty alcohols for use as an excipient in the pharmaceutical industry. These certifications enable us to offer products to a wider group of customers and generally at more profitable margins.

Food & Beverage

Our products for the food and beverage market include specialty alcohols used in alcoholic beverages, flavor extracts and vinegar as well as corn germ used for corn oils and carbon dioxide, or CO₂, used for beverage carbonation and dry ice. The principal specialty alcohol we offer for beverage-grade product is our grain neutral spirits, or GNS, alcohol. In addition, we primarily sell FCC 190 and USP 190 Ultra into vinegar markets. We are also introducing new high-quality 190 proof and low-moisture 200-proof GNS products to our existing and target customers in the beverage, food, flavor, personal care and pharmaceutical industries.

We believe the key drivers in the food and beverage market include consumer preferences for the social currency of brand authenticity and heritage; consumers seeking unique and personalized experiences; improved consumer access to spirits products; the growth of craft distillers; and the ability to meet wide-ranging consumer preferences through a broad diversity of spirits categories and cocktails.

Essential Ingredients

Our essential ingredients include dried yeast, corn gluten meal, corn gluten feed, and distillers grains and liquid feed used in commercial animal feed and pet foods. We also sell yeast for human consumption. The raw materials for our essential ingredients are generated as co-products from our production of alcohols. These co-products are further manufactured, altered and refined into our essential ingredients, including for special customer applications.

Many of our essential ingredients are used in a variety of food products to affect their nutrition, including protein and fat content, as well as other product attributes such as taste, texture, palatability and stability. Our high quality and high purity manufacturing enable our customers to use some of our essential ingredients in human foods while others are used in pet foods and animal feed.

We expect the essential ingredients market to grow significantly due to global demand for higher-grade protein feed, such as feed used in fisheries and other applications.

Renewable Fuels

Our renewable fuels products include fuel-grade ethanol used as transportation fuel and distillers corn oil used as a biodiesel feedstock. Our renewable fuels business is supported by our own production of fuel-grade ethanol as well as fuel-grade ethanol produced by third parties.

Renewable fuels, primarily fuel-grade ethanol, are used for a variety of purposes, including as octane enhancers for premium gasoline and to enable refiners to produce greater quantities of lower octane blend stock; for fuel blending to extend fuel supplies and reduce reliance on crude oil and refined products; and to comply with a variety of governmental programs, in particular, the national Renewable Fuel Standard, or RFS, which was enacted to promote alternatives to fossil fuels. Under the RFS, the mandated use of all renewable fuels rises incrementally and peaks at 36.0 billion gallons by 2022, of which 15.0 billion gallons are required from conventional, or corn-based, ethanol. The RFS allows the Environmental Protection Agency, or EPA, to adjust the annual requirement based on certain facts and circumstances. In 2022, the EPA proposed 15.0 billion gallons from conventional ethanol for 2023, increasing to 15.25 billion gallons for both 2024 and 2025. See “—Governmental Regulation”.

According to the Renewable Fuels Association, the domestic fuel-grade ethanol industry produced 15.4 billion gallons of ethanol in 2022, up from 15.0 billion gallons in 2021. According to the United States Department of Energy, total annual gasoline consumption in the United States is approximately 134.8 billion gallons and total annual fuel-grade ethanol consumption represented approximately 11% of this amount in 2021. We anticipate that continued limited opportunities for gasoline refinery expansions and the growing importance of reducing CO₂ emissions through the use of renewable fuels will generate additional growth in the demand for fuel-grade ethanol.

Overview of Alcohol Production Process

Alcohol production from starch- or sugar-based feedstock is a highly-efficient process. Modern alcohol production requires large amounts of corn, or other high-starch grains, and water as well as chemicals, enzymes and yeast, in addition to natural gas and electricity.

Dry Milling Process

In the dry milling process, corn or other high-starch grain is first ground into flour, then slurried with water to form a mash. Enzymes are added to the mash to convert the starch into dextrose, a simple sugar. The mash is processed through a high temperature cooking procedure, which reduces bacteria levels prior to fermentation. The mash is then cooled and transferred to fermenters, where yeast is added and the conversion of sugar to alcohol and CO₂ begins.

After fermentation, the resulting “beer” is transferred to distillation where the alcohol is separated from the residual “stillage”. The resulting alcohol is concentrated to 190 proof using conventional distillation methods and then is dehydrated to approximately 200 proof, representing 100% alcohol levels, in either a molecular sieve system or a grits system. For fuel-grade ethanol, the resulting anhydrous alcohol is then blended with approximately 2.5% denaturant, which is usually gasoline, and is then ready for shipment to renewable fuels markets. For specialty alcohols, the products can be sold pure or as one of the Tobacco Tax & Trade Bureau (TTB) approved specially denatured alcohol (SDA) formulations to meet customer specifications.

The residual stillage is separated into a coarse grain portion and a liquid portion through a screw press or centrifugation process. The soluble liquid portion is concentrated to about 40% dissolved solids by an evaporation process. This intermediate state is called condensed distillers solubles, or syrup. The coarse grain and syrup portions are then mixed to produce wet distillers grains, or WDG, or can be mixed and dried to produce dried distillers grains with solubles, or DDGS. Both WDG and DDGS are high-protein animal feed products.

Wet Milling Process

In the wet milling process, corn or other high-starch grain is first soaked or “steeped” in sulfurous acid for approximately 24 hours to soften the whole corn kernel ahead of milling. After steeping, the grain goes through coarse milling to gently open the kernels to separate the corn germ from which the corn oil can be further extracted in a separate process. The remaining fiber, gluten and starch components are further separated and sold.

The stillage from the fermentation process is concentrated in an evaporator and is co-dried with the fiber component to be sold as corn gluten feed. The gluten component is filtered and dried to produce a high protein corn gluten meal.

The starch is then processed into alcohol through fermentation. The fermentation process for alcohol at this stage is similar to the dry milling process. In addition, we separate and dry yeast to produce distillers yeast.

Overview of Distillers Grains Market

Distillers grains are produced as a co-product of alcohol production and are valuable components of feed rations primarily to dairies and beef cattle markets, both nationally and internationally. Our plants produce both WDG and DDGS. WDG is sold to customers proximate to the plants and DDGS is delivered by truck, rail and barge to customers in domestic and international markets. Producing WDG also allows us to use up to one-third less process energy, thus reducing production costs and lowering the carbon footprint of our production facilities.

Historically, the market price for distillers grains has generally tracked the price of corn. We believe that the market price of WDG and DDGS is determined by a number of factors, including the market prices of corn, soybean meal and other competitive ingredients, the performance or value of WDG and DDGS in a particular feed formulation and general market forces of supply and demand, including export markets for these co-products. The market price of distillers grains is also often influenced by nutritional models that calculate the feed value of distillers grains by nutritional content, as well as reliability of consistent supply.

Customers

We market and sell through our wholly-owned subsidiary, Kinergy Marketing LLC, or Kinergy, all of the alcohols we produce. Kinergy also markets fuel-grade ethanol produced by third parties. We market and sell through our wholly-owned subsidiary, Alto Nutrients, LLC, all of the essential ingredients we produce. We also sell break bulk quantities through Eagle Alcohol to customers in the beverage, food, industrial and related-process industries.

We have extensive and long-standing customer relationships, both domestic and international, for our specialty alcohols and essential ingredients, including yeast for pet food and human foods. These customers include producers and distributors of ingredients for cosmetics, sanitizers and related products, distilled spirits producers, food products manufacturers, producers of personal health/consumer health and personal care hygiene products, and global trading firms.

Our renewable fuel customers are located throughout the Western and Midwestern United States and consist of integrated oil companies and gasoline marketers who blend fuel-grade ethanol into gasoline. Our customers depend on us to provide a reliable supply of fuel-grade ethanol and manage the logistics and timing of delivery. We secure additional fuel-grade ethanol supplies from third-party fuel-grade ethanol plants.

We market our essential ingredient feed products to dairies and feedlots, in many cases located near our production facilities. These customers use our feed products for livestock as a substitute for corn and other sources of starch and protein. We sell our corn oil to poultry, renewable diesel and biodiesel customers. We do not market essential ingredients from other producers.

Our Pekin Campus production segment generated \$521.3 million, \$498.2 million and \$330.4 million in net sales for the years ended December 31, 2022, 2021 and 2020, respectively, from the sale of alcohols. Our Pekin Campus production segment generated \$225.8 million, \$189.5 million and \$130.3 million in net sales for the years ended December 31, 2022, 2021 and 2020, respectively, from the sale of essential ingredients.

During 2022, 2021 and 2020, our Pekin Campus production segment sold an aggregate of approximately 201.1 million, 213.0 million and 193.9 million gallons of alcohols and 851,500, 875,100 and 829,000 tons of essential ingredients, respectively, on a dry matter basis.

Our Other production segment generated \$253.6 million, \$107.9 million and \$137.7 million in net sales for the years ended December 31, 2022, 2021 and 2020, respectively, from the sale of alcohols. Our Other production segment generated \$90.2 million, \$31.1 million and \$40.9 million in net sales for the years ended December 31, 2022, 2021 and 2020, respectively, from the sale of essential ingredients.

During 2022, 2021 and 2020, our Other production segment sold an aggregate of approximately 92.3 million, 37.6 million and 78.0 million gallons of alcohols and 785,900, 361,000 and 619,000 tons of essential ingredients, respectively, on a dry matter basis.

Our marketing and distribution segment generated \$228.9 million, \$381.2 million and \$257.7 million in net sales for the years ended December 31, 2022, 2021 and 2020, respectively, from the sale of all alcohols.

Our Corporate and other segment generated \$15.8 million in net sales from Eagle Alcohol and sold 7.6 million gallons of alcohols.

During 2022, 2021 and 2020, we produced or purchased from third parties and resold an aggregate of 418.9 million, 479.6 million and 536.3 million gallons of alcohols to approximately 114, 99 and 65 customers, respectively. For 2022, 2021 and 2020, sales to our two largest customers, Shell Trading US Company and Chevron Products USA represented an aggregate of approximately 20%, 22% and 12%, of our net sales, respectively. For 2022, 2021 and 2020, sales to each of our other customers represented less than 10% of our net sales.

Suppliers

Pekin Campus and Other Production Segments

Our production operations depend upon various raw materials suppliers, including suppliers of corn, natural gas, electricity and water. The cost of corn is the most important variable cost associated with our alcohol production. We source corn for our plants using standard contracts, including spot purchase, forward purchase and basis contracts. When resources are available, we seek to limit the exposure of our production operations to raw material price fluctuations by purchasing forward a portion of our corn requirements on a fixed price basis and by purchasing corn and other raw materials futures contracts and options.

During 2022, 2021 and 2020, purchases of corn from our two largest suppliers represented an aggregate of approximately 27%, 16% and 16% of our total corn purchases, respectively, for those periods. Purchases from each of our other corn suppliers represented less than 10% of total corn purchases in each of 2022, 2021 and 2020.

Marketing and Distribution Segment

Our marketing and distribution operations include alcohols and essential ingredients we produce but also depend upon various third-party producers of fuel-grade ethanol. In addition, we provide transportation, storage and delivery services through third-party service providers with whom we have contracted to receive fuel-grade ethanol at agreed upon locations from our third-party suppliers and to store and/or deliver the ethanol to agreed-upon locations on behalf of our customers. These contracts generally run from year-to-year, subject to termination by either party upon advance written notice before the end of the then-current annual term.

During 2022, 2021 and 2020, we purchased and resold from third parties an aggregate of approximately 220 million, 204 million and 163 million gallons, respectively, of fuel-grade ethanol.

During 2022, 2021 and 2020, purchases of fuel-grade ethanol from our four largest third-party suppliers represented 69%, 76% and 62%, respectively, of our total third-party ethanol purchases for each of those periods. Purchases from each of our other third-party ethanol suppliers represented less than 10% of total third-party ethanol purchases in each of 2022, 2021 and 2020.

Production Facilities

We operate five production facilities. Three of our production facilities are located in Pekin, Illinois at our Pekin Campus, one is located in Oregon and another is located in Idaho. We have an annual alcohol production capacity of 350 million gallons, comprised of 210 million gallons of fuel-grade ethanol and up to 140 million gallons of specialty alcohols. As market conditions change, we may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility. The tables below provide an overview of our five production facilities.

Pekin Campus Production Facilities

	Pekin Wet Facility	Pekin Dry Facility	Pekin ICP Facility
Location	Pekin, IL	Pekin, IL	Pekin, IL
Current operating status	Operating	Operating	Operating
Approximate maximum annual alcohol production capacity (in millions of gallons)	100	60	90
Approximate maximum annual specialty alcohol production capacity (in millions of gallons)	74	—	66
Production milling process	Wet	Dry	Dry
Primary energy source	Natural Gas	Natural Gas	Natural Gas

Western Production Facilities

	Magic Valley Facility	Columbia Facility
Location	Burley, ID	Boardman, OR
Current operating status	Idled	Operating
Approximate maximum annual fuel-grade ethanol production capacity (in millions of gallons)	60	40
Production milling process	Dry	Dry
Primary energy source	Natural Gas	Natural Gas

Commodity Risk Management

We employ various risk mitigation techniques. For example, we may seek to mitigate our exposure to commodity price fluctuations by purchasing forward a portion of our corn and natural gas requirements through fixed-price or variable-price contracts with our suppliers, as well as entering into derivative contracts for fuel-grade ethanol, corn and natural gas. To mitigate fuel-grade ethanol inventory price risks, we may sell a portion of our production forward under fixed- or index-price contracts, or both. We may hedge a portion of the price risks by entering into exchange-traded futures contracts and options. Proper execution of these risk mitigation strategies can reduce the volatility of our gross profit margins.

Specialty alcohols have relatively low price volatility and are usually priced at significant premiums to fuel-grade ethanol. The market price of fuel-grade ethanol is volatile, however, and subject to large fluctuations. Given the nature of our business, we cannot effectively hedge against extreme volatility or certain market conditions. For example, fuel-grade ethanol prices, as reported by the Chicago Board of Trade, or CBOT, ranged from \$2.00 to \$2.88 per gallon during 2022, \$1.48 to \$3.75 per gallon during 2021 and from \$0.81 to \$1.62 per gallon during 2020; and corn prices, as reported by the CBOT, ranged from \$5.64 to \$8.18 per bushel during 2022, \$4.84 to \$7.73 per bushel during 2021 and from \$3.03 to \$4.84 per bushel during 2020.

Climate-Related and Other Risks

Short- to medium-term climate-related and other risks include high sensitivity to certain commodity prices such as corn and natural gas; regulatory changes and political volatility, both domestic and international; ethanol supply and demand imbalances; logistics and storage constraints from river access during inclement or volatile weather conditions; lack of automation of process optimization; high repair, maintenance and production costs resulting from older facilities; poor cooling capacity of our older facilities as water temperatures increase; and international market competition.

Long-term climate-related risks include water resource limitations; lower or volatile grain availability in local markets; market transition away from combustion fuels that include renewables; and the energy cost impact of technology such as wet milling and multiple distillation processes for high-quality alcohol. We also may be impacted by costs and regulatory burdens associated with carbon emissions from our production and distribution as well as truck transport and packaging associated with Eagle Alcohol's use of drums and totes. See "Risk Factors."

Marketing Arrangements

We market all the alcohols and essential ingredients produced at our facilities. In addition, we market and sell the entire fuel-grade ethanol production volume of a third-party producer.

Competition

We are the largest producer of specialty alcohols in the United States.

Other significant producers of specialty alcohols in the United States are Archer-Daniels-Midland Company, MGP Ingredients, Inc., Grain Processing Corporation, CIE and Greenfield Global Inc., which collectively make up a significant majority of the total installed specialty alcohol production capacity in the United States along with many smaller producers.

The largest producers of fuel-grade ethanol in the United States are POET, LLC, Valero Renewable Fuels Company, LLC, Archer-Daniels-Midland Company and Green Plains Inc., collectively with approximately 41% of the total installed fuel-grade ethanol production capacity in the United States. In addition, there are many mid-sized fuel-grade ethanol producers with several plants under ownership, smaller producers each with one or two plants, and several fuel-grade ethanol marketers that create significant competition. Overall, we believe there are over 200 fuel-grade ethanol production facilities in the United States with a total installed production capacity of approximately 17.5 billion gallons and many brokers and marketers with whom we compete for sales of fuel-grade ethanol and its co-products.

Our fuel-grade ethanol also competes on a global market against production from other countries, such as Brazil, which may have lower production costs than United States producers. Lower feedstock input costs such as sugarcane used in Brazil as compared to corn used in the United States may give foreign producers a competitive advantage. In addition, fuel-grade ethanol from sugarcane feedstock qualifies as an advanced biofuel, unlike corn ethanol, allowing certain producers to economically satisfy an advanced biofuel standard. Moreover, new products and production technologies are under continuous development, many of which, if adopted by competitors, could harm our ability to compete.

We believe that our competitive strengths include our customer and supplier relationships, the barriers to entry to our most profitable lines of business—including our modern technologies and certifications at our production facilities—our experienced management, and the strategic location of our Midwest production facilities. We believe that these advantages will help us to attain our goal to expand our business as a leading producer and distributor of specialty alcohols and essential ingredients. See “—Competitive Strengths”.

Governmental Regulation

Our business is subject to a wide range of federal, state and local laws and regulations directed at protecting public health and the environment, including those promulgated by the Occupational Safety and Health Administration, or OSHA, the U.S. Food and Drug Administration, or FDA, the EPA, and numerous state, local and international authorities. These laws, their underlying regulatory requirements and their potential enforcement, some of which are described below, impact, or may impact, nearly every aspect of our operations, including our production of alcohols (including distillation), our production of essential ingredients, our storage facilities, and our water usage, wastewater discharge, disposal of hazardous wastes and emissions, and other matters pertaining to our existing and proposed business by imposing:

- restrictions on our existing and proposed operations and/or the need to install enhanced or additional controls;
- special requirements applicable to food and drug additives;
- the need to obtain and comply with permits and authorizations;
- liability for exceeding applicable permit limits or legal requirements, in some cases for the remediation of contaminated soil and groundwater at our production facilities, contiguous and adjacent properties and other properties owned and/or operated by third parties; and
- other specifications for the specialty alcohols and essential ingredients we produce and market.

In addition, some governmental regulations are helpful to our production and marketing business. The fuel-grade ethanol industry in particular is supported by federal and state mandates and environmental regulations that favor the use of fuel-grade ethanol in motor fuel blends in North America. Some of the governmental regulations applicable to our production and marketing business are briefly described below.

Food and Drug Regulation

Our products for the *Health, Home & Beauty, Food & Beverage* and *Essential Ingredients* markets are subject to regulation by the FDA as well as similar state agencies. Under the Federal Food, Drug, and Cosmetic Act, or FDCA, the FDA regulates the processing, formulation, safety, manufacture, packaging, labeling and distribution of food ingredients, vitamins, cosmetics and pharmaceuticals for active and inactive ingredients. Many of the FDA's and FDCA's rules and regulations apply directly to us as well as indirectly through their application in our customers' products. To be properly marketed and sold in the United States, a relevant product must be generally recognized as safe, approved and not adulterated or misbranded under the FDCA and relevant regulations issued under the FDCA. The FDA has broad authority to enforce the provisions of the FDCA. Failure to comply with the laws and regulations of the FDA or similar state agencies could prevent us from selling certain of our products or subject us to liability.

Renewable Fuels Energy Legislation

Under the RFS, the mandated use of all renewable fuels, including fuel-grade ethanol, rose incrementally and peaked at 36.0 billion gallons in 2022, of which 15.0 billion gallons are required from conventional, or corn-based, ethanol. Under the provisions of the Energy Independence and Security Act of 2007, the EPA has the authority to waive the mandated RFS requirements in whole or in part. To grant a waiver, the EPA administrator must determine, in consultation with the Secretaries of Agriculture and Energy, that there is inadequate domestic renewable fuel supply or implementation of the requirement would severely harm the economy or environment of a state, region or the United States as a whole.

Various bills in Congress introduced from time to time are also directed at altering existing renewable fuels energy legislation, but none have passed in recent years. Some legislative bills are directed at halting or reversing expansion of, or even eliminating, the renewable fuel program, while other bills are directed at bolstering the program or enacting further mandates or grants that would support the renewable fuels industry.

The EPA has allowed fuel and fuel-additive manufacturers to introduce into commercial gasoline up to 15% fuel-grade ethanol by volume, or E15, for vehicles from model year 2001 and beyond. Commercial sale of E15 has begun in a majority of states, and the EPA has enacted a rule allowing for year-round use of E15.

Various states including California, Oregon and Washington, and other regions such as the Canadian province of British Columbia, have implemented low-carbon fuel standards focused on reducing the carbon intensity of transportation fuels. Blending fuel-grade ethanol into gasoline is one of the primary means of attaining these goals.

Additional Environmental Regulations

In addition to the governmental regulations applicable to the alcohol production and marketing industry described above, our business is subject to additional federal, state and local environmental regulations, including regulations established by the EPA and state regulatory agencies related to water quality and air pollution control. We cannot predict the manner by which, or extent to which, these regulations will harm or help our business or the alcohol production and marketing industry in general.

Human Capital Resources

As of March 13, 2023, we had approximately 439 employees, including 439 full-time employees. Our human capital resources objectives include attracting and retaining well-qualified and highly skilled and motivated employees and executives. As of that same date, approximately 44% of our employees were represented by a labor union and covered by a collective bargaining agreement. We have never had a work stoppage or strike and we consider our relations with our employees to be good.

Our compensation program is designed to attract, retain and motivate our personnel. We use a mix of competitive salaries and other benefits to attract and retain employees and executives. Some of these benefits include matching 401K contributions of up to 6% of salary, health and wellness programs and a paid service day for employees to give back to their communities. At the direction and with the involvement of an environmental, social and governance, or ESG, committee established by our board of directors, we have established an ESG working committee that draws from our many administrative and operational departments to review key policies and procedures, conduct employee engagement surveys and training, champion volunteering and charitable drives, develop and implement recruiting efforts which promote diversity and inclusion and prioritize collecting and improving on key metrics from industry frameworks such as the Global Reporting Initiative and Sustainability Accounting Standards Board standards which are maintained by the International Sustainability Standards Board of the IFRS Foundation.

Item 1A. Risk Factors.

Before deciding to purchase, hold or sell our common stock, you should carefully consider the risks described below in addition to the other information contained in this Report and in our other filings with the Securities and Exchange Commission, including subsequent reports on Forms 10-Q and 8-K. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business. If any of these known or unknown risks or uncertainties actually occurs with material adverse effects on Alto Ingredients, our business, financial condition, results of operations and/or liquidity could be seriously harmed. In that event, the market price for our common stock will likely decline, and you may lose all or part of your investment.

Risks Related to our Business

Our results of operations and our ability to operate at a profit are largely dependent on our ability to manage the costs of corn, natural gas and other production inputs, with the prices of our alcohols and essential ingredients, all of which are subject to volatility and uncertainty.

Our results of operations are highly impacted by commodity prices, including the cost of corn, natural gas and other production inputs that we must purchase, and the prices of alcohols and essential ingredients that we sell. Prices and supplies are subject to and determined by numerous market and other forces over which we have no control, such as weather, domestic and global demand, supply shortages, export prices, inflationary conditions, global geopolitical tensions and various governmental policies in the United States and throughout the world.

Price volatility of corn, natural gas and other production inputs, and alcohols and essential ingredients, may cause our results of operations to fluctuate substantially. We may fail to generate expected levels of net sales and profits even under fixed-price and other contracts for the sale of specialty alcohols used in consumer products. Our customers may not pay us timely or at all, even under longer-term, fixed-price contracts for our specialty alcohols, and may seek to renegotiate prices under those contracts during periods of falling prices or high price volatility.

Over the past several years, for example, the spread between corn and fuel-grade ethanol prices has fluctuated significantly. Fluctuations are likely to continue to occur. A sustained negative or narrow spread, whether as a result of sustained high or increased corn prices or sustained low or decreased alcohol or essential ingredient prices, would adversely affect our results of operations and financial condition. Revenues from sales of alcohols, particularly fuel-grade ethanol, and essential ingredients have in the past and could in the future decline below the marginal cost of production, which may force us to suspend production, particularly fuel-grade ethanol production, at some or all of our facilities.

In addition, some of our fuel-grade ethanol marketing and distribution activities will likely be unprofitable in a market of generally declining prices due to the nature of our business. For example, to satisfy customer demands, we maintain certain quantities of fuel-grade ethanol inventory for subsequent resale. Moreover, we procure much of our fuel-grade ethanol inventory outside of contracted third-party marketing and distribution arrangements and therefore must buy fuel-grade ethanol at a price established at the time of purchase and sell fuel-grade ethanol at an index price established later at the time of sale that is generally reflective of movements in the market price of fuel-grade ethanol. As a result, our margins for fuel-grade ethanol sold in these transactions generally decline and may turn negative as the market price of fuel-grade ethanol declines.

We can provide no assurance that corn, natural gas or other production inputs can be purchased at or near current or any particular prices, or that our alcohols or essential ingredients will sell at or near current or any particular prices. Consequently, our results of operations and financial condition may be adversely affected by increases in the prices of corn, natural gas and other production inputs or decreases in the prices of our alcohols and essential ingredients.

Inflation, including as a result of commodity price inflation or supply chain constraints due to the war in Ukraine, and higher prices in general may adversely impact our results of operations.

We have experienced inflationary impacts on key production inputs, wages and other costs of labor, equipment, services, and other business expenses. Commodity prices in particular have risen significantly over the past year. Inflation and its negative impacts could escalate in future periods.

Ukraine is the third largest exporter of grain in the world. Russia is one of the largest producers of natural gas and oil and is the largest exporter of fertilizers. The commodity price impact of the war in Ukraine has been a sharp and sustained rise in grain and energy prices, including for corn and natural gas, our two most important production input commodities. In addition, the war in Ukraine has adversely affected and may continue to adversely affect global supply chains resulting in further commodity price inflation for our production inputs. Lower fertilizer supplies may also impact future growing seasons, further impacting grain supplies and prices. Also, given high global grain prices, U.S. farmers may prefer to lock in prices and export additional volumes, reducing domestic grain supplies and resulting in further inflationary pressures on key production inputs.

Even if inflation stabilizes or abates, the prices of key production inputs, wages and other costs of labor, equipment, services, and other business expenses may remain at elevated levels. We may not be able to include these additional costs in the prices of the products we sell. As a result, inflation and higher prices in general may have a material adverse effect on our results of operations and financial condition.

Increased alcohol or essential ingredient production or higher inventory levels may cause a decline in prices for those products, and may have other negative effects, adversely impacting our results of operations, cash flows and financial condition.

The prices of our alcohols and essential ingredients are impacted by competing third-party supplies of those products. For example, we believe that the most significant factor influencing the price of fuel-grade ethanol has been the substantial increase in production. According to the Renewable Fuels Association, domestic fuel-grade ethanol production capacity increased from an annualized rate of 1.5 billion gallons per year in January 1999 to a record 16.1 billion gallons in 2018. In addition, if fuel-grade ethanol production margins improve, we anticipate that owners of production facilities operating at below capacity, or owners of idled production facilities, will increase production levels, thereby resulting in more abundant fuel-grade ethanol supplies and inventories. Increases in the supply of alcohols and essential ingredients may not be commensurate with increases in demand for alcohols and essential ingredients, thus leading to lower prices. Any of these outcomes could have a material adverse effect on our results of operations, cash flows and financial condition.

The prices of our products are volatile and subject to large fluctuations, which may cause our results of operations to fluctuate significantly.

The prices of our products are volatile and subject to large fluctuations. For example, the market price of fuel-grade ethanol is dependent upon many factors, including the supply of ethanol and the price of gasoline, which is in turn dependent upon the price of petroleum which itself is highly volatile, difficult to forecast and influenced by a wide variety of geopolitical and global economic conditions, including decisions concerning petroleum output by the Organization of Petroleum Exporting Countries (OPEC) and their allies, an intergovernmental organization that seeks to manage the price and supply of oil on the global energy market. Our fuel-grade ethanol sales are tied to prevailing spot market prices rather than long-term, fixed-price contracts. Fuel-grade ethanol prices, as reported by the CBOT, ranged from \$2.00 to \$2.88 per gallon in 2022, from \$1.48 to \$3.75 per gallon in 2021 and from \$0.81 to \$1.62 per gallon in 2020. In addition, even under longer-term, fixed-price contracts for our specialty alcohols, our customers may seek to renegotiate prices under those contracts during periods of falling prices or high price volatility. Fluctuations in the prices of our products may cause our results of operations to fluctuate significantly.

Disruptions in our production or distribution, including as a result of climate change and other weather effects, may adversely affect our business, results of operations and financial condition.

Our business depends on the continuing availability of rail, road, port, storage and distribution infrastructure. In particular, due to limited storage capacity at some of our production facilities and other considerations related to production efficiencies, certain facilities depend on just-in-time delivery of corn. The production of alcohols also requires a significant and uninterrupted supply of other raw materials and energy, primarily water, electricity and natural gas. Local water, electricity and gas utilities may fail to reliably supply the water, electricity and natural gas that our production facilities need or may fail to supply those resources on acceptable terms. In the past, poor weather has caused disruptions in rail transportation, which slowed the delivery of fuel-grade ethanol by rail, a key method by which fuel-grade ethanol from our Pekin Campus is transported to market.

For example, in 2022, a lightning strike at the utility servicing our Pekin Campus disrupted our operations, cutting power to our facilities and materially affecting our production, resulting in unexpected repair and maintenance costs, lost production and degradation in the quality of work-in-progress inventories. In addition, in 2020, we experienced closure of the Illinois River for lock repairs which required greater use of less cost-effective modes of product transport such as via rail and truck, which resulted in higher costs and negatively affected our results of operations.

Disruptions in production or distribution, whether caused by labor difficulties, unscheduled downtimes and other operational hazards inherent in the alcohol production industry, including equipment failures, fires, explosions, abnormal pressures, blowouts, pipeline ruptures, transportation accidents, climate change and natural disasters such as earthquakes, floods and storms, or other weather effects, or human error or malfeasance or other reasons, could prevent timely deliveries of corn or other raw materials and energy, and could delay transport of our products to market, and may require us to halt production at one or more production facilities, any of which could have a material adverse effect on our business, results of operations and financial condition.

Some of these operational hazards may also cause personal injury or loss of life, severe damage to or destruction of property and equipment or environmental damage, and may result in suspension of operations and the imposition of civil or criminal penalties. Our insurance may not fully cover the potential hazards described above or we may be unable to renew our insurance on commercially reasonable terms or at all.

Climate change, and governmental regulations aimed at addressing climate-related issues, may affect conditions to which our business is highly sensitive, many of which could materially and adversely harm our business, results of operations and financial condition.

Our business is highly sensitive to commodity prices, in particular the prices of corn and grain substitutes, and natural gas. Inclement weather from climate change, including extreme temperatures or drought, may adversely affect growing conditions, which may reduce available corn supplies, our primary production input, and other grain substitutes, driving up prices and thereby increasing our production input costs. In addition, governmental regulators may disfavor carbon-based energy sources, such as natural gas, leading to regulations that disincentivize their use or otherwise make their production more difficult and costly, driving up their prices. Higher natural gas prices would likewise increase our production input costs.

Other factors that may result from climate change, or that may result from governmental regulations aimed at addressing climate-related issues, may also adversely affect our business, including the following:

- Water is one of our key production inputs; water resource limitations may result from drought and other inclement weather; water resource limitations may also result from rationing and other governmental regulations limiting water use;
- Higher water temperatures due to increased global or regional temperatures may negatively affect production efficiencies due to water temperature production requirements given the poor cooling capacities of our older facilities;
- Flooding and other inclement weather may negatively affect our river access, other transportation logistics and costs, and storage requirements;
- An overall increase in energy costs will negatively impact our production costs generally and may critically impact certain high energy-intensive production technologies, such as our wet milling and multiple distillation processes for high-quality alcohol;
- Regulatory and market transition away from combustion fuels and fuel-grade ethanol blending may threaten the viability of our renewable fuels business; and

- Costs and regulatory burdens associated with governmental regulations that limit or tax greenhouse gas emissions, such as carbon dioxide, from alcohol production and distribution, or from truck transport and packaging associated with Eagle Alcohol's business and use of drums and totes, will negatively impact us.

New legislation in the United States to address climate change issues, including at the federal, state and local levels, likely will continue. This includes new or expanded cap-and-trade programs that may layer additional costs on any business that emits greenhouse gases. New legislation, including new or expanded cap-and-trade programs, could materially and adversely impact our production cost structure and the market viability of our products.

Any of these factors could materially and adversely harm our business, results of operations and financial condition.

We may engage in hedging transactions and other risk mitigation strategies that could harm our results of operations and financial condition.

In an attempt to partially offset the effects of production input and product price volatility, in particular, corn and natural gas costs and fuel-grade ethanol prices, we may enter into contracts to purchase a portion of our corn or natural gas requirements on a forward basis or fix the sale price of portions of our alcohol production. In addition, we may engage in other hedging transactions involving exchange-traded futures contracts for corn, natural gas and unleaded gasoline from time to time. The financial statement impact of these activities is dependent upon, among other things, the prices involved and our ability to sell sufficient products to use all of the corn and natural gas for which forward commitments have been made. Hedging arrangements also expose us to the risk of financial loss in situations where our counterparty to the hedging contract defaults on its contract or, in the case of exchange-traded contracts, where there is a change in the expected differential between the underlying price in the hedging agreement and the actual prices paid or received by us. In addition, our open contract positions may require cash deposits to cover margin calls, negatively impacting our liquidity. As a result, our hedging activities and fluctuations in the price of corn, natural gas, fuel-grade ethanol and unleaded gasoline may adversely affect our results of operations, financial condition and liquidity.

Risks Related to our Finances

We have incurred significant losses and negative operating cash flow in the past and we may incur losses and negative operating cash flow in the future, which may hamper our operations and impede us from expanding our business.

We have incurred significant losses and negative operating cash flow in the past. For example, for the three months and year ended December 31, 2022 and for the year ended December 31, 2020, we incurred consolidated net losses of approximately \$33.1 million, \$41.6 million and \$17.3 million, respectively. We may incur losses and negative operating cash flow in the future. We expect to rely on cash on hand, cash, if any, generated from our operations, borrowing availability under our lines of credit and proceeds from our future financing activities, if any, to fund all of the cash requirements of our business. Additional losses and negative operating cash flow may hamper our operations and impede us from expanding our business.

We incur significant expenses to maintain and upgrade our production facilities and operating equipment, and any interruption in our operations would harm our operating performance.

We regularly incur significant expenses to maintain and upgrade our production facilities and operating equipment. The machines and equipment we use to produce our alcohols and essential ingredients are complex, have many parts, and some operate on a continuous basis. We must perform routine equipment maintenance and must periodically replace a variety of parts such as motors, pumps, pipes and electrical parts. In addition, our production facilities require periodic shutdowns to perform major maintenance and upgrades. These scheduled shutdowns result in lower sales and increased costs in the periods during which a shutdown occurs and could result in unexpected operational issues in future periods as a result of changes to equipment and operational and mechanical processes made during shutdown.

Our indebtedness may expose us to risks that could negatively impact our business, prospects, liquidity, cash flows and results of operations.

We have incurred, and anticipate incurring additional, substantial indebtedness to engage in capital improvement projects. We expect that these projects, when completed, will generate financial returns sufficient to service and ultimately repay or refinance our indebtedness. However, the timing, cost and results of our capital improvement projects may not meet our projections. In addition, our indebtedness could:

- make it more difficult to pay or refinance our indebtedness if it becomes due during adverse economic and industry conditions;

- limit our flexibility to pursue strategic opportunities or react to changes in our business and the industries in which we operate and, consequently, place us at a competitive disadvantage to our competitors who have less debt;
- require a substantial portion of our cash flows from operations for debt service payments, thereby reducing the availability of our cash flows to fund working capital, additional capital expenditures, acquisitions, dividend payments and for other general corporate purposes; or
- limit our ability to procure additional financing for working capital or other purposes.

Our ability to generate sufficient cash to make all required principal and interest payments when due depends on our performance, which is subject to a variety of factors beyond our control, including the cost of key production inputs, the supply of and demand for specialty alcohols and essential ingredients, and many other factors related to the industries in which we operate. We cannot provide any assurance that we will be able to timely service or satisfy our debt obligations. Our failure to timely service or satisfy our debt obligations would have a material adverse effect on our business, business prospects, liquidity, cash flows and results of operations.

Our ability to utilize net operating loss carryforwards and certain other tax attributes may be limited.

Federal and state income tax laws impose restrictions on our use of net operating loss, or NOL, and tax credit carryforwards in the event that an “ownership change” occurs for tax purposes, as defined by Section 382 of the Internal Revenue Code, or Code. In general, an ownership change occurs when stockholders owning 5% or more of a corporation entitled to use NOL or other loss carryforwards have increased their ownership by more than 50 percentage points during any three-year period. The annual base limitation under Section 382 of the Code is calculated by multiplying the corporation’s value at the time of the ownership change by the greater of the long-term tax-exempt rate determined by the Internal Revenue Service in the month of the ownership change or the two preceding months. Our ability to utilize our NOL and other loss carryforwards may be substantially limited. These limitations could result in increased future tax obligations, which could have a material adverse effect on our financial condition and results of operations.

Risks Related to Legal and Regulatory Matters

We may be adversely affected by environmental, health and safety laws, regulations and liabilities, and which may not be adequately covered by insurance.

We are subject to various federal, state and local environmental laws and regulations, including those relating to the discharge of materials into the air, water and ground; the generation, storage, handling, use, transportation and disposal of hazardous materials and wastes; and the health and safety of our employees. In addition, some of these laws and regulations require us to operate under permits that are subject to renewal or modification. These laws, regulations and permits often require expensive pollution control equipment or operational changes to limit actual or potential impacts to the environment. A violation of these laws and regulations or permit conditions may result in substantial fines, natural resource damages, criminal sanctions, permit revocations and/or production facility shutdowns. In addition, we have made, and expect to make, significant capital expenditures on an ongoing basis to comply with increasingly stringent environmental laws, regulations and permits.

We may be liable for the investigation and cleanup of environmental contamination at each of our production facilities and at off-site locations where we arrange for the disposal of hazardous substances or wastes. If these substances or wastes have been or are disposed of or released at sites that undergo investigation and/or remediation by regulatory agencies, we may be responsible under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, or other environmental laws for all or part of the costs of investigation and/or remediation, and for damages to natural resources. We may also be subject to related claims by private parties alleging property damage and personal injury due to exposure to hazardous or other materials at or from those properties. Some of these matters may require us to expend significant amounts for investigation, cleanup or other costs not covered by insurance.

In addition, new laws, new interpretations of existing laws, increased governmental enforcement of environmental laws or other developments could require us to make significant additional expenditures. Continued government and public emphasis on environmental issues will likely result in increased future investments for environmental controls at our production facilities. Present and future environmental laws and regulations, and interpretations of those laws and regulations, applicable to our operations, more vigorous enforcement policies and discovery of currently unknown conditions may require substantial expenditures that could have a material adverse effect on our results of operations and financial condition.

The hazards and risks associated with producing and transporting our products (including fires, natural disasters, explosions and abnormal pressures and blowouts) may also result in personal injury claims or damage to property and third parties. As protection against operating hazards, we maintain insurance coverage against some, but not all, potential losses. However, we could sustain losses for uninsurable or uninsured risks, or in amounts in excess of existing insurance coverages. Events that result in significant personal injury or damage to our property or third parties or other losses that are not fully covered by insurance could have a material adverse effect on our results of operations and financial condition.

Future demand for fuel-grade ethanol is uncertain and may be affected by changes to federal mandates, public perception, consumer acceptance and overall consumer demand for transportation fuel, any of which could negatively affect demand for fuel-grade ethanol and our results of operations.

Although many trade groups, academics and governmental agencies support fuel-grade ethanol as a fuel additive that promotes a cleaner environment, others criticize fuel-grade ethanol production as consuming considerably more energy and emitting more greenhouse gases than other biofuels and potentially depleting water resources. Some studies suggest that corn-based ethanol is less efficient than ethanol produced from other feedstock and that it negatively impacts consumers by causing increased prices for dairy, meat and other food generated from livestock that consume corn. Additionally, critics of fuel-grade ethanol contend that corn supplies are redirected from international food markets to domestic fuel markets. If negative views of corn-based ethanol production gain broader acceptance, support for existing measures promoting use and domestic production of corn-based ethanol as a fuel additive could decline, leading to a reduction or repeal of federal ethanol usage mandates, which would materially and adversely affect the demand for fuel-grade ethanol. These views could also negatively impact public perception of the fuel-grade ethanol industry and acceptance of ethanol as an alternative fuel.

There are limited markets for fuel-grade ethanol beyond those established by federal mandates. Discretionary blending and E85 blending (i.e., gasoline blended with up to 85% fuel-grade ethanol by volume) are important secondary markets. Discretionary blending is often determined by the price of fuel-grade ethanol relative to the price of gasoline. In periods when discretionary blending is financially unattractive, the demand for fuel-grade ethanol may decline. Also, the demand for fuel-grade ethanol is affected by the overall demand for transportation fuel. Demand for transportation fuel is affected by the number of miles traveled by consumers and vehicle fuel economy. Lower demand for fuel-grade ethanol and co-products would reduce the value of our ethanol and related products, erode our overall margins and diminish our ability to generate revenue or to operate profitably. In addition, we believe that consumer acceptance of E15 and E85 fuels is necessary before fuel-grade ethanol can achieve any significant growth in market share relative to other transportation fuels.

The United States fuel-grade ethanol industry is highly dependent upon various federal and state laws and any changes in those laws could have a material adverse effect on our results of operations, cash flows and financial condition.

The EPA has implemented the Renewable Fuel Standard, or RFS, under the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007. The RFS program sets annual quotas for the quantity of renewable fuels (such as fuel-grade ethanol) that must be blended into motor fuels consumed in the United States through 2022. After 2022, the EPA is to determine volume requirements in coordination with the Secretary of Energy and the Secretary of Agriculture. The EPA has proposed new post-2022 mandatory volumes of 15.0 billion and 15.25 billion gallons for 2023 and 2024, respectively, in compliance with a consent decree by the United States District Court for the District of Columbia.

Under the provisions of the Clean Air Act, as amended by the Energy Independence and Security Act of 2007, the EPA has limited authority to waive or reduce the mandated RFS requirements. This authority is subject to consultation with the Secretaries of Agriculture and Energy and is based on a determination that there is inadequate domestic renewable fuel supply or implementation of the applicable requirements would severely harm the economy or environment of a state, region or the United States in general. In particular, the EPA may issue small refinery waivers, in full or in part, to reduce or eliminate annual renewable fuel volume requirements for small refineries that process fewer than 75,000 barrels of petroleum daily. Our results of operations, cash flows and financial condition could be adversely impacted if the EPA reduces the RFS requirements from the statutory levels specified in the RFS or continues to issue significant small refinery waivers.

The domestic market for fuel-grade ethanol is significantly impacted by federal mandates under the RFS program for volumes of renewable fuels (such as ethanol) required to be blended with gasoline. Future demand for fuel-grade ethanol will largely depend on incentives to blend ethanol into motor fuels, including the price of ethanol relative to the price of gasoline, the relative octane value of ethanol, constraints on the ability of vehicles to use higher ethanol blends, the RFS and the EPA's established volumes from time to time, small refinery waivers, and other applicable environmental requirements.

Various bills in Congress introduced from time to time are also directed at altering existing renewable fuels energy legislation, but none have passed in recent years. Some legislative bills are directed at halting or reversing expansion of, or even eliminating, the renewable fuel program, while other bills are directed at bolstering the program or enacting further mandates or grants that would support the renewable fuels industry. Our results of operations, cash flows and financial condition could be adversely impacted if any legislation is enacted that reduces the RFS volume requirements.

Risks Related to Ownership of our Common Stock

Our stock price is highly volatile, which could result in substantial losses for investors purchasing shares of our common stock and in litigation against us.

The market price of our common stock has fluctuated significantly in the past and may continue to fluctuate significantly in the future. The market price of our common stock may continue to fluctuate in response to one or more of the following factors, or any of the other risks or uncertainties discussed in this report, many of which are beyond our control:

- fluctuations in the market prices of our products;
- fluctuations in the costs of key production input commodities such as corn and natural gas;
- the volume and timing of the receipt of orders for our products from major customers;
- competitive pricing pressures;
- anticipated trends in our financial condition and results of operations;
- changes in market valuations of companies similar to us;
- stock market price and volume fluctuations generally;
- regulatory developments or increased enforcement;
- fluctuations in our quarterly or annual operating results;
- additions or departures of key personnel;
- our ability to obtain any necessary financing;
- the timing, cost and results of our capital improvement projects;
- our financing activities and future sales of our common stock or other securities; and
- our ability to maintain contracts that are critical to our operations.

The price at which you purchase shares of our common stock may not be indicative of the price that will prevail in the trading market. You may be unable to sell your shares of common stock at or above your purchase price, which may result in substantial losses to you and which may include the complete loss of your investment. In the past, securities class action litigation has often been brought against a company following periods of high stock price volatility. We may be the target of similar litigation in the future. Securities litigation could result in substantial costs and divert management's attention and our resources away from our business.

Any of the risks described above could have a material adverse effect on our results of operations, the price of our common stock, or both.

Because we do not intend to pay any cash dividends on our shares of common stock in the near future, our stockholders will not be able to receive a return on their shares unless and until they sell them.

We intend to retain a significant portion of any future earnings to finance the development, operation and expansion of our business. We do not anticipate paying any cash dividends on our common stock in the near future. The declaration, payment, and amount of any future dividends will be made at the discretion of our board of directors, and will depend upon, among other things, our results of operations, cash flows, and financial condition, operating and capital requirements, compliance with any applicable debt covenants, and other factors our board of directors considers relevant. There is no assurance that future dividends will be paid, and, if dividends are paid, there is no assurance of the amount of any such dividend. Unless our board of directors determines to pay dividends, our stockholders will be required to look solely to appreciation in the value of our common stock to realize any gain on their investment. There can be no assurance that any such appreciation will occur.

Our bylaws contain an exclusive forum provision that could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or agents.

Our bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Delaware Court of Chancery shall be the sole and exclusive forum for (a) any derivative action or proceeding brought on our behalf, (b) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of us to us or our stockholders, (c) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, or (d) any action asserting a claim governed by the internal affairs doctrine.

For the avoidance of doubt, the exclusive forum provision described above does not apply to any claims arising under the Securities Act of 1933, as amended, or the Securities Act, or the Securities Exchange Act of 1934, as amended, or the Exchange Act. Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder, and Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder.

The choice of forum provision in our bylaws may limit our stockholders' ability to bring a claim in a judicial forum that they find favorable for disputes with us or our directors, officers, employees or agents, which may discourage such lawsuits against us and our directors, officers, employees and agents even though an action, if successful, might benefit our stockholders. The applicable courts may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments or results may be more favorable to us than to our stockholders. With respect to the provision making the Delaware Court of Chancery the sole and exclusive forum for certain types of actions, stockholders who do bring a claim in the Delaware Court of Chancery could face additional litigation costs in pursuing any such claim, particularly if they do not reside in or near Delaware. Finally, if a court were to find this provision of our bylaws inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could have a material adverse effect on us.

General Risk Factors

Cyberattacks through security vulnerabilities could lead to disruption of our business, reduced revenue, increased costs, liability claims, or harm to our reputation or competitive position.

Security vulnerabilities may arise from our hardware, software, employees, contractors or policies we have deployed, which may result in external parties gaining access to our networks, data centers, cloud data centers, corporate computers, manufacturing systems, and/or access to accounts we have at our suppliers, vendors or customers. External parties may gain access to our data or our customers' data, or attack the networks causing denial of service or attempt to hold our data or systems in ransom. The vulnerability could be caused by inadequate account security practices such as the failure to timely remove employee access when terminated. To mitigate these security issues, we have implemented measures throughout our organization, including firewalls, backups, encryption, employee information technology policies and user account policies. However, there can be no assurance that these measures will be sufficient to avoid cyberattacks. If any of these types of security breaches were to occur and we were unable to protect sensitive data, our relationships with our business partners and customers could be materially damaged, our reputation could be materially harmed, and we could be exposed to a risk of litigation and possible significant liability.

Further, if we fail to adequately maintain our information technology infrastructure, we may have outages and data loss. Excessive outages may affect our ability to timely and efficiently deliver products to customers or develop new products. Such disruptions and data loss may adversely impact our ability to fulfill orders and interrupt other processes. Delayed sales or lost customers resulting from these disruptions could adversely affect our financial results, stock price and reputation.

Our and our business partners' or contractors' failure to fully comply with applicable data privacy or similar laws could lead to significant fines and require onerous corrective action. In addition, data security breaches experienced by us or our business partners or contractors could result in the loss of trade secrets or other intellectual property, public disclosure of sensitive commercial data, and the exposure of personally identifiable information (including sensitive personal information) of our employees, customers, suppliers, contractors and others.

Unauthorized use or disclosure of, or access to, any personal information maintained by us or on our behalf, whether through breach of our systems, breach of the systems of our suppliers or vendors by an unauthorized party, or through employee or contractor error, theft or misuse, or otherwise, could harm our business. If any such unauthorized use or disclosure of, or access to, such personal information was to occur, our operations could be seriously disrupted, and we could be subject to demands, claims and litigation by private parties, and investigations, related actions, and penalties by regulatory authorities. In addition, we could incur significant costs in notifying affected persons and entities and otherwise complying with the multitude of foreign, federal, state and local laws and regulations relating to the unauthorized access to, or use or disclosure of, personal information. Finally, any perceived or actual unauthorized access to, or use or disclosure of, such information could harm our reputation, substantially impair our ability to attract and retain customers and have an adverse impact on our business, financial condition and results of operations.

Item 1B. Unresolved Staff Comments.

We have received no written comments regarding our periodic or current reports from the staff of the Securities and Exchange Commission that were issued 180 days or more preceding the end of our 2022 fiscal year and that remain unresolved.

Item 2. Properties.

Our corporate headquarters, located in Pekin, Illinois, consists of plants and facilities comprising our Pekin Campus production segment and totaling 145 acres on land we own. In Sacramento, California, we lease office space totaling approximately 11,000 square feet under a lease expiring in 2029. In St. Louis, Missouri, we lease warehouse space totaling approximately 84,000 square feet under a lease expiring in 2030. We have plants located in Boardman, Oregon, at a 25-acre facility, and Burley, Idaho, at a 25-acre facility. The land in Boardman, Oregon is leased under a lease expiring in 2076. We own the land in Burley, Idaho. The plants and facilities in Oregon and Idaho comprise our Other production segment. See "Business—Production Facilities". Our properties will be subject to deeds of trust and other encumbrances in favor of our lenders.

Item 3. Legal Proceedings.

We are subject to legal proceedings, claims and litigation arising in the ordinary course of business. While the amounts claimed may be substantial, the ultimate liability cannot presently be determined because of considerable uncertainties that exist. Therefore, it is possible that the outcome of those legal proceedings, claims and litigation could adversely affect our quarterly or annual operating results or cash flows when resolved in a future period. However, based on facts currently available, management believes such matters will not adversely affect in any material respect our financial position, results of operations or cash flows.

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

Our common stock trades on The Nasdaq Capital Market under the symbol "ALTO". We also have non-voting common stock outstanding, which is convertible into our voting common stock, and which is not listed on an exchange.

Security Holders

As of March 13, 2023, we had 75,144,522 shares of common stock outstanding held of record by approximately 320 stockholders and 896 shares of non-voting common stock outstanding held of record by one stockholder. These holders of record include depositories that hold shares of stock for brokerage firms which, in turn, hold shares of stock for numerous beneficial owners. On March 13, 2023, the closing sales price of our common stock on The Nasdaq Capital Market was \$1.865 per share.

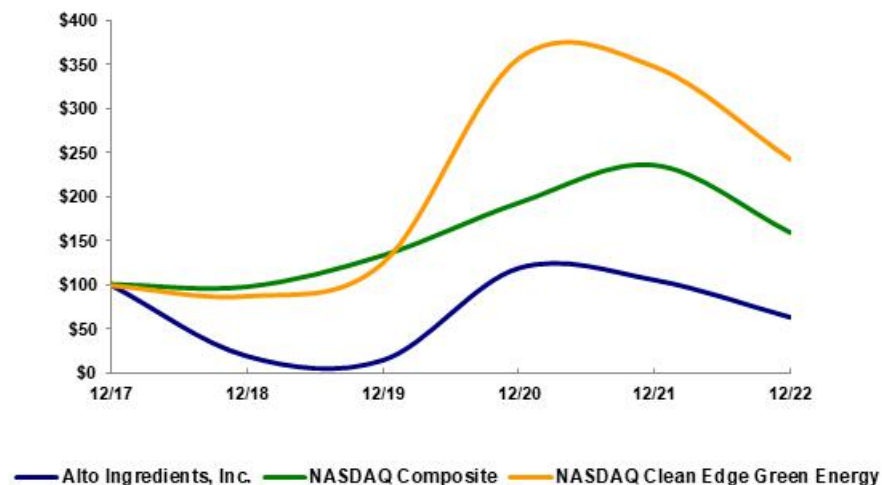
Performance Graph

The graph below shows a comparison of the cumulative total stockholder return on our common stock with the cumulative total return on The Nasdaq Composite Index and The Nasdaq Clean Edge Green Energy Index, or Peer Group, in each case over the five-year period ended December 31, 2022.

The graph assumes \$100 invested at the indicated starting date in our common stock and in each of The Nasdaq Composite Index and the Peer Group, with the reinvestment of all dividends. We have not paid or declared any cash dividends on our common stock and do not anticipate paying any cash dividends on our common stock in the foreseeable future. Stockholder returns over the indicated periods should not be considered indicative of future stock prices or stockholder returns. This graph assumes that the value of the investment in our common stock and each of the comparison groups was \$100 on December 31, 2017.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*

Among Alto Ingredients, Inc., The Nasdaq Composite Index
and The Nasdaq Clean Edge Green Energy Index



*\$100 invested on 12/31/17 in stock or index, including reinvestment of dividends.
Fiscal year ending December 31.

	12/17	12/18	12/19	12/20	12/21	12/22
Alto Ingredients, Inc.	100.00	18.92	14.29	119.34	105.71	63.30
Nasdaq Composite	100.00	97.16	132.81	192.47	235.15	158.65
Nasdaq Clean Edge Green Energy	100.00	87.89	125.39	357.14	347.70	242.88

Dividend Policy

We have never paid cash dividends on our common stock and do not intend to pay cash dividends on our common stock in the foreseeable future. We anticipate that we will retain any earnings for use in the continued development of our business.

Our current and future debt financing arrangements may limit or prevent cash distributions from our subsidiaries to us, depending upon the achievement of specified financial and other operating conditions and our ability to properly service our debt, thereby limiting or preventing us from paying cash dividends. Further, the holders of our outstanding Series B Preferred Stock are entitled to dividends of 7% per annum, payable quarterly in arrears. Accrued and unpaid dividends in respect of our Series B Preferred Stock must be paid prior to the payment of any dividends in respect of shares of our common stock.

For 2020, we accrued but did not declare or pay cash dividends under an agreement with the holders of our Series B Preferred Stock in an effort to preserve liquidity. For 2022, we declared and paid cash dividends on our outstanding shares of Series B Preferred Stock as they became due and, in addition, in 2021, we paid in cash all accrued and unpaid dividends for 2021 and 2020 in respect of our Series B Preferred Stock.

Recent Sales of Unregistered Securities

On November 7, 2022, we entered into a credit agreement with certain funds managed by Orion Infrastructure Capital to borrow up to \$125,000,000. In connection with that transaction, we committed to issue to the lenders pro rata an aggregate of 1,282,051 shares of our common stock at the initial funding and up to an additional 320,513 shares of our common stock based upon certain further fundings under the credit facility. On November 23, 2022, we received our initial funding of \$60,000,000 under the credit facility and issued an aggregate of 1,282,051 shares of our common stock to the lenders. We received no separate consideration for the shares of common stock issued. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Orion Term Loan.”

Exemption from the registration requirements of the Securities Act for the transaction described above is claimed under Section 4(a)(2) of the Securities Act and Rule 506 of Regulation D as promulgated by the Securities and Exchange Commission under the Securities Act.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

The following table sets forth information about repurchases of our common stock for the three months ended December 31, 2022:

Period	Total number of shares purchased (1)	Average price paid per share	Total number of shares purchased as part of publicly- announced plans or programs (2)	Approximate dollar value of shares that may yet be purchased under plans or programs (2)(3)
October 1 to October 31, 2022	—	\$ —	—	\$ —
November 1 to November 30, 2022	92,000	\$ 3.51	92,000	\$ 48,675,000
December 1 to December 31, 2022	—	\$ —	—	\$ —
Three months ended December 31, 2022	<u>92,000</u>	<u>\$ 3.51</u>	<u>92,000</u>	<u>\$ 48,675,000</u>

- (1) We repurchased 92,000 shares as part of our publicly announced share repurchase program during the three months ended December 31, 2022 and received no shares transferred from employees in satisfaction of minimum statutory tax withholding obligations upon the vesting of restricted stock during the period.
- (2) On September 12, 2022, we announced a share repurchase program under which we may repurchase up to \$50 million of our common stock with an initial purchase authorization of \$10 million. Our lenders have further limited our purchase authorization to \$5 million. Amounts in excess of our lenders’ initial purchase authorization of \$5 million will require additional lender consent and amounts in excess of the initial purchase authorization of \$10 million will require additional board and preferred stockholder authorization. The share repurchase program does not have an expiration date, does not require the repurchase of any particular amount of shares, and may be implemented, modified, suspended or discontinued in whole or in part at any time and without further notice.
- (3) Amount represents the share repurchase program size of \$50 million less approximately \$1.3 million in aggregate share repurchases, but is subject to authorizations for purchases in excess of our lenders’ purchase authorization of \$5 million and our board and preferred stockholders’ initial purchase authorization of \$10 million.

Item 6. [Reserved]

Not Applicable.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and notes to consolidated financial statements included elsewhere in this report. This discussion contains forward-looking statements, reflecting our plans and objectives that involve risks and uncertainties. Actual results and the timing of events may differ materially from those contained in these forward-looking statements due to a number of factors, including those discussed in the section entitled "Risk Factors" and elsewhere in this report.

Overview

We are a leading producer and distributor of specialty alcohols and essential ingredients, and the largest producer of specialty alcohols in the United States.

We operate five alcohol production facilities. Three of our production facilities are located in Illinois, one is located in Oregon and another is located in Idaho. We have an annual alcohol production capacity of 350 million gallons, comprised of 210 million gallons of fuel-grade ethanol and up to 140 million gallons of specialty alcohols. We market and distribute all of the alcohols produced at our facilities as well as fuel-grade ethanol produced by third parties. In 2022, we marketed and distributed approximately 420 million gallons combined of our own alcohols as well as fuel-grade ethanol produced by third parties, and over 1.6 million tons of essential ingredients on a dry matter basis.

We report our financial and operating performance in three segments: (1) marketing and distribution, which includes marketing and merchant trading for company-produced alcohols and essential ingredients on an aggregated basis, and sales of fuel-grade ethanol sourced from third parties, (2) Pekin production, which includes the production and sale of alcohols and essential ingredients produced at our three production facilities located in Pekin, Illinois, which we refer to as our Pekin Campus, and (3) Other production, which includes the production and sale of renewable fuel and essential ingredients produced at all of our other production facilities on an aggregated basis, none of which are individually so significant as to be considered a separately reportable segment.

Our mission is to expand our business as a leading producer and distributor of specialty alcohols and essential ingredients. We intend to accomplish this goal in part by investing in our specialized and higher value specialty alcohol production and distribution infrastructure, expanding production in high-demand essential ingredients, expanding and extending the sale of our products into new regional and international markets, building efficiencies and economies of scale and by capturing a greater portion of the value stream.

Our wholly-owned subsidiary, Eagle Alcohol Company LLC, or Eagle Alcohol, specializes in break bulk distribution of specialty alcohols. The company purchases bulk alcohol from suppliers and then stores, denatures, packages, and resells alcohol products in smaller sizes, including tank trucks, totes, and drums, that typically garner a premium price to bulk alcohols. Eagle Alcohol delivers products to customers in the beverage, food, industrial and related-process industries via its own dedicated trucking fleet and common carrier.

Production Segments

We produce specialty alcohols, fuel-grade ethanol and essential ingredients, focusing on four key markets: *Health, Home & Beauty*; *Food & Beverage*; *Essential Ingredients*; and *Renewable Fuels*. Products for the *Health, Home & Beauty* market include specialty alcohols used in mouthwash, cosmetics, pharmaceuticals, hand sanitizers, disinfectants and cleaners. Products for the *Food & Beverage* markets include grain neutral spirits used in alcoholic beverages and vinegar as well as corn germ used for corn oils. Products for *Essential Ingredients* markets include dried yeast, corn gluten meal, corn gluten feed, corn germ, and distillers grains and liquid feed used in commercial animal feed and pet foods. We also sell yeast for human consumption. Our *Renewable Fuels* products include fuel-grade ethanol and distillers corn oil used as a feedstock for renewable diesel and biodiesel fuels. Our specialty alcohols for the *Food & Beverage* and *Health, Home & Beauty* markets represented approximately 10% and 4%, respectively, of our sales in 2022 from our two production segments.

We produce our alcohols and essential ingredients at our production facilities described below. Our production facilities located in Illinois are in the heart of the Corn Belt, benefit from low-cost and abundant feedstock and enjoy logistical advantages that enable us to provide our products to both domestic and international markets via truck, rail or barge. Our production facilities located in Oregon and Idaho are near their respective fuel and feed customers, offering significant timing, transportation cost and logistical advantages.

Our production facilities were operating for all of 2022. On January 1, 2023, we temporarily hot-idled our Magic Valley production facility due to extreme natural gas prices, other unfavorable market conditions and to facilitate the installation of our new high protein systems. As market conditions change, we may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility.

Production Facility	Location	Annual Alcohol Production Capacity (estimated, in gallons)	
		Fuel-Grade Ethanol	Specialty Alcohol
Pekin Campus	Pekin, IL	110,000,000	140,000,000
Magic Valley	Burley, ID	60,000,000	—
Columbia	Boardman, OR	40,000,000	—

Marketing and Distribution Segment

We market and distribute all of the alcohols and essential ingredients we produce at our facilities. We also market and distribute alcohol produced by third parties.

We have extensive and long-standing customer relationships, both domestic and international, for our specialty alcohols and essential ingredients. These customers include producers and distributors of ingredients for cosmetics, sanitizers and related products, distilled spirits producers, food products manufacturers, producers of personal health/consumer health and personal care hygiene products, and global trading firms.

Our renewable fuel customers are located throughout the Western and Midwestern United States and consist of integrated oil companies and gasoline marketers who blend fuel-grade ethanol into gasoline. Our customers depend on us to provide a reliable supply of fuel-grade ethanol and manage the logistics and timing of delivery. Our customers collectively require fuel-grade ethanol volumes in excess of the supplies we produce at our facilities. We secure additional fuel-grade ethanol supplies from third-party ethanol producers. We arrange for transportation, storage and delivery of fuel-grade ethanol purchased by our customers through our agreements with third-party service providers in the Western United States as well as in the Midwest from a variety of sources.

We market our essential ingredient feed products to dairies and feedlots, in many cases located near our production facilities. These customers use our feed products for livestock as a substitute for corn and other sources of starch and protein. We sell our corn oil to poultry and biodiesel customers. We do not market essential ingredients from other producers.

See “Note 5 – Segments” to our Notes to Consolidated Financial Statements included elsewhere in this report for financial information about our business segments.

Current Initiatives and Outlook

During the fourth quarter, and December in particular, extreme commodity price volatility from regional natural gas price spikes, high corn basis costs and a dramatic decline in fuel-grade ethanol prices negatively impacted our business. These factors outweighed performance in other areas in an already challenging 2022. Our results for the year demonstrate our need to further mitigate the impact of renewable fuel and commodity price volatility.

Current fuel-grade ethanol margins are significantly improved compared to December and January levels and crush margins are positive. Natural gas prices have declined significantly, and we expect a favorable natural gas market during the coming months. Corn prices, however, remain firm due to tight supplies.

We continue to focus, both near- and long-term, on driving margin expansion through a diversified set of revenue streams from a variety of products. We are increasing production of our highest quality products, including grain neutral spirits, or GNS, corn oil, high protein products and primary yeast. We are also in advanced stages to begin our carbon capture and sequestration project. Our goals also continue to emphasize strategies to increase plant efficiency, reliability and capacity by adding corn storage, installing a natural gas pipeline, converting our biogas to renewable natural gas, building energy cogeneration capabilities at our Pekin Campus, and upgrading other equipment, as discussed further below.

As we progressed into 2022, the need to accelerate these initiatives became clear, therefore last November, we entered into a six-year term loan for up to \$125 million. We are staging our capital improvement projects and drawing loan proceeds in tranches to minimize carrying costs while maximizing return. We spent \$12.5 million in the fourth quarter and \$37.7 million for all of 2022 on our capital improvement projects. Our efforts will position us to add substantial additional streams of earnings before interest, taxes, depreciation and amortization, or EBITDA, to our business, all of which will increase under an improved operating environment. We expect additional annualized EBITDA of \$65 million from current projects by the end of 2025 and total additional annualized EBITDA of \$125 million in 2026 when our carbon capture and sequestration, cogeneration and other current initiatives are fully realized.

In 2020, we began expanding our high-quality alcohol production and production capacity. In 2021, we refurbished our 20 million gallon per year GNS distillation system at our Pekin Campus wet mill. We raised the quality of our specialty alcohol, earning certifications to attract the most demanding customers in the pharmaceutical industry. In 2022, we further upgraded our GNS system to produce the highest quality beverage-grade product available on the market. With these improvements, we are introducing new high-quality 190 proof and low-moisture 200-proof GNS products to our existing and target customers in the beverage, food, flavor, personal care and pharmaceutical industries. We are working with customers to qualify these new products in preparation for our annual fall contracting period and expect to generate additional annualized EBITDA of \$5 million from the products starting in 2024. In early 2022, we also added break bulk and distribution capabilities by acquiring Eagle Alcohol. Eagle Alcohol's team has provided valuable advice on high-quality alcohol production and distribution, enabling tote and drum packaging and distribution while building customer relationships for our specialty alcohols. We anticipate future synergies with Eagle Alcohol's business and our new GNS products.

In the fourth quarter, natural gas prices increased significantly in the Western region, spiking 400% in December, compared to third quarter prices. In response, we moderated production at our Columbia plant in Boardman, Oregon and temporarily hot-idled our Magic Valley, Idaho facility. We used the opportunity to focus on completing the installation of Harvesting Technology's patented CoPromax™ system at our Magic Valley plant to extract corn oil and produce enhanced protein.

The CoPromax installation project consists of two phases. The first phase – corn oil extraction – was commissioned in October and corn oil production has increased by approximately 40% in pounds per bushel. When combined with the enhanced protein system, we expect corn oil production to ultimately increase by 50% or more in pounds per bushel and generate additional annualized EBITDA of \$4.5 million based on current market prices. Given these positive results, we plan to install corn oil extraction technologies at our three other dry mills. Although our other dry mills have somewhat different capacities, on average we expect to produce financial results similar to those of Magic Valley, ultimately generating additional annualized EBITDA of \$13.5 million, for total additional annualized EBITDA of \$18.0 million from corn oil extraction technologies at all four of our dry mills.

The second phase of the Magic Valley system – separating and producing enhanced protein – is on schedule to reach full production in the third quarter of 2023, achieving or exceeding 52% protein content and generating additional annualized EBITDA of \$4.5 million based on current market prices. Once the system is fully operational and tested, we will evaluate additional deployments at our other plants.

We intend to commercially develop primary yeast through an aerobic fermentation process at our wet mill. Extending our brand along the value chain is a natural progression to other markets that demand higher product quality and offer increased margins, including for flavors, nutraceuticals, and baking and meat substitutes. Although primary yeast production requires a different process and serves a different market, many existing as well as prospective customers have for years expressed interest in a primary yeast product. Having successfully completed product trials, we are in the advanced stages of selecting an engineering and design group to finalize our plans. Our preliminary analysis indicates that our primary yeast product would contribute additional annualized EBITDA of approximately \$19 million in the first twelve months of production, rising to approximately \$25 million annually thereafter. Construction could begin in late 2023 or early 2024 with a completion date of mid-2025.

The outlook for carbon capture and sequestration at our Pekin Campus changed markedly under the Inflation Reduction Act of 2022, which increased the price of carbon to \$85 per metric ton for twelve years, significantly strengthening project economics. Our Pekin Campus has an annual capacity of approximately 700,000 metric tons of carbon. In addition, competition for offtake agreements has dramatically lowered project operating costs. Our analysis shows significant potential benefits. We are in advanced negotiations to provide turkey transportation, sequestration and monitoring services for the project. In addition, we are in the final stages of selecting engineering services for the design and installation of equipment and technologies to meet the capture, compression and energy requirements of the project. We believe that, beginning in 2026, the project will contribute additional annualized EBITDA of over \$30 million based solely on the 45Q tax incentive benefits under the Inflation Reduction Act of 2022. Also, by sequestering the carbon dioxide from our Pekin Campus, we expect to materially reduce our carbon footprint enabling us to monetize additional value from the alcohol and essential ingredients we produce.

We are doubling our corn storage capacity at our Pekin Campus to increase our corn-buying flexibility and reduce the need to purchase product at premium prices when farmers and elevators are less inclined to ship corn, including during holidays, unfavorable weather conditions, or due to supply chain and other logistical constraints. In addition to reducing the cost of delivered corn, this new storage capacity will lower the cost of silo cleaning and increase our operating reliability at the site. The corn storage silo is undergoing conditioning and we expect completion in the first quarter and full operation in the second quarter, conservatively generating additional annualized EBITDA of \$1.6 million in the first year and additional annualized EBITDA of \$2.0 million thereafter.

Consistent with our sustainability efforts, we examined alternatives to improve energy procurement and usage. We made significant progress in planning the installation of a new natural gas pipeline to bypass our current utility at our Pekin Campus. When fully operational, which we expect in 2024, the pipeline would reduce our energy costs by \$3.0 million annually. The line would also help fulfill our increased energy needs associated with our numerous growth initiatives, including primary yeast production and carbon capture and sequestration. The new gas pipeline would also lower our carbon score. We currently produce approximately 250,000 MMTBUs annually in biogas, enough energy to heat 2,300 homes for a full year. Presently, most of our biogas is flared. We believe that once converted to renewable natural gas, we could use the natural gas pipeline to monetize the value of this current waste stream and produce renewable natural gas, generating additional annualized EBITDA of \$3.0 million. We are also in the late stages of a third-party study on cogeneration at our Pekin Campus to meet our combined energy requirements for carbon capture and sequestration and our goals of lowering our carbon score and increasing our plant efficiencies. Based on our preliminary analysis, we expect cogeneration at our Pekin Campus to contribute additional annualized EBITDA of \$15.0 million based on current energy prices and an expected completion date in late 2025 or early 2026.

We expect to maintain or grow our contracted volumes of specialty alcohols for 2023 with our existing customer base. We also expect to add new accounts in the beverage category, particularly in 2024, driven by our improved GNS production system at our Pekin Campus. While we are unable to forecast fuel-grade ethanol margins for 2023, we expect to benefit from additional EBITDA of \$10.0 million in 2023 from already completed capital projects and projects that we will complete this year. In addition, with our accelerated investments made possible through funding from our new term loan, we expect to almost double our annualized EBITDA by year-end 2025 compared to our average EBITDA over the past three years and nearly double our annualized EBITDA again when our current projects are fully operational by year-end 2026.

We continue to execute on our business transformation plans and focus on the future. We believe that recent extreme commodity price fluctuations are cyclical and will pass. To reduce their impact, we are diversifying our revenue streams and working to increase plant efficiency, reliability and capacity.

Use of Non-GAAP Financial Measures

Management believes that certain financial measures not in accordance with generally accepted accounting principles, or GAAP, are useful measures of operations. Management provides EBITDA and Adjusted EBITDA as non-GAAP financial measures so that investors will have the same financial information that management uses, which may assist investors in properly assessing our performance on a period-over-period basis. We define Adjusted EBITDA as unaudited consolidated net income (loss) before interest expense, interest income, provision for income taxes, asset impairments, loss on extinguishment of debt, acquisition-related expense, fair value adjustments, and depreciation and amortization expense. A table is provided below to reconcile Adjusted EBITDA to its most directly comparable GAAP measure, consolidated net income (loss). EBITDA and Adjusted EBITDA are not measures of financial performance under GAAP and should not be considered as alternatives to consolidated net income (loss) or any other measure of performance under GAAP, or to cash flows from operating, investing or financing activities as an indicator of cash flows or as a measure of liquidity. EBITDA and Adjusted EBITDA have limitations as analytical tools and you should not consider these measures in isolation or as a substitute for analysis of our results as reported under GAAP.

Information reconciling forward-looking EBITDA to forward-looking consolidated net income (loss) would require a forward-looking statement of consolidated net income (loss) prepared in accordance with GAAP, which is unavailable to us without unreasonable effort. We are not able to provide a quantitative reconciliation of forward-looking EBITDA to forward-looking consolidated net income (loss) because certain items required for reconciliation are uncertain, outside of our control and/or cannot reasonably be predicted, such as net sales, cost of goods sold, provision (benefit) for income taxes and asset impairments, which we view as the most material components of consolidated net income (loss) that are not presently estimable.

Reconciliation of Adjusted EBITDA to Consolidated Net Income (Loss)

<i>(in thousands) (unaudited)</i>	Years Ended December 31,	
	2022	2021
Consolidated net income (loss)	\$ (41,597)	\$ 46,082
Adjustments:		
Interest expense, net	1,827	3,587
Interest income	(510)	(730)
Asset impairments	—	3,100
Acquisition-related expense	3,500	—
Provision for income taxes	1,925	1,469
Depreciation and amortization expense	25,095	23,292
Total adjustments	31,837	30,718
Adjusted EBITDA	\$ (9,760)	\$ 76,800

2022 Financial Performance Summary

Our consolidated net sales increased by \$0.1 billion to \$1.3 billion for 2022 from \$1.2 billion for 2021. Our net income available to common stockholders declined by \$87.1 million to a loss of \$42.9 million for 2022 from income of \$44.2 million for 2021.

Factors that contributed to these results of operations for 2022 include:

- *Net sales.* Our net sales increased by \$0.1 billion to \$1.3 billion for 2022 from \$1.2 billion for 2021 due to an increase in our average sales price per gallon and additional tons of essential ingredients sold at higher prices. These factors were partially offset by fewer total alcohol gallons sold in 2022.
 - Our average sales price per gallon increased by \$0.18, or 7%, to \$2.64 for 2022 from \$2.46 for 2021. The increase was primarily driven by higher fuel-grade ethanol prices in 2022 largely due to higher oil and gas prices.
 - Our total gallons sold declined by 61 million gallons, or 13%, to 419 million gallons for 2022 from 480 million gallons for 2021.
 - Our fuel-grade ethanol production sales volume increased by 48 million gallons, or 30%, to 209 million gallons for 2022 from 161 million gallons for 2021, primarily from additional production in 2022 as all of our fuel-grade ethanol production facilities were operating near full capacity for the year.
 - Our specialty alcohol production sales volume increased by 3 million gallons, or 3%, to 93 million gallons for 2022 from 90 million gallons for 2021 due to an increase in our contracted sales of specialty alcohols for the year.
 - Our third-party sales volume declined by 111 million gallons, or 48%, to 118 million gallons for 2022 from 229 million gallons for 2021. As we did in 2021, we continued to intentionally reduce sales of third-party fuel-grade ethanol to focus on sales of inventory from our own production in 2022.
 - Our volume of essential ingredients sold increased by 401 tons, or 32%, to 1,637 tons for 2022 from 1,236 tons for 2021 primarily due to higher fuel-grade ethanol production. Our average sales price for our essential ingredients increased primarily due to higher corn prices.
- *Gross Profit (Loss).* Our gross profit declined by \$95.3 million to a gross loss of \$27.5 million for 2022 from gross profit of \$67.8 million for 2021 due to extreme commodity price volatility, including regional natural gas price spikes, high corn basis costs and a dramatic decline in fuel-grade ethanol prices, particularly in the fourth quarter. In addition, we experienced an extended shut down for maintenance over the summer of 2022 at our Pekin Campus and logistical constraints and rail interruptions in the third quarter resulting in plant outages in excess of six days at our Western plants.

Sales and Margins

We generate sales by marketing all of the alcohols produced by our three production facilities in Illinois, all of the fuel-grade ethanol produced by our production facility in Oregon, all of the fuel-grade ethanol produced by our production facility in Idaho, and fuel-grade ethanol purchased from third-party suppliers throughout the United States. We also market essential ingredients produced by our production facilities, including dried yeast, corn gluten meal, corn gluten feed, corn germ, and distillers grains and liquid feed used in commercial animal feed and pet foods. We also sell yeast for human consumption.

Our profitability is highly dependent on various commodity prices, including the market prices of corn, natural gas and fuel-grade ethanol.

Our consolidated average alcohol sales price increased by 7% to \$2.64 per gallon for 2022 compared to \$2.46 per gallon for 2021. The average price of fuel-grade ethanol as reported by the Chicago Board of Options Trade, or CBOT, increased 2% to \$2.16 per gallon for 2022 compared to \$2.11 per gallon for 2021. Our average delivered cost of corn increased 25% to \$7.77 per bushel for 2022 from \$6.22 per bushel for 2021. The average price of corn as reported by the CBOT increased 22% to \$6.94 per bushel for 2022 from \$5.67 per bushel for 2021.

We believe that our gross profit margins depend primarily on six key factors:

- the prices of our specialty alcohols and the market price of fuel-grade ethanol, the latter of which is impacted by the price of gasoline and related petroleum products, and government regulation, including government ethanol mandates;
- the market prices of key production input commodities, including corn (and corn basis) and natural gas;
- the prices of our essential ingredients;
- our ability to anticipate trends in the prices of our alcohols, essential ingredients, and key input commodities, and our ability to implement appropriate risk management and opportunistic pricing strategies;

- the proportion of our sales of specialty alcohols to our sales of fuel-grade ethanol produced at our facilities; and
- the proportion of our sales of fuel-grade ethanol produced at our facilities to our sales of fuel-grade ethanol produced by unrelated third-parties.

We seek to optimize our gross profit margins by anticipating the factors above and, when resources are available, implementing hedging transactions and taking other actions designed to limit risk and address these factors. For example, we may seek to reduce inventory levels in anticipation of declining alcohol or essential ingredient prices and increase production and inventory levels in anticipation of rising alcohol or essential ingredient prices. We may also seek to alter our proportion or timing, or both, of purchase and sales commitments.

Our inability to anticipate the factors described above or their relative importance, and adverse movements in the factors themselves, could result in declining or even negative gross profit margins over certain periods of time. Our ability to anticipate these factors or favorable movements in these factors may enable us to generate above-average gross profit margins. However, given the difficulty associated with successfully forecasting any of these factors, we are unable to estimate our future gross profit margins.

Results of Operations

Selected Financial Information

The following selected financial information should be read in conjunction with our consolidated financial statements and notes to our consolidated financial statements included elsewhere in this report, and the other sections of “Management’s Discussion and Analysis of Financial Condition and Results of Operations” contained in this report.

Certain performance metrics that we believe are important indicators of our results of operations include:

	Years Ended December 31,			Percentage Change	
	2022	2021	2020	2022 vs 2021	2021 vs 2020
Renewable fuel production gallons sold (in millions)	208.5	161.1	181.0	29.5%	(11.0)%
Specialty alcohol production gallons sold (in millions)	92.5	89.5	90.9	3.4%	(1.5)%
Third-party renewable fuel gallons sold (in millions)	117.9	229.0	264.4	(48.5)%	(13.4)%
Total gallons sold (in millions)	418.9	479.6	536.3	(12.7)%	(10.6)%
Total gallons produced (in millions)	300.0	251.7	262.1	19.2%	(4.0)%
Production capacity utilization	86%	60%	53%	43.3%	13.2%
Average sales price per gallon	\$ 2.64	\$ 2.46	\$ 1.63	7.3%	50.9%
Corn cost per bushel—CBOT equivalent	\$ 6.92	\$ 5.70	\$ 3.56	21.4%	60.1%
Average basis ⁽¹⁾	\$ 0.85	\$ 0.52	\$ 0.28	63.5%	85.7%
Delivered cost of corn	\$ 7.77	\$ 6.22	\$ 3.84	24.9%	62.0%
Total essential ingredients tons sold (in thousands)	1,637.4	1,236.2	1,447.5	32.5%	(14.6)%
Essential ingredient revenues as % of delivered cost of corn ⁽²⁾	33.8%	33.7%	44.1%	0.3%	(23.6)%
Average CBOT ethanol price per gallon	\$ 2.16	\$ 2.11	\$ 1.25	2.4%	68.8%
Average CBOT corn price per bushel	\$ 6.94	\$ 5.67	\$ 3.63	22.4%	56.2%

(1) Corn basis represents the difference between the immediate cash price of delivered corn and the future price of corn for Chicago delivery.

(2) Essential ingredient revenues as a percentage of delivered cost of corn shows our yield based on sales of essential ingredients, including WDG and corn oil, generated from ethanol we produced.

Year Ended December 31, 2022 Compared to the Year Ended December 31, 2021

	Years Ended December 31,		Dollar Change	Percentage Change	Results as a Percentage of Net Sales for the Years Ended	
	2022	2021	Favorable (Unfavorable)	Favorable (Unfavorable)	2022	2021
	(dollars in thousands)					
Net sales	\$ 1,335,621	\$ 1,207,892	\$ 127,729	10.6%	100.0%	100.0%
Cost of goods sold	1,363,171	1,140,108	223,063	19.6%	102.1%	94.4%
Gross profit (loss)	(27,550)	67,784	(95,334)	NM*	(2.1)%	5.6%
Selling, general and administrative expenses	(31,579)	(29,185)	(2,394)	(8.2)%	(2.4)%	(2.4)%
Gain (loss) on sale (disposal) of assets	(2,230)	4,571	(6,801)	NM	(0.2)%	0.4%
Asset impairments	—	(3,100)	3,100	100.0%	—%	(0.3)%
Income (loss) from operations	(61,359)	40,070	(101,429)	NM	(4.6)%	3.3%
Income from cash grant	22,652	—	22,652	NM	1.7%	—%
Income from loan forgiveness	—	9,860	(9,860)	(100.0)%	—%	0.8%
Interest expense, net	(1,827)	(3,587)	1,760	49.1%	(0.1)%	(0.3)%
Other income, net	862	1,208	(346)	(28.6)%	0.1%	0.1%
Income (loss) before income taxes	(39,672)	47,551	(87,223)	NM	(3.0)%	3.9%
Provision (benefit) for income taxes	1,925	1,469	(456)	(31.0)%	0.1%	0.1%
Consolidated net income (loss)	\$ (41,597)	\$ 46,082	\$ (87,679)	NM	(3.1)%	3.8%
Preferred stock dividends	(1,265)	(1,265)	—	—%	(0.1)%	(0.1)%
Income allocated to participating securities	—	(600)	600	100.0%	—%	(0.0)%
Income (loss) available to common stockholders	\$ (42,862)	\$ 44,217	\$ (87,079)	NM	(3.2)%	3.7%

* Not meaningful.

Net Sales

The increase in our consolidated net sales for 2022 as compared to 2021 was primarily due to an increase in our average sales price per gallon for our alcohols and a higher volume of essential ingredients sold at higher sales prices per ton, partially offset by a decrease in our total gallons sold. Our average sales price per gallon increased primarily due to higher fuel-grade ethanol prices largely driven by higher oil and gas prices. We sold more tons of essential ingredients primarily due to higher fuel-grade ethanol production in 2022 compared to 2021. Our average sales price for our essential ingredients increased primarily due to higher corn prices. As we did in 2021, we continued to intentionally reduce sales of third-party fuel-grade ethanol to focus on sales of inventory from our own production in 2022.

Pekin Campus Production Segment

Net sales of alcohol from our Pekin Campus production segment increased by \$23.1 million, or 5%, to \$521.3 million for 2022 as compared to \$498.2 million for 2021. Our total volume of production gallons sold, however, decreased by 11.9 million gallons, or 6%, to 201.1 million gallons for 2022 as compared to 213.0 million gallons for 2021, due to an extended shut down for maintenance over the summer of 2022. At the segment's average sales price per gallon of \$2.59 for 2022, we generated \$30.8 million less in net sales from the segment because of the 11.9 million fewer gallons of alcohol sold in 2022 as compared to 2021. However, an increase of \$0.25, or 11%, in the segment's average sales price per gallon in 2022 as compared to 2021 resulted in a \$53.9 million increase in net sales from the segment as compared to 2021.

Net sales of essential ingredients increased by \$36.3 million, or 19%, to \$225.8 million for 2022 as compared to \$189.5 million for 2021. Our total volume of essential ingredients sold decreased by 24,000 tons, or 3%, to 851,500 tons for 2022 from 875,100 tons for 2021, also due to the above mentioned maintenance work. At our average sales price per ton of \$265.26 for 2022, we generated \$6.3 million less in net sales from the 24,000 fewer tons of essential ingredients sold in 2022 as compared to 2021. An increase of \$48.68, or 23%, in our average sales price per ton in 2022 as compared to 2021 resulted in a \$42.6 million increase in net sales from the segment compared to 2021.

Marketing and Distribution Segment

Net sales of fuel-grade ethanol from our marketing and distribution segment, excluding intersegment sales, decreased by \$152.3 million, or 40%, to \$228.9 million for 2022 as compared to \$381.2 million for 2021.

Our volume of third-party fuel-grade ethanol gallons sold reported gross by the segment decreased by 60.4 million gallons, or 43%, to 80.5 million gallons for 2022 as compared to 140.9 million gallons for 2021. This decline is the result of our continued strategic analysis to focus our sales of third-party gallons to certain regions in which we operate. At the segment's average sales price per gallon of \$2.83 for 2022, net sales were \$170.8 million lower as a result of the 60.4 million fewer gallons sold in 2022 as compared to 2021. This decline was partially offset by the \$0.13 increase in our sales price per gallon for 2022. An increase of \$0.13, or 5%, in our average sales price per gallon in 2022 as compared to 2021 resulted in a \$19.0 million increase in net sales from our third party fuel-grade ethanol gallons sold by the segment compared to 2021.

Our volume of third-party fuel-grade ethanol gallons sold reported net by the segment decreased by 50.7 million gallons, or 58%, to 37.4 million gallons for 2022 as compared to 88.1 million gallons for 2021. The decrease in sales reported net resulted in a decrease of \$0.5 million in net sales.

Other Production Segment

Net sales of alcohol from our Other production segment increased by \$145.7 million, or 135%, to \$253.6 million for 2022 as compared to \$107.9 million for 2021. Our total volume of gallons sold increased by 54.7 million gallons, or 145%, to 92.3 million gallons for 2022 as compared to 37.6 million gallons for 2021. At the segment's average sales price per gallon of \$2.75 for 2022, net sales were \$150.3 million higher as a result of the 54.7 million additional gallons sold in 2022 as compared to 2021. This increase was partially offset by a \$0.12 reduction in our sales price per gallon for 2022. A decrease of \$0.12, or 5%, in our average sales price per gallon in 2022 as compared to 2021 resulted in a \$4.6 million decrease in net sales of alcohol from the segment compared to 2021.

Net sales of essential ingredients increased by \$59.1 million, or 190%, to \$90.2 million for 2022 as compared to \$31.1 million for 2021. Our total volume of essential ingredients sold increased by 424,900 tons, or 118%, to 785,900 tons for 2022 from 361,000 tons for 2021. At our average sales price per ton of \$114.78 for 2022, net sales were \$48.8 million higher as a result of the 424,900 additional tons sold in 2022 as compared to 2021. In addition, our sales price increased \$28.78 per gallon for 2022. An increase of \$28.78, or 34%, in our average sales price per ton in 2022 as compared to 2021 resulted in an increase of \$10.3 million in net sales of essential ingredients from the segment compared to 2021.

Net sales from our Corporate and other segment increased by \$15.8 million due to sales from Eagle Alcohol.

Cost of Goods Sold and Gross Profit (Loss)

Our consolidated gross profit (loss) declined from a gross profit of \$67.8 million, representing a gross margin of 5.6%, for 2021, to a gross loss of \$27.6 million, representing a gross margin of negative 2.1%, for 2022. Our consolidated gross profit declined due to extreme commodity price volatility, including regional natural gas price spikes, high corn basis costs and a dramatic decline in fuel-grade ethanol prices, particularly in the fourth quarter. In addition, we experienced an extended shut down for maintenance over the summer of 2022 at our Pekin Campus and logistical constraints and rail interruptions in the third quarter resulting in plant outages in excess of six days at our Western plants.

Pekin Campus Production Segment

Our Pekin Campus production segment's gross profit declined by \$76.2 million to a gross loss of \$22.2 million for 2022 from a gross profit of \$54.0 million for 2021. Of this decline, \$74.7 million is attributable to lower margins primarily due to higher corn costs and \$1.5 million is attributable to increased sales volumes at negative margins in 2022 as compared to 2021.

Marketing and Distribution Segment

Our marketing and distribution segment's gross profit declined by \$11.2 million to a gross loss of \$0.4 million for 2022 from a gross profit of \$10.8 million for 2021. Of this decrease, \$11.6 million is attributable to lower margins from sales of third-party fuel-grade ethanol primarily due to higher fuel-grade ethanol delivery costs, partially offset by \$0.4 million attributable to lower marketing volumes of third-party fuel-grade ethanol sold at negative margins in 2022 as compared to 2021.

Other Production Segment

Our Other production segment's gross profit declined by \$12.0 million to a gross loss of \$9.0 million for 2022 as compared to a gross profit of \$3.0 million for 2021. Of this decline, \$6.3 million is attributable to a lower margin environment for fuel-grade ethanol primarily due to higher natural gas, corn and fuel-grade ethanol delivery costs and \$5.7 million is attributable to higher sales volumes at negative margins in 2022 as compared to 2021.

Gross profit from our Corporate and other segment increased by \$4.0 million due to sales from Eagle Alcohol.

Selling, General and Administrative Expenses

Our selling, general and administrative, or SG&A, expenses increased \$2.4 million to \$31.6 million for 2022 as compared to \$29.2 million for the same period in 2021. SG&A expenses increased primarily due to an acquisition-related accrual of \$3.5 million for 2022 for future cash payments attributable to our acquisition of Eagle Alcohol.

Income from Cash Grant

We applied for and received \$22.7 million in cash from the USDA's Biofuel Producer Program. The program was created as part of the CARES Act in 2020, which allocated \$700 million to support biofuel producers who experienced market losses due to the pandemic. We are neither required to repay the grant nor will it recur in the future.

Interest Expense, net

Interest expense, net, decreased by \$1.8 million to \$1.8 million for 2022 from \$3.6 million for 2021. The decrease in interest expense, net, is primarily due to our repayment of debt in 2021 and a lower average debt balance throughout 2022.

Year Ended December 31, 2021, Compared to the Year Ended December 31, 2020

An analysis of our financial results comparing 2021 to 2020 can be found under "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the Securities and Exchange Commission on March 15, 2022, which is available free of charge on the Securities and Exchange Commission's website at www.sec.gov.

Liquidity and Capital Resources

During the year ended December 31, 2022, we funded our operations primarily from cash flow from operations, cash proceeds from a USDA grant, proceeds from payments on notes receivable, and proceeds from a term loan. A portion of these funds was also used to acquire Eagle Alcohol, pay down our Kinery line of credit and fund capital improvements to our property and equipment. As of December 31, 2022, we had \$36.5 million in cash and cash equivalents and \$57.9 million available for borrowing under Kinery's operating line of credit. In addition, we have \$40.0 million available for capital improvement projects under our term loan. We believe we have sufficient liquidity to meet our anticipated working capital, debt service, capital expenditure and other liquidity needs for at least the next twelve months from the date of this report.

Quantitative Year-End Liquidity Status

We believe that the following amounts provide insight into our liquidity and capital resources. The following selected financial information should be read in conjunction with our consolidated financial statements and notes to consolidated financial statements included elsewhere in this report, and the other sections of "Management's Discussion and Analysis of Financial Condition and Results of Operations" contained in this report (dollars in thousands).

	December 31, 2022	December 31, 2021	Change
Cash and cash equivalents	\$ 36,456	\$ 50,612	(28.0)%
Current assets	\$ 199,121	\$ 229,526	(13.2)%
Property and equipment, net	\$ 239,069	\$ 222,550	7.4%
Current liabilities	\$ 78,017	\$ 69,602	12.1%
Long-term debt, noncurrent portion	\$ 68,356	\$ 50,361	35.7%
Working capital	\$ 121,104	\$ 159,924	(24.3)%
Working capital ratio	2.55	3.30	(22.7)%

Restricted Net Assets

At December 31, 2022, we had approximately \$69.3 million of net assets at our subsidiaries that were not available to be transferred to Alto Ingredients, Inc. in the form of dividends, distributions, loans or advances due to restrictions contained in the credit facilities of the subsidiaries.

Changes in Working Capital and Cash Flows

Working capital declined to \$121.1 million at December 31, 2022, from \$159.9 million at December 31, 2021, as a result of a \$30.4 million decrease in current assets and an \$8.4 million increase in current liabilities.

Current assets decreased primarily due to decreases in accounts receivable, cash and equivalents, inventories and derivative instruments due to changes in volumes and commodity prices.

Our current liabilities increased primarily due to an increase in accounts payable and accrued expenses due to the timing of payments.

Our cash, cash equivalents and restricted cash decreased by \$12.6 million due to \$37.7 million used in our investing activities, partially offset by \$19.0 million in cash provided by our financing activities and \$6.0 million in cash provided by our operating activities.

Cash provided by our Operating Activities

We generated \$6.0 million in cash from our operating activities during 2022, as compared to \$26.8 million in 2021. Specific factors that contributed significantly to the change in cash generated by our operating activities include:

- a decrease in net income of \$87.7 million primarily due to lower margins resulting from higher corn and delivery costs; and
- a decrease in other assets of \$31.3 million from 2021 due to sales of plant assets.

These amounts were partially offset by:

- an increase related to accounts receivable balances of \$67.5 million, primarily due to the timing of payments and higher product sales prices; and
- a decrease related to accounts payable and accrued expenses of \$7.3 million, due to lower third-party volumes.

Cash used in our Investing Activities

We used \$37.7 million of cash for investing activities for 2022, of which \$37.8 million is attributable to additions to property and equipment resulting from our capital improvement projects and \$14.7 million is attributable to cash paid to acquire Eagle Alcohol, partially offset by proceeds of \$14.8 million from principal payments on our notes receivable.

Cash provided by our Financing Activities

Cash provided by our financing activities was \$19.0 million for 2022, of which \$59.1 million is attributable to net proceeds from our term loan, partially offset by \$32.3 million in paydowns on Kinergy's line of credit, \$5.2 million in debt issuance costs, \$1.3 million in stock repurchases and \$1.3 million of preferred stock dividends.

Kinergy's Operating Line of Credit

Kinergy maintains an operating line of credit for an aggregate amount of up to \$100.0 million. The credit facility matures on November 7, 2027. Interest accrues under the credit facility at a rate equal to (i) the daily Secured Overnight Financing Rate, plus (ii) a specified applicable margin ranging from 1.25% to 1.75%. The credit facility's monthly unused line fee is 0.25% to 0.375% of the amount by which the maximum credit under the facility exceeds the average daily principal balance during the immediately preceding month. Payments that may be made by Kinergy to Alto Ingredients, Inc. as reimbursement for management and other services provided by Alto Ingredients, Inc. to Kinergy are limited under the terms of the credit facility to \$1.5 million per fiscal quarter. The credit facility also includes the accounts receivable of our indirect wholly-owned subsidiary, Alto Nutrients, LLC, or Alto Nutrients, as additional collateral. Payments that may be made by Alto Nutrients to Alto Ingredients, Inc. as reimbursement for management and other services provided by Alto Ingredients, Inc. to Alto Nutrients are limited under the terms of the credit facility to \$0.5 million per fiscal quarter. Alto Nutrients markets our essential ingredients and also provides raw material procurement services to our subsidiaries. In addition, the amount of cash distributions that Kinergy or Alto Nutrients may make to us is also limited to up to 75% of excess cash flow.

For all monthly periods in which excess borrowing availability falls below a specified level, Kinergy and Alto Nutrients must collectively maintain a fixed-charge coverage ratio (calculated as a twelve-month rolling earnings before interest, taxes, depreciation and amortization divided by the sum of interest expense, capital expenditures, principal payments of indebtedness, indebtedness from capital leases and taxes paid during such twelve-month rolling period) of at least 1.1 and are prohibited from incurring certain additional indebtedness (other than specific intercompany indebtedness). The obligations of Kinergy and Alto Nutrients under the credit facility are secured by all of our tangible and intangible assets.

We believe Kinergy and Alto Nutrients are in compliance with the fixed-charge coverage ratio covenant as of the filing of this report. The following table sets forth the fixed-charge coverage ratio financial covenant and the actual results for the periods presented:

	Years Ended December 31,	
	2022	2021
Fixed Charge Coverage Ratio Requirement	1.10	2.00
Actual	3.54	13.32
Excess	2.44	11.32

Alto Ingredients, Inc. has guaranteed all of Kinergy's obligations under the credit facility. As of December 31, 2022, Kinergy had an outstanding balance of \$18.1 million and \$57.9 million of unused borrowing availability under the credit facility.

Orion Term Loan

On November 7, 2022, we entered into a credit agreement with certain funds managed by Orion Infrastructure Capital, or Lenders, under which the Lenders extended a senior secured credit facility in the amount of up to \$125,000,000, or Term Loan. The Term Loan is secured by a first priority lien on certain of our assets and a second priority lien on certain assets of Kinery and Alto Nutrients.

The Lenders agreed to advance to us up to \$100,000,000, with up to an additional \$25,000,000 upon the satisfaction of certain conditions. We committed to issue to the Lenders pro rata an aggregate of 1,282,051 shares of our common stock at the initial funding and up to an additional 320,513 shares of our common stock based upon certain further fundings under the credit facility. On November 23, 2022, we received our initial funding of \$60,000,000 under the credit facility and issued an aggregate of 1,282,051 shares of our common stock to the Lenders. We received no separate consideration for the shares of common stock issued.

Interest accrues on the unpaid principal amount of the Term Loan at a fixed rate of 10% per annum. The Term Loan matures on November 7, 2028, or earlier upon acceleration.

We must prepay amounts outstanding under the Term Loan on a semi-annual basis beginning with the six-month period ending December 31, 2023 in an amount equal to a percentage of our excess cash flow based on a specified leverage ratio, as follows: (i) if our leverage ratio is greater than or equal to 3.0x, then the mandatory prepayment amount will equal 100% of our excess cash flow, (ii) if our leverage ratio is less than 3.0x and greater than or equal to 1.5x, then the mandatory prepayment amount will equal 50% of our excess cash flow, and (iii) if our leverage ratio is less than 1.5x, then the mandatory prepayment amount will equal 25% of our excess cash flow.

As of December 31, 2022, the amount outstanding under the Term Loan was \$60,000,000.

Share Repurchase Program

For the three months ended December 31, 2022, we repurchased 92,000 shares of our common stock as part of our publicly announced share repurchase program at an average price per share of \$3.51 for an aggregate expenditure of \$0.3 million during the period. See “Item 5 – Market For Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities – Purchases of Equity Securities by the Issuer and Affiliated Purchasers.”

For the year ended December 31, 2022, we repurchased 351,000 shares of our common stock as part of our publicly announced share repurchase program at an average price per share of \$3.77 for an aggregate expenditure of \$1.3 million during the period.

Other Cash Obligations

As of December 31, 2022, we had future commitments for certain capital projects totaling \$21.0 million. These commitments are scheduled to be satisfied through 2023.

In connection with our acquisition of Eagle Alcohol, we committed to contingent payments of up to \$9.0 million in cash over the next three years if certain targets are met.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of net sales and expenses for each period. The following represents a summary of our critical accounting policies and related estimates, defined as those policies that we believe are the most important to the portrayal of our financial condition and results of operations and that require management's most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effects of matters that are inherently uncertain.

Accounting for Business Combinations

Determining the fair value of assets acquired and liabilities assumed in a business combination is considered a critical accounting estimate because the allocation of the purchase price to assets acquired and liabilities assumed based upon fair values requires significant management judgment and the use of subjective measurements. Variability in industry conditions and changes in assumptions or subjective measurements used to allocate fair value are reasonably possible and may have a material impact on our financial position, liquidity or results of operations.

Revenue Recognition

We recognize revenue primarily from sales of alcohols and essential ingredients.

We have five alcohol production facilities from which we produce and sell alcohols to our customers through our subsidiary, Kinergy. Kinergy enters into sales contracts with customers under exclusive intercompany sales agreements with each of our five production facilities. Kinergy also acts as a principal when it purchases third party fuel-grade ethanol which it resells to its customers. Finally, Kinergy has an exclusive sales agreement with a third-party owned fuel-grade ethanol plant under which it sells the plant's fuel-grade ethanol production for a fee plus the costs to deliver the ethanol to Kinergy's customers. These sales are referred to as third-party agent sales. Revenue from these third-party agent sales is recorded on a net basis, with Kinergy recognizing its predetermined fees and any associated delivery costs.

We have five production facilities from which we produce and sell essential ingredients to our customers through our subsidiary, Alto Nutrients. Alto Nutrients enters into sales contracts with essential ingredient customers under exclusive intercompany sales agreements with each of our five production facilities.

We recognize revenue from sales of alcohols and essential ingredients at the point in time when the customer obtains control of the products, which typically occurs upon delivery depending on the terms of the underlying contracts. In some instances, we enter into contracts with customers that contain multiple performance obligations to deliver volumes of alcohols or essential ingredients over a contractual period of less than 12 months. We allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices and recognize the related revenue as control of each individual product is transferred to the customer in satisfaction of the corresponding performance obligations.

When we are the agent, the supplier controls the products before they are transferred to the customer because the supplier is primarily responsible for fulfilling the promise to provide the product, has inventory risk before the product has been transferred to a customer and has discretion in establishing the price for the product. When we are the principal, we control the products before they are transferred to the customer because we are primarily responsible for fulfilling the promise to provide the products, we have inventory risk before the product has been transferred to a customer and we have discretion in establishing the price for the product.

See “Note 5 – Segments” of the Notes to Consolidated Financial Statements for our revenue-breakdown by type of contract.

Impairment of Long-Lived Assets and Held-for-Sale Classification

Our long-lived assets have been primarily associated with our production facilities, reflecting their original cost, adjusted for depreciation and any subsequent impairment.

We assess the impairment of long-lived assets, including property and equipment, when events or changes in circumstances indicate that the fair value of an asset group could be less than the net book value of the asset group. Generally, we assess long-lived assets for impairment by first determining the forecasted, undiscounted cash flows each asset is expected to generate plus the net proceeds expected from the sale of the asset group. If the total amount of the undiscounted cash flows is less than the carrying value of the asset group, we then determine the fair value of the asset group. An impairment loss would be recognized when the fair value is less than the related net book value, and an impairment expense would be recorded in the amount of the difference. Forecasts of future cash flows are estimates based on our experience and knowledge of our operations and the industry in which we operate. These estimates could be significantly affected by future changes in market conditions, the economic environment, including inflation, and the purchasing decisions of our customers. Based on these reviews, we recorded an asset impairment of \$2.1 million for 2020 and none for either 2021 or 2022.

We review our intangible assets with indefinite lives at least annually or more frequently if impairment indicators arise. In our review, we determine the fair value of these assets using market multiples and discounted cash flow modeling and compare it to the net book value of the acquired assets.

Assets held-for-sale are assessed for impairment by comparing the carrying values to their expected net sales proceeds. In 2020, our Board of Directors approved a plan to sell our fuel-grade ethanol production facilities in Madera and Stockton, California, which were ultimately sold in 2021. We reviewed the criteria for held-for-sale classification of the long-lived assets associated with these asset groups. Our analysis concluded that these assets should be classified as held-for-sale as of December 31, 2020, and as such, we estimated an aggregate corresponding asset impairment of \$22.3 million for 2020. We further evaluated the original estimate and recorded an additional asset impairment on these assets held-for-sale of \$1.2 million for 2021. In 2021, we decided to sell our property and equipment located in Canton, Illinois. We reviewed the criteria for held-for-sale classification of the long-lived assets for this asset group. We concluded that these assets should be classified as held-for-sale as of December 31, 2021, and as such, we estimated a corresponding asset impairment of \$1.9 million for 2021. We did not record any impairments for assets held-for-sale for 2022.

Valuation Allowance for Deferred Taxes

We account for income taxes under the asset and liability approach, where deferred tax assets and liabilities are determined based on differences between financial reporting and tax bases of assets and liabilities, and are measured using enacted tax rates and laws that are expected to be in effect when the differences reverse. Valuation allowances are established when necessary to reduce deferred tax assets to the amounts expected to be realized.

We evaluate our deferred tax asset balance for realizability. To the extent we believe it is more likely than not that some portion or all of our deferred tax assets will not be realized, we will establish a valuation allowance against the deferred tax assets. Realization of our deferred tax assets is dependent upon future taxable income during the periods in which the associated temporary differences become deductible. We consider the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. These changes, if any, may require possible material adjustments to these deferred tax assets, resulting in a reduction in net income or an increase in net loss in the period when such determinations are made.

We had pre-tax consolidated income of \$47.6 million for the year ended December 31, 2021. We had pre-tax consolidated losses of \$39.7 million and \$17.3 million for the years ended December 31, 2022 and 2020, respectively. Based on our current and prior results, we do not have significant evidence to support a conclusion that we will more likely than not be able to benefit from our remaining deferred tax assets. As such, we have recorded a valuation allowance against our net deferred tax assets.

Derivative Instruments

We evaluate our contracts to determine whether the contracts are derivative instruments. Management may elect to exempt certain forward contracts that meet the definition of a derivative from derivative accounting as normal purchases or normal sales. Normal purchases and normal sales are contracts that provide for the purchase or sale of something other than a financial instrument or derivative instrument that will be delivered in quantities expected to be used or sold over a reasonable period in the normal course of business. Contracts that meet the requirements of normal purchases or sales are documented as normal and exempted from the fair value accounting and reporting requirements of derivative accounting.

We enter into short-term cash, option and futures contracts as a means of securing purchases of corn, natural gas and sales of fuel-grade ethanol and managing exposure to changes in commodity prices. All of our exchange-traded derivatives are designated as non-hedge derivatives for accounting purposes, with changes in fair value recognized in net income. Although the contracts are economic hedges of specified risks, they are not designated or accounted for as hedging instruments.

Realized and unrealized gains and losses related to exchange-traded derivative contracts are included as a component of cost of goods sold in the accompanying financial statements. The fair values of contracts entered through commodity exchanges are presented on the accompanying balance sheet as derivative assets or liabilities. The selection of normal purchase or sales contracts, and use of hedge accounting, are accounting policies that can change the timing of recognition of gains and losses in the statement of operations.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to various market risks, including changes in commodity prices, as discussed below. Market risk is the potential loss arising from adverse changes in market rates and prices. In the ordinary course of business, we may enter into various types of transactions involving financial instruments to manage and reduce the impact of changes in commodity prices. We do not have material exposure to interest rate risk. We do not expect to have any exposure to foreign currency risk as we conduct all of our transactions in U.S. dollars.

We produce alcohol and essential ingredients. Our business is sensitive to changes in the prices of ethanol and corn. In the ordinary course of business, we may enter into various types of transactions involving financial instruments to manage and reduce the impact of changes in ethanol and corn prices. We do not enter into derivatives or other financial instruments for trading or speculative purposes.

We are subject to market risk with respect to ethanol and corn pricing. Ethanol prices are sensitive to global and domestic ethanol supply; crude-oil supply and demand; crude-oil refining capacity; carbon intensity; government regulation; and consumer demand for alternative fuels. Our alcohol sales are priced using contracts that are either based on a fixed price or an indexed price tied to a specific market, such as the CBOT or the Oil Price Information Service. Under these fixed-priced arrangements, we are exposed to risk of a decrease in the market price of ethanol between the time the price is fixed and the time the alcohol is sold.

We satisfy our physical corn needs, the principal raw material used to produce alcohol and essential ingredients, based on purchases from our corn vendors. Generally, we determine the purchase price of our corn at or near the time we begin to grind. Additionally, we also enter into volume contracts with our vendors to fix the purchase price. As such, we are also subject to market risk with respect to the price of corn. The price of corn is subject to wide fluctuations due to unpredictable factors such as weather conditions, farmer planting decisions, governmental policies with respect to agriculture and international trade and global supply and demand. Under the fixed price arrangements, we assume the risk of a decrease in the market price of corn between the time the price is fixed and the time the corn is utilized.

Essential ingredients are sensitive to various demand factors such as numbers of livestock on feed, prices for feed alternatives and supply factors, primarily production of ethanol co-products by ethanol plants and other sources.

As noted above, we may attempt to reduce the market risk associated with fluctuations in the price of ethanol or corn by employing a variety of risk management and hedging strategies. Strategies include the use of derivative financial instruments such as futures and options executed on the CBOT and/or the New York Mercantile Exchange, as well as the daily management of physical corn.

These derivatives are not designated for special hedge accounting treatment, and as such, the changes in the fair values of these contracts are recorded on the balance sheet and recognized immediately in cost of goods sold. We recognized net gains of \$19.3 million, \$21.6 million and \$14.8 million related to the change in the fair values of these contracts for the years ended December 31, 2022, 2021 and 2020, respectively.

We prepared a sensitivity analysis as of December 31, 2022 to estimate our exposure to ethanol and corn. Market risk related to these factors was estimated as the potential change in pre-tax income resulting from a hypothetical 10% adverse change in the prices of our expected ethanol and corn volumes. The analysis uses average CBOT prices for the year and does not factor in future contracted volumes. The results of this analysis for the year ended December 31, 2022, which may differ materially from actual results, are as follows (in millions):

Commodity	Volume	Unit of Measure	Approximate Adverse Change to Pre-Tax Income
Ethanol	418.9	Gallons	\$ 65.1
Corn	107.5	Bushels	\$ 74.6

Item 8. Financial Statements and Supplementary Data.

Reference is made to the financial statements, which begin at page F-1 of this report.

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

None.

Item 9A. Controls and Procedures.

We conducted an evaluation under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Securities and Exchange Act of 1934, as amended, or Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by the company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission’s rules and forms. Disclosure controls and procedures also include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company’s management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate, to allow timely decisions regarding required disclosure. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded as of December 31, 2022 that our disclosure controls and procedures were effective at a reasonable assurance level.

Management’s Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is 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. Our internal control over financial reporting includes those policies and procedures that:

- (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;
- (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our 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.

A material weakness is defined by the Public Company Accounting Oversight Board's Audit Standards AS 2201 as being a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis by the company's internal controls.

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework set forth in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework set forth in *Internal Control — Integrated Framework (2013)*, our management concluded that our internal control over financial reporting was effective as of December 31, 2022.

RSM US LLP, an independent registered public accounting firm, has issued an attestation report on our internal control over financial reporting as of December 31, 2022. That report is included in Part IV of this report.

Inherent Limitations on the Effectiveness of Controls

Management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control systems are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in a cost-effective control system, no evaluation of internal control over financial reporting can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been or will be detected.

These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of a simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

Changes in Internal Control over Financial Reporting

There has been no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the most recently completed fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information under the captions “Information about our Board of Directors, Board Committees and Related Matters” appearing in the Proxy Statement, is hereby incorporated by reference.

Item 11. Executive Compensation.

The information under the caption “Executive Compensation and Related Information,” appearing in the Proxy Statement, is hereby incorporated by reference.

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

The information under the captions “Security Ownership of Certain Beneficial Owners and Management” and “Equity Compensation Plan Information,” appearing in the Proxy Statement, is hereby incorporated by reference.

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

The information under the captions “Certain Relationships and Related Transactions” and “Information about our Board of Directors, Board Committees and Related Matters—Director Independence” appearing in the Proxy Statement, is hereby incorporated by reference.

Item 14. Principal Accountant Fees and Services.

The information under the caption “Audit Matters—Principal Accountant Fees and Services,” appearing in the Proxy Statement, is hereby incorporated by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a)(1) Financial Statements

Reference is made to the financial statements listed on and attached following the Index to Consolidated Financial Statements contained on page F-1 of this report.

(a)(2) Financial Statement Schedules

None.

(a)(3) Exhibits

Reference is made to the exhibits listed on the Index to Exhibits.

Item 16. Form 10-K Summary.

None.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Alto Ingredients, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Alto Ingredients, Inc. and its subsidiaries (the Company) as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity and cash flows for each of the three years in the period ended December 31, 2022, and the related notes to the consolidated financial statements (collectively, the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 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 have also 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* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013, and our report dated March 14, 2023, expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the 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 audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the 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 financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

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

Evaluation of indicators of long-lived asset impairment

As described in Note 1 to the financial statements, the Company assesses the impairment of long-lived assets, including property and equipment, when events or changes in circumstances indicate that the fair value of assets could be less than their net book value. The Company's assessment did not result in an impairment for the year ended December 31, 2022.

We identified the evaluation of impairment indicators for long-lived assets as a critical audit matter because of the significant assumptions management makes when determining whether events or changes in circumstances have occurred indicating that the carrying amounts of property and equipment may not be recoverable. This required a high degree of auditor judgment when performing audit procedures to evaluate whether management appropriately identified impairment indicators.

Our audit procedures related to the assessment of long-lived assets for possible indications of impairment included the following, among others:

- We obtained an understanding of management's process and internal controls over management's evaluation of potential indicators of impairment and tested the operating effectiveness of the controls
- We obtained management's analysis of potential indicators of impairment and evaluated management's analysis by:
 - Agreeing current period operating profits or losses for all identifiable asset groups to respective trial balances
 - For asset groups in a current period loss, compared the current period operating loss to historical operating profits or losses
 - Prepared an independent expectation of the underlying fair value for two identified asset groups that had both current period and historical operating losses by:
 - Comparing the sales price per nameplate production gallons to the carrying value of the asset groups
 - Evaluating publicly available information related to sales of comparable production facilities
- Reading board of directors meeting minutes, press releases, and publicly available information for indications of significant changes in the matter of the use of the asset groups

/s/ RSM US LLP

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

Rochester, Minnesota
March 14, 2023

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Alto Ingredients, Inc.

Opinion on the Internal Control Over Financial Reporting

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

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity and cash flows for each of the three years in the period ended December 31, 2022, and the related notes to the consolidated financial statements of the Company and our report dated March 14, 2023, expressed an unqualified opinion.

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 in the accompanying 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 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/ RSM US LLP

Rochester, Minnesota
March 14, 2023

ALTO INGREDIENTS, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except shares and par value)

<u>ASSETS</u>	<u>December 31,</u>	
	<u>2022</u>	<u>2021</u>
Current Assets:		
Cash and cash equivalents	\$ 36,456	\$ 50,612
Restricted cash	13,069	11,513
Accounts receivable, net of allowance for credit losses of \$105 and \$378, respectively	68,655	86,888
Inventories	66,628	54,373
Derivative instruments	4,973	15,839
Other current assets	9,340	10,301
Total current assets	199,121	229,526
Property and equipment, net	239,069	222,550
Other Assets:		
Right of use operating lease assets, net	18,937	13,413
Notes receivable, noncurrent	—	11,641
Intangible assets, net	9,087	2,678
Goodwill	5,970	—
Other assets	6,137	5,145
Total other assets	40,131	32,877
Total Assets	\$ 478,321	\$ 484,953

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
CONSOLIDATED BALANCE SHEETS (CONTINUED)
(in thousands, except shares and par value)

	December 31,	
	2022	2021
<u>LIABILITIES AND STOCKHOLDERS' EQUITY</u>		
Current Liabilities:		
Accounts payable – trade	\$ 28,115	\$ 23,251
Accrued liabilities	26,556	21,307
Current portion – operating leases	3,849	3,909
Derivative instruments	6,732	13,582
Other current liabilities	12,765	7,553
Total current liabilities	78,017	69,602
Long-term debt, net	68,356	50,361
Operating leases, net of current portion	15,062	9,382
Other liabilities	8,797	10,394
Total Liabilities	170,232	139,739
Commitments and contingencies (Notes 1, 9, 10, 11 and 16)		
Stockholders' Equity:		
Preferred stock, \$0.001 par value; 10,000,000 shares authorized:		
Series A: 1,684,375 shares authorized; no shares issued and outstanding as of December 31, 2022 and 2021	—	—
Series B: 1,580,790 shares authorized; 926,942 shares issued and outstanding as of December 31, 2022 and 2021; liquidation preference of \$18,075 as of December 31, 2022	1	1
Common stock, \$0.001 par value; 300,000,000 shares authorized; 75,154,495 and 72,777,694 shares issued and outstanding as of December 31, 2022 and 2021, respectively	75	73
Non-voting common stock, \$0.001 par value; 3,553,000 shares authorized; 896 shares issued and outstanding as of December 31, 2022 and 2021	—	—
Additional paid-in capital	1,040,834	1,037,205
Accumulated other comprehensive income (loss)	1,822	(284)
Accumulated deficit	(734,643)	(691,781)
Total stockholders' equity	308,089	345,214
Total Liabilities and Stockholders' Equity	\$ 478,321	\$ 484,953

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Years Ended December 31,		
	2022	2021	2020
Net sales	\$ 1,335,621	\$ 1,207,892	\$ 897,023
Cost of goods sold	1,363,171	1,140,108	844,164
Gross profit (loss)	(27,550)	67,784	52,859
Selling, general and administrative expenses	(31,579)	(29,185)	(31,980)
Gain on litigation settlement	—	—	11,750
Gain (loss) on sale (disposal) of assets	(2,230)	4,571	1,580
Asset impairments	—	(3,100)	(24,356)
Income (loss) from operations	(61,359)	40,070	9,853
Income from cash grant	22,652	—	—
Income from loan forgiveness	—	9,860	—
Interest expense, net	(1,827)	(3,587)	(17,943)
Fair value adjustments	—	—	(9,959)
Other income, net	862	1,208	750
Income (loss) before provision (benefit) for income taxes	(39,672)	47,551	(17,299)
Provision (benefit) for income taxes	1,925	1,469	(17)
Consolidated net income (loss)	(41,597)	46,082	(17,282)
Net loss attributed to noncontrolling interests	—	—	2,166
Net income (loss) attributed to Alto Ingredients, Inc.	\$ (41,597)	\$ 46,082	\$ (15,116)
Preferred stock dividends	\$ (1,265)	\$ (1,265)	\$ (1,268)
Income allocated to participating securities	\$ —	\$ (600)	\$ —
Income (loss) available to common stockholders	\$ (42,862)	\$ 44,217	\$ (16,384)
Income (loss) per share, basic	\$ (0.60)	\$ 0.62	\$ (0.28)
Income (loss) per share, diluted	\$ (0.60)	\$ 0.61	\$ (0.28)
Weighted-average shares outstanding, basic	71,944	71,098	58,609
Weighted-average shares outstanding, diluted	71,944	72,219	58,609

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(in thousands)

	Years Ended December 31,		
	2022	2021	2020
Consolidated net income (loss)	\$ (41,597)	\$ 46,082	\$ (17,282)
Other comprehensive income (expense) – net gain (loss) arising during the period on defined benefit pension plans	2,106	3,594	(1,508)
Total comprehensive income (loss)	(39,491)	49,676	(18,790)
Comprehensive loss attributed to noncontrolling interests	—	—	2,166
Comprehensive income (loss) attributed to Alto Ingredients, Inc.	\$ (39,491)	\$ 49,676	\$ (16,624)

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)

	Preferred Stock		Common Stock and Non-Voting Common		Additional Paid-In Capital	Accumulated Deficit	Accum. Other Comprehensive Loss	Non- Controlling Interests	Total
	Shares	Amount	Shares	Amount					
Balances, December 31, 2019	<u>927</u>	<u>\$ 1</u>	<u>55,508</u>	<u>\$ 56</u>	<u>\$ 942,307</u>	<u>\$ (720,214)</u>	<u>\$ (2,370)</u>	<u>\$ 7,265</u>	<u>\$ 227,045</u>
Stock-based compensation	—	—	—	—	2,679	—	—	—	2,679
Restricted stock issued to employees and directors, net of cancellations and tax	—	—	1,137	1	(602)	—	—	—	(601)
Common stock issuances	—	—	5,075	5	70,528	—	—	—	70,533
Warrant exercises	—	—	9,346	9	16,431	—	—	—	16,440
Common stock issuances ATM	—	—	1,421	1	5,295	—	—	—	5,296
Sale of interests in PAL	—	—	—	—	—	—	—	(5,099)	(5,099)
Pension plan adjustment	—	—	—	—	—	—	(1,508)	—	(1,508)
Preferred stock dividends	—	—	—	—	—	(1,268)	—	—	(1,268)
Net loss	—	—	—	—	—	(15,116)	—	(2,166)	(17,282)
Balances, December 31, 2020	<u>927</u>	<u>\$ 1</u>	<u>72,487</u>	<u>\$ 72</u>	<u>\$ 1,036,638</u>	<u>\$ (736,598)</u>	<u>\$ (3,878)</u>	<u>\$ —</u>	<u>\$ 296,235</u>
Stock-based compensation	—	—	—	—	2,883	—	—	—	2,883
Restricted stock issued to employees and directors, net of cancellations and tax	—	—	167	1	(2,778)	—	—	—	(2,777)
Common stock issuances	—	—	124	—	462	—	—	—	462
Pension plan adjustment	—	—	—	—	—	—	3,594	—	3,594
Preferred stock dividends	—	—	—	—	—	(1,265)	—	—	(1,265)
Net income	—	—	—	—	—	46,082	—	—	46,082
Balances, December 31, 2021	<u>927</u>	<u>\$ 1</u>	<u>72,778</u>	<u>\$ 73</u>	<u>\$ 1,037,205</u>	<u>\$ (691,781)</u>	<u>\$ (284)</u>	<u>\$ —</u>	<u>\$ 345,214</u>
Stock-based compensation	—	—	—	—	3,333	—	—	—	3,333
Restricted stock issued to employees and directors, net of cancellations and tax	—	—	496	—	(2,291)	—	—	—	(2,291)
Shares issued for Eagle	—	—	949	1	—	—	—	—	1
Shares issued to Orion	—	—	1,282	1	3,912	—	—	—	3,913
Stock repurchases	—	—	(351)	—	(1,325)	—	—	—	(1,325)
Pension plan adjustment	—	—	—	—	—	—	2,106	—	2,106
Preferred stock dividends	—	—	—	—	—	(1,265)	—	—	(1,265)
Net loss	—	—	—	—	—	(41,597)	—	—	(41,597)
Balances, December 31, 2022	<u>927</u>	<u>\$ 1</u>	<u>75,154</u>	<u>\$ 75</u>	<u>\$ 1,040,834</u>	<u>\$ (734,643)</u>	<u>\$ 1,822</u>	<u>\$ —</u>	<u>\$ 308,089</u>

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	For the Years Ended December 31,		
	2022	2021	2020
Operating Activities:			
Consolidated net income (loss)	\$ (41,597)	\$ 46,082	\$ (17,282)
Adjustments to reconcile consolidated net income (loss) to cash provided by operating activities:			
Depreciation and amortization of intangibles	25,095	23,292	30,268
Asset impairments	—	3,100	24,356
Income from loan forgiveness	—	(9,860)	—
Fair value adjustments	—	—	9,959
(Gain) loss on (sale) disposal of assets	2,230	(4,571)	(1,580)
Inventory valuation	4,612	—	(257)
Gains on derivative instruments	(19,263)	(21,619)	(14,780)
Amortization of deferred financing costs	177	778	1,394
Amortization of debt discounts (premiums)	126	(230)	(230)
Noncash compensation	3,333	2,883	2,679
Bad debt expense (recovery)	(217)	158	245
Interest expense added to senior notes	—	—	133
Changes in operating assets and liabilities:			
Accounts receivable	23,967	(43,554)	30,571
Inventories	(15,479)	(16,448)	19,090
Other current assets	7,690	38,989	1,507
Operating leases	(5,128)	(4,216)	(4,751)
Assets held-for-sale	—	(3,483)	1,012
Liabilities held-for-sale	—	2,305	9,110
Accounts payable and accrued expenses	20,503	13,215	(19,763)
Net cash provided by operating activities	<u>\$ 6,049</u>	<u>\$ 26,821</u>	<u>\$ 71,681</u>
Investing Activities:			
Proceeds from principal payments on notes receivable	\$ 14,766	\$ —	\$ —
Purchase of Eagle Alcohol, net of cash acquired	(14,685)	—	—
Proceeds from sale of Stockton	—	24,000	—
Proceeds from sale of Madera	—	19,500	—
Proceeds from sale of interests in PAL	—	—	19,896
Proceeds from Magic Valley asset sale	—	—	10,000
Additions to property and equipment	(37,744)	(16,384)	(6,580)
Net cash provided by (used in) investing activities	<u>\$ (37,663)</u>	<u>\$ 27,116</u>	<u>\$ 23,316</u>
Financing Activities:			
Net proceeds from term loan	\$ 59,100	\$ —	\$ —
Net proceeds from (payments on) Kinergy's line of credit	(32,325)	17,889	(45,826)
Debt issuance costs	(5,171)	—	—
Preferred stock dividend payments	(1,265)	(2,853)	—
Stock repurchases	(1,325)	—	—
Proceeds from issuances of common stock and warrants	—	462	75,829
Proceeds from warrant exercises	—	—	5,500
Proceeds from CARES Act loans	—	—	9,860
Payments on plant borrowings	—	(29,964)	(71,536)
Payments on senior notes	—	(25,533)	(40,249)
Net cash provided by (used in) financing activities	<u>\$ 19,014</u>	<u>\$ (39,999)</u>	<u>\$ (66,422)</u>
Net increase (decrease) in cash, cash equivalents and restricted cash	(12,600)	13,938	28,575
Cash, cash equivalents and restricted cash at beginning of period	62,125	48,187	19,612
Cash, cash equivalents and restricted cash at end of period	<u>\$ 49,525</u>	<u>\$ 62,125</u>	<u>\$ 48,187</u>

Reconciliation of total cash, cash equivalents and restricted cash:

Cash and cash equivalents	\$ 36,456	\$ 50,612	\$ 47,667
Restricted cash	13,069	11,513	520
Total cash, cash equivalents and restricted cash	<u>\$ 49,525</u>	<u>\$ 62,125</u>	<u>\$ 48,187</u>

Supplemental Information:

Interest paid (net of capitalized interest)	\$ 2,208	\$ 3,489	\$ 17,469
Capitalized interest	\$ 720	\$ 628	\$ 224
Income tax payments (refunds)	\$ 2,262	\$ 448	\$ (641)
Noncash financing and investing activities:			
Accrued preferred stock dividends	\$ —	\$ —	\$ 1,268

The accompanying notes are an integral part of these consolidated financial statements.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES.

Organization and Business – The consolidated financial statements include, for all periods presented, the accounts of Alto Ingredients, Inc., a Delaware corporation (“Alto Ingredients”), and its direct and indirect wholly-owned subsidiaries (collectively, the “Company”), including Kinergy Marketing LLC, an Oregon limited liability company (“Kinergy”), Alto Nutrients, LLC, a California limited liability company (“Alto Nutrients”), Alto Op Co., a Delaware corporation (“Alto Op Co.”), Alto Pekin, LLC, a Delaware limited liability company (“Alto Pekin”) and Alto ICP, LLC, a Delaware limited liability company (“ICP”), and the Company’s production facilities in Oregon and Idaho. As discussed in Note 3, on May 14, 2021 and November 4, 2021, the Company completed the sale of its production facilities located in Madera and Stockton, California, respectively.

As discussed in Note 2, on January 14, 2022, the Company acquired Eagle Alcohol Company LLC, a Missouri limited liability company (“Eagle Alcohol”). Eagle Alcohol specializes in break bulk distribution of specialty alcohols. Eagle Alcohol purchases bulk alcohol from suppliers, including the Company. Then it stores, denatures, packages, and resells alcohol products in smaller sizes, including tank trucks, totes, and drums, that typically garner a premium price to bulk alcohols. Eagle Alcohol delivers products to customers in the beverage, food, industrial and related-process industries via its own dedicated trucking fleet and common carrier. Beginning January 14, 2022, Eagle Alcohol is a wholly-owned subsidiary of the Company.

On December 15, 2016, the Company and Aurora Cooperative Elevator Company, a Nebraska cooperative corporation (“ACEC”), closed a transaction under a contribution agreement under which the Company contributed its Aurora, Nebraska ethanol production facilities and ACEC contributed its Aurora grain elevator and related grain handling assets to Pacific Aurora, LLC (“Pacific Aurora”) in exchange for equity interests in Pacific Aurora. As a result, the Company owned 73.93% of Pacific Aurora and ACEC owned 26.07% of Pacific Aurora. As discussed further in Note 3, the Company sold its interest in Pacific Aurora on April 15, 2020. Therefore, from December 15, 2016, through April 15, 2020, the Company consolidated 100% of the results of Pacific Aurora and recorded ACEC’s 26.07% equity interest as noncontrolling interests in the accompanying financial statements.

The Company is a leading producer and distributor of specialty alcohols and essential ingredients. The Company also produces and markets fuel-grade ethanol. The Company’s production facilities in Pekin, Illinois are located in the heart of the Corn Belt. The Company’s two production facilities in Oregon and Idaho are located in close proximity to both feed and fuel-grade ethanol customers.

The Company has a combined alcohol production capacity of 350 million gallons per year and produces, on an annualized basis, over 1.6 million tons of essential ingredients, such as dried yeast, corn gluten meal, corn gluten feed, corn germ, and distillers grains and liquid feed used in commercial animal feed and pet foods. In addition, the Company markets and distributes fuel-grade ethanol produced by third parties.

The Company focuses on four key markets: *Health, Home & Beauty*; *Food & Beverage*; *Essential Ingredients*; and *Renewable Fuels*. Products for the Health, Home & Beauty market include specialty alcohols used in mouthwash, cosmetics, pharmaceuticals, hand sanitizers, disinfectants and cleaners. Products for the Food & Beverage markets include grain neutral spirits used in alcoholic beverages and vinegar as well as corn germ used for corn oils. Products for Essential Ingredients markets include dried yeast, corn gluten meal, corn gluten feed, corn germ, and distillers grains and liquid feed used in commercial animal feed and pet foods. Renewable Fuels includes fuel-grade ethanol and distillers corn oil used as a feedstock for renewable diesel and biodiesel fuels.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

For all of 2022, all of the Company's production facilities were operating. On January 1, 2023, the Company temporarily hot-idled its Magic Valley production facility due to extreme natural gas prices, other unfavorable market conditions and to facilitate the installation of its new high protein systems. As market conditions change, the Company may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility.

Basis of Presentation – The consolidated financial statements and related notes have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP") and include the accounts of the Company. All significant intercompany accounts and transactions have been eliminated in consolidation.

Segments – A segment is a component of an enterprise whose operating results are regularly reviewed by the enterprise's chief operating decision maker to make decisions about resources to be allocated to the segment and assess its performance, and for which discrete financial information is available. The Company determines and discloses its segments in accordance with the Financial Accounting Standards Board's ("FASB") Accounting Standards Codification ("ASC") Section 280, *Segment Reporting*, which defines how to determine segments. The Company reports financial and operating performance in three reportable segments (1) marketing and distribution, which includes marketing and merchant trading for Company-produced specialty alcohols, fuel-grade ethanol and essential ingredients, and sales of fuel-grade ethanol sourced from third parties, (2) Pekin production, which includes the entire campus in Pekin, Illinois ("Pekin Campus"), and (3) other production, which includes all of the Company's other production facilities on an aggregated basis ("Other production").

Cash and Cash Equivalents – The Company considers all highly-liquid investments with an original maturity of three months or less to be cash equivalents. The Company maintains its accounts at several financial institutions. These cash balances regularly exceed amounts insured by the Federal Deposit Insurance Corporation; however, the Company does not believe it is exposed to any significant credit risk on these balances.

Restricted Cash – The Company's restricted cash comprises cash collateral balances held in derivative brokerage accounts.

Accounts Receivable and Allowance for Credit Losses – Trade accounts receivable are presented at original invoice amount, net of the allowance for credit losses. The Company sells specialty alcohols to large consumer product companies, sells fuel-grade ethanol to gasoline refining and distribution companies, sells essential ingredients to animal feed customers, including distillers grains and other feed co-products to dairy operators and animal feedlots and corn oil to poultry and biodiesel customers, in each case generally without requiring collateral. Due to a limited number of customers, the Company had significant concentrations of credit risk from sales as of December 31, 2022 and 2021, as described below.

The carrying amount of accounts receivable is reduced by a valuation allowance that reflects the Company's best estimate of the amounts that will not be collected. The Company regularly reviews accounts receivable and based on assessments of current customer creditworthiness, estimates the portion, if any, of the customer balance that will not be collected.

Of the accounts receivable balance, approximately \$55,667,000 and \$63,929,000 at December 31, 2022 and 2021, respectively, were used as collateral under Kinergy's operating line of credit. The allowance for credit losses was \$105,000 and \$378,000 as of December 31, 2022 and 2021, respectively. The Company recorded a bad debt recovery of \$217,000, and bad debt expenses of \$158,000 and \$245,000 for the years ended December 31, 2022, 2021 and 2020, respectively. The Company does not have any off-balance sheet credit exposure related to its customers.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Concentration Risks – Credit risk represents the accounting loss that would be recognized at the reporting date if counterparties failed completely to perform as contracted. Concentrations of credit risk, whether on- or off-balance sheet, that arise from financial instruments exist for groups of customers or counterparties when they have similar economic characteristics that would cause their ability to meet contractual obligations to be similarly affected by changes in economic or other conditions described below. Financial instruments that subject the Company to credit risk consist of cash balances maintained in excess of federal depository insurance limits and accounts receivable which have no collateral or security. The Company has not experienced any significant losses in such accounts.

The Company sells specialty alcohols to consumer product companies and fuel-grade ethanol to gasoline refining and distribution companies. The Company sold to customers representing 10% or more of the Company's total net sales, as follows.

	Years Ended December 31,		
	2022	2021	2020
Customer A	10%	13%	3%
Customer B	10%	9%	9%

The Company had accounts receivable due from these customers totaling \$10,469,000 and \$14,302,000, representing 15% and 16% of total accounts receivable, as of December 31, 2022 and 2021, respectively.

The Company purchases corn, its largest cost component in producing alcohols, from its suppliers. The Company purchased corn from suppliers representing 10% or more of the Company's total corn purchases, as follows:

	Years Ended December 31,		
	2022	2021	2020
Supplier A	12%	14%	16%
Supplier B	15%	2%	—%

As of December 31, 2022, approximately 44% of the Company's employees were covered by a collective bargaining agreement.

Inventories – Inventories consisted primarily of bulk ethanol, specialty alcohols, corn, essential ingredients and unleaded fuel, and are valued at the lower of cost or net realizable value, with cost determined on a first-in, first-out basis. Inventory is net of valuation adjustments of \$4,612,000 and \$0 as of December 31, 2022 and 2021, respectively. Of the inventory balance, approximately \$43,484,000 and \$38,640,000 at December 31, 2022 and 2021, respectively, were used as collateral under Kinergy's operating line of credit. Inventory balances consisted of the following (in thousands):

	December 31,	
	2022	2021
Finished goods	\$ 47,736	\$ 35,509
Work in progress	6,396	6,909
Raw materials	11,197	10,837
Other	1,299	1,118
Total	\$ 66,628	\$ 54,373

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Property and Equipment – Property and equipment are stated at cost. Depreciation is computed using the straight-line method over the following estimated useful lives:

Buildings	40 years
Facilities and plant equipment	10 – 25 years
Other equipment, vehicles and furniture	5 – 10 years

The cost of normal maintenance and repairs is charged to operations as incurred. Significant capital expenditures that increase the life of an asset are capitalized and depreciated over the estimated remaining useful life of the asset. The cost of property and equipment sold, or otherwise disposed of, and the related accumulated depreciation or amortization are removed from the accounts, and any resulting gains or losses are reflected in current operations.

Intangible Assets – The Company amortizes intangible assets with definite lives using the straight-line method over their established lives of 10-12 years. Additionally, the Company assesses indefinite-lived intangible assets for impairment annually, or more frequently if circumstances indicate impairment may have occurred. If the carrying value of an indefinite-lived intangible asset exceeds its fair value, an impairment loss is recognized in an amount equal to that excess. If the Company determines that an impairment charge is needed, the charge will be recorded as an asset impairment in the consolidated statements of operations.

Leases – The Company accounts for leases under ASC 842, whereby, lessees are required to recognize the following for all leases (with the exception of short-term leases) at the commencement date: (1) a lease liability, which is a lessee’s obligation to make lease payments arising from a lease, measured on a discounted cash flow basis; and (2) a “right of use” asset, which is an asset that represents the lessee’s right to use the specified asset for the lease term. See Note 10 for further information.

Derivative Instruments and Hedging Activities – Derivative transactions, which can include exchange-traded futures contracts, options and futures positions on the New York Mercantile Exchange or the Chicago Board of Trade, are recorded on the balance sheet as assets and liabilities based on the derivative’s fair value. Changes in the fair value of derivative contracts are recognized currently in income unless specific hedge accounting criteria are met. If derivatives meet those criteria, and hedge accounting is elected, effective gains and losses are deferred in accumulated other comprehensive income (loss) and later recorded together with the hedged item in consolidated income (loss). For derivatives designated as a cash flow hedge, the Company formally documents the hedge and assesses the effectiveness with associated transactions. The Company has designated and documented contracts for the physical delivery of commodity products to and from counterparties as normal purchases and normal sales.

Revenue Recognition – The Company recognizes revenue under ASC 606. The provisions of ASC 606 include a five-step process by which an entity will determine revenue recognition, depicting the transfer of goods or services to customers in amounts reflecting the payment to which an entity expects to be entitled in exchange for those goods or services. ASC 606 requires the Company to apply the following steps: (1) identify the contract with the customer; (2) identify the performance obligations in the contract; (3) determine the transaction price; (4) allocate the transaction price to the performance obligations in the contract; and (5) recognize revenue when, or as, the Company satisfies the performance obligation.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The Company recognizes revenue primarily from sales of alcohols and essential ingredients.

The Company has five production facilities from which it produces and sells alcohols to its customers through Kinergy. Kinergy enters into back-to-back sales contracts with its customers under exclusive intercompany sales agreements with each of the Company's five production facilities. Kinergy also acts as a principal when it purchases third party fuel-grade ethanol which it resells to its customers. Finally, Kinergy has an exclusive sales agreement with a third-party owned fuel-grade ethanol production facility under which it sells the facility's fuel-grade ethanol for a fee plus the costs to deliver the ethanol to Kinergy's customers. These sales are referred to as third-party agent sales. Revenue from these third-party agent sales is recorded on a net basis, with Kinergy recognizing its predetermined fees and any associated delivery costs.

The Company has five production facilities from which it produces and sells essential ingredients to its customers through Alto Nutrients. Alto Nutrients enters into sales contracts with essential ingredient customers under exclusive intercompany sales agreements with each of the Company's five production facilities.

The Company recognizes revenue from sales of alcohols and essential ingredients at the point in time when the customer obtains control of the products, which typically occurs upon delivery depending on the terms of the underlying contracts. In some instances, the Company enters into contracts with customers that contain multiple performance obligations to deliver volumes of alcohols or essential ingredients over a contractual period of less than 12 months. The Company allocates the transaction price to each performance obligation identified in the contract based on relative standalone selling prices and recognizes the related revenue as control of each individual product is transferred to the customer in satisfaction of the corresponding performance obligations.

When the Company is the agent, the supplier controls the products before they are transferred to the customer because the supplier is primarily responsible for fulfilling the promise to provide the product, has inventory risk before the product has been transferred to a customer and has discretion in establishing the price for the product. When the Company is the principal, the Company controls the products before they are transferred to the customer because the Company is primarily responsible for fulfilling the promise to provide the products, has inventory risk before the product has been transferred to a customer and has discretion in establishing the price for the product.

See Note 5 for the Company's revenue by type of contracts.

Shipping and Handling Costs – The Company accounts for shipping and handling costs relating to contracts with customers as costs to fulfill its promise to transfer its products. Accordingly, the costs are classified as a component of cost of goods sold in the accompanying consolidated statements of operations.

Selling Costs – Selling costs associated with the Company's product sales are classified as a component of selling, general and administrative expenses in the accompanying consolidated statements of operations.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Stock-Based Compensation – The Company accounts for the cost of employee services received in exchange for the award of equity instruments based on the fair value of the award, determined on the date of grant. The expense is recognized over the period during which an employee is required to provide services in exchange for the award. The Company accounts for forfeitures as they occur. The Company recognizes stock-based compensation expense as a component of either cost of goods sold or selling, general and administrative expenses in the consolidated statements of operations.

Impairment of Long-Lived Assets – The Company assesses the impairment of long-lived assets, including property and equipment, internally developed software and purchased intangibles subject to amortization, when events or changes in circumstances indicate that the fair value of assets could be less than their net book value. In such event, the Company assesses long-lived assets for impairment by first determining the forecasted, undiscounted cash flows the asset group is expected to generate plus the net proceeds expected from the sale of the asset group. If this amount is less than the carrying value of the asset, the Company will then determine the fair value of the asset group. An impairment loss would be recognized when the fair value is less than the related asset group's net book value, and an impairment expense would be recorded in the amount of the difference. Forecasts of future cash flows are judgments based on the Company's experience and knowledge of its operations and the industries in which it operates. These forecasts could be significantly affected by future changes in market conditions, the economic environment, including inflation, and purchasing decisions of the Company's customers. The Company performed an undiscounted cash flow analysis for its long-lived assets held-for-use, exclusive of the Company's assets held-for-sale, and for those that failed step 1, the Company performed a further fair value assessment, resulting in an impairment of \$2.1 million for the year ended December 31, 2020. The Company's assessment of assets held-for-use did not result in an impairment for the years ended December 31, 2022 and 2021.

Deferred Financing Costs – Deferred financing costs are costs incurred to obtain debt financing, including all related fees, and are amortized as interest expense over the term of the related financing using the straight-line method, which approximates the effective interest rate method. Amortization of deferred financing costs, included in interest expense, net, in the accompanying consolidated statements of operations, was approximately \$177,000, \$778,000 and \$1,394,000 for the years ended December 31, 2022, 2021 and 2020, respectively. Amortization was accelerated in 2020 to reflect increased payments of principal and the reduction of outstanding debt balances. Unamortized deferred financing costs were approximately \$5,034,000 and \$40,000 as of December 31, 2022 and 2021, respectively, and are recorded as a reduction of long-term debt in the consolidated balance sheets.

Provision for Income Taxes – Income taxes are accounted for under the asset and liability approach, where deferred tax assets and liabilities are determined based on differences between financial reporting and tax basis of assets and liabilities and are measured using enacted tax rates and laws that are expected to be in effect when the differences reverse. Valuation allowances are established when necessary to reduce deferred tax assets to the amounts expected to be realized.

The Company accounts for uncertainty in income taxes using a two-step approach to recognizing and measuring uncertain tax positions. The first step is to evaluate the tax position for recognition by determining whether it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount which is more than 50% likely of being realized upon ultimate settlement. An uncertain tax position is considered effectively settled on completion of an examination by a taxing authority if certain other conditions are satisfied. Should the Company incur interest and penalties relating to tax uncertainties, such amounts would be classified as a component of interest expense, net, and other income (expense), net, respectively. Deferred tax assets and liabilities are classified as noncurrent in the Company's consolidated balance sheets.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The Company files a consolidated federal income tax return. This return includes all wholly owned subsidiaries as well as the Company's pro-rata share of taxable income from pass-through entities in which the Company owns less than 100%. State tax returns are filed on a consolidated, combined or separate basis depending on the applicable laws relating to the Company and its subsidiaries.

Income (Loss) Per Share – Basic income (loss) per share is computed on the basis of the weighted-average number of shares of common stock outstanding during the period. Preferred dividends are deducted from net income (loss) attributed to Alto Ingredients, Inc. and are considered in the calculation of income (loss) available to common stockholders in computing basic income (loss) per share. Common stock equivalents to preferred stock are considered participating securities and are also included in this calculation when dilutive.

The following tables compute basic and diluted earnings per share (in thousands, except per share data):

	Year Ended December 31, 2022		
	Loss Numerator	Shares Denominator	Per-Share Amount
Net loss attributed to Alto Ingredients, Inc.	\$ (41,597)		
Less: Preferred stock dividends	(1,265)		
Basic and diluted loss per share:			
Loss available to common stockholders	<u>\$ (42,862)</u>	<u>71,944</u>	<u>\$ (0.60)</u>
	Year Ended December 31, 2021		
	Income Numerator	Shares Denominator	Per-Share Amount
Net income attributed to Alto Ingredients, Inc.	\$ 46,082		
Less: Preferred stock dividends	(1,265)		
Less: Income allocated to participating securities	(600)		
Basic income per share:			
Income available to common stockholders	<u>\$ 44,217</u>	<u>71,098</u>	<u>\$ 0.62</u>
Add: Dilutive securities	<u>—</u>	<u>1,121</u>	
Diluted income per share:			
Income available to common stockholders	<u>\$ 44,217</u>	<u>72,219</u>	<u>\$ 0.61</u>

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

	Year Ended December 31, 2020		
	Loss Numerator	Shares Denominator	Per-Share Amount
Net loss attributed to Alto Ingredients, Inc.	\$ (15,116)		
Less: Preferred stock dividends	(1,268)		
Basic and diluted loss per share:			
Loss available to common stockholders	\$ (16,384)	58,609	\$ (0.28)

There were an aggregate of 964,000, 964,000 and 2,463,000 potentially dilutive shares from convertible securities outstanding for the years ended December 31, 2022, 2021 and 2020, respectively. These convertible securities were not considered in calculating diluted loss per common share for the years ended December 31, 2022, 2021 and 2020 as their effect would be anti-dilutive. In addition, there were an aggregate of 3,188,000, 8,900,500 and 5,031,000 weighted-average antidilutive shares from outstanding out-of-the-money warrants for the years ended December 31, 2022, 2021 and 2020, respectively.

Financial Instruments – The carrying values of cash and cash equivalents, restricted cash, accounts receivable, notes receivable, derivative assets, accounts payable, accrued liabilities and derivative liabilities are reasonable estimates of their fair values because of the short maturity of these items. The Company believes the carrying value of its long-term debt instruments are not considered materially different than fair value because they were just recently issued.

Business Combinations – Business acquisitions are accounted for in accordance with FASB ASC 805 “Business Combinations”. FASB ASC 805 requires the reporting entity to identify the acquirer, determine the acquisition date, recognize and measure the identifiable tangible and intangible assets acquired and liabilities assumed and recognize and measure goodwill or a gain from the purchase. Assets acquired and liabilities assumed are recorded at their fair values and the excess of the purchase price over the amounts assigned is recorded as goodwill. Adjustments to fair value assessments are recorded to goodwill over the measurement period (not longer than twelve months).

Income from Cash Grant – For the year ended December 31, 2022, the Company applied for and received \$22,652,000 in cash from the USDA’s Biofuel Producer Program. The program was created as part of the CARES Act in 2020, which allocated \$700,000,000 to support biofuel producers who experienced market losses due to the pandemic. The Company is not required to repay the grant. Since these funds are provided to subsidize historical losses of the Company, and are not required to be repaid, the Company accounted for the proceeds by analogy to International Accounting Standards 20, *Accounting for Government Grants and Disclosure of Government Assistance*, and reported the amount as income from cash grant in the accompanying consolidated statements of operations.

Employment-related Benefits – Employment-related benefits associated with pensions and postretirement health care are expensed based on actuarial analysis. The recognition of expense is affected by estimates made by management, such as discount rates used to value certain liabilities, investment rates of return on plan assets, increases in future wage amounts and future health care costs. Discount rates are determined based on a spot yield curve that includes bonds with maturities that match the expected timing of benefit payments under the plan.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Share Repurchase Program – On September 12, 2022, the Company announced a share repurchase program under which it may repurchase up to \$50 million of its common stock with an initial purchase authorization of \$10 million. The Company’s lender has further limited the Company’s purchase authorization to \$5 million. Amounts in excess of the purchase authorization of \$5 million will require additional lender consent and amounts in excess of the initial purchase authorization of \$10 million will require additional board and preferred stockholder authorization. The share repurchase program does not have an expiration date, does not require the repurchase of any particular amount of shares, and may be implemented, modified, suspended or discontinued in whole or in part at any time and without further notice. As repurchases are made, the Company will retire the shares, resulting in a reduction of issued and outstanding shares. For the year ended December 31, 2022, the Company repurchased an aggregate of 351,000 shares for \$1,325,000 in cash.

Estimates and Assumptions – The preparation of the consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant estimates are required as part of determining the allowance for credit losses, net realizable value of inventory, long-lived asset impairments, fair value of warrants, valuation allowances on deferred income taxes and the potential outcome of future tax consequences of events recognized in the Company’s financial statements or tax returns, and the valuation of assets acquired and liabilities assumed as a result of business combinations. Actual results and outcomes may materially differ from management’s estimates and assumptions.

Subsequent Events – Management evaluates, as of each reporting period, events or transactions that occur after the balance sheet date through the date that the financial statements are issued for either disclosure or adjustment to the consolidated financial results.

Reclassifications – Certain prior year amounts have been reclassified to conform to the current presentation. Such reclassifications had no effect on the consolidated net income (loss), working capital or stockholders’ equity reported in the consolidated statements of operations and consolidated balance sheets.

2. ACQUISITION OF EAGLE ALCOHOL.

On January 14, 2022, the Company purchased 100% of the membership interests of Eagle Alcohol. The purchase price was \$14.0 million in cash plus an estimated net working capital adjustment of \$1.3 million in cash. The selling members of Eagle Alcohol are eligible to receive up to an additional \$14.0 million of contingent consideration, payable through a combination of \$9.0 million in cash over the next three years and an aggregate of \$5.0 million in the Company’s common stock on the fourth- and fifth-year anniversaries of the closing date, subject to the satisfaction of certain conditions, including continued employment with the Company. With respect to these payments, the Company has accrued \$3.5 million in other current liabilities in the accompanying consolidated balance sheets as of December 31, 2022, with the expense included in selling, general and administrative expenses in the accompanying consolidated statements of operations for the year then ended.

Eagle Alcohol specializes in break bulk distribution of specialty alcohols. Eagle Alcohol purchases bulk alcohol from suppliers and then stores, denatures, packages, and resells alcohol products in smaller sizes, including tank trucks, totes, and drums, that typically garner a premium price to bulk alcohols. Eagle Alcohol delivers products to customers in the beverage, food, industrial and related-process industries via its own dedicated trucking fleet and common carrier. The acquisition has provided the Company further vertical integration and access to new markets in the specialty alcohol industry.

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Eagle Alcohol's unaudited standalone results for the years ended December 31, 2022 and 2021 generated \$29.2 million and \$35.7 million in net sales and \$1.0 million and \$3.6 million in net income, respectively. The following table presents unaudited pro forma combined financial information assuming the acquisition occurred on January 1, 2021 (dollars in thousands except per share amounts):

	Years Ended December 31,	
	2022	2021
Revenues – pro forma	\$ 1,336,148	\$ 1,232,265
Net income (loss) available to common stockholders – pro forma	\$ (42,929)	\$ 45,263
Diluted net income (loss) per share – pro forma	\$ (0.59)	\$ 0.63
Diluted shares	72,893	72,047

The Company's following allocation of purchase price assumes, with the exception of property and equipment and intangibles, carrying values approximated fair value. The Company did not incur any material acquisition costs. Estimates of uncollectible accounts receivable were not considered material due to the short-term nature and customer collection history. As a result, the final purchase price allocation is as follows (in thousands):

Cash and equivalents	\$ 705
Accounts receivable	5,517
Inventories	1,388
Other assets	29
Total current assets	7,639
Property and equipment	1,067
Right of use assets	2,749
Total tangible assets	\$ 11,455
Current liabilities	\$ 6,262
Right of use liability	2,749
Total liabilities	\$ 9,011
Net tangible assets acquired	\$ 2,444
Customer relationships	6,556
Tradenname	420
Goodwill	5,970
Total Purchase Price	\$ 15,390

Goodwill represents the value of the downstream integration that the operations of Eagle Alcohol will add to the Company. The Company expects the amortization of goodwill to be deductible for tax purposes. For the identifiable intangible assets, the Company has estimated 12 years for useful lives for customer relationships and 10 years for tradenname.

3. ASSET SALES AND HELD-FOR-SALE CLASSIFICATION.

Pacific Aurora

On April 15, 2020, the Company closed the sale of its ownership interest in Pacific Aurora and preliminarily received total consideration of \$52.8 million, which, after working capital adjustments, was reduced to approximately \$36.4 million, resulting in cash proceeds of \$19.9 million and the balance of \$16.5 million in long-term ACEC promissory notes, resulting in a net loss on sale of approximately \$1.4 million, recorded as gain (loss) on sale of assets in the Company's consolidated statements of operations.

Approximately \$14.5 million of the cash proceeds were used to repay a portion of the Company's term debt. In September 2020, the Company and ACEC agreed to certain post-closing adjustments to the purchase price, resulting in a decrease of \$0.9 million, and a corresponding reduction in the aggregate principal amount owed under the long-term ACEC promissory notes.

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The Company received two promissory notes, as adjusted, in the amounts of \$8.6 million and \$7.0 million as part consideration for the sale, both maturing on April 15, 2025. The \$8.6 million note accrued interest at an annual rate of 5.00%. Interest payments were due quarterly beginning July 1, 2020 and principal payments of \$0.4 million were due quarterly beginning July 1, 2021. The \$7.0 million note accrued interest at an annual rate of 4.50%. Interest payments were due quarterly beginning July 1, 2020 and principal payments of \$0.4 million were due quarterly beginning January 3, 2022. On February 23, 2022, these notes were amended and both notes matured on June 30, 2022. Both notes were repaid in full on June 30, 2022.

In addition, upon the sale, the Company no longer had noncontrolling interests on its balance sheet and no longer records income (loss) of noncontrolling interests for future periods.

Magic Valley

On November 30, 2020, the Company sold 134 acres, the related rail loop and grain handling assets at its Magic Valley facility located in Burley, Idaho for \$10.0 million in cash. The Company retained the fuel-grade ethanol production facility and terminal on the remaining 25 acres and has entered into certain agreements with the buyer for delivery of grain to the plant. Upon the sale, the Company recognized a gain on sale of \$3.2 million recorded in gain on sale of assets in the accompanying consolidated statements of operations.

Stockton and Madera

In October 2020, the Company's Board of Directors approved a plan to sell the Company's fuel-grade ethanol production facilities located in Madera and Stockton, California. As a result, the Company determined the related long-lived asset groups should be classified as held-for-sale at December 31, 2020. The analysis of these potential sales resulted in an aggregate asset impairment of \$1.2 million and \$22.3 million in the Company's Other production segment for the years ended December 31, 2021 and 2020, respectively.

On May 14, 2021, the Company closed the sale of its Madera facility for total consideration of \$28.3 million, comprised of \$19.5 million in cash and \$8.8 million in assumption of liabilities, resulting in a net loss on sale of less than \$0.1 million, included in gain on sale of assets in the Company's consolidated statements of operations. All of the cash proceeds were used to repay a significant portion of the Company's term debt and accrued interest.

On November 5, 2021, the Company closed the sale of its Stockton facility for gross proceeds of \$24.0 million in cash, resulting in a net gain on sale of \$4.6 million, recorded in gain on sale of assets in the Company's consolidated statements of operations. With the net cash proceeds, the Company repaid its parent notes payable and the Alto Pekin and ICP loans in full. See Note 9.

For the year ended December 31, 2021, net sales attributed to the results of operations for Stockton and Madera were \$2.6 million and \$0, respectively. For the year ended December 31, 2020, net sales attributed to the results of operations for Stockton and Madera were \$21.9 million and \$22.7 million, respectively. For the year ended December 31, 2021, pre-tax loss attributed to the results of operations for Stockton and Madera was \$2.8 million and \$2.0 million, respectively. For the year ended December 31, 2020, pre-tax loss attributed to the results of operations for Stockton and Madera was \$6.5 million and \$6.1 million, respectively. The above pre-tax results include asset impairments associated with Stockton and Madera recorded for the year ended December 31, 2021 of \$0 and \$1.2 million and for the year ended December 31, 2020 of \$17.9 million and \$4.4 million, respectively.

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Canton

During 2021, the Company agreed to sell certain assets of the Company's property and equipment in Canton, Illinois. As a result, the Company determined the related long-lived asset groups should be classified as held-for-sale at December 31, 2021. The analysis of the potential sale resulted in an asset impairment of \$1.9 million in the Company's Other production segment for the year ended December 31, 2021. As of December 31, 2021, the Company recorded \$1.0 million in assets held-for-sale associated with this transaction. The Company sold these assets in 2022. For the years ended December 31, 2022, 2021 and 2020 there were no sales from Canton. For the years ended December 31, 2022, 2021 and 2020, pre-tax losses attributed to Canton were less than \$1.0 million for each year.

4. INTERCOMPANY AGREEMENTS.

The Company, directly or through one of its subsidiaries, has entered into the following management and marketing agreements:

Affiliate Management Agreement – Alto Ingredients entered into an Affiliate Management Agreement (“AMA”) with its operating subsidiaries under which Alto Ingredients agreed to provide operational, administrative and staff support services. These services generally include, but are not limited to, administering the subsidiaries' compliance with their credit agreements and performing billing, collection, record keeping and other administrative and ministerial tasks. Alto Ingredients agreed to supply all labor and personnel required to perform its services under the AMA, including the labor and personnel required to operate and maintain the production facilities and marketing activities. These services are billed at a predetermined amount per subsidiary each month plus out of pocket costs such as employee wages and benefits.

The AMAs had an initial term of one year and have automatic successive one year renewal periods. Alto Ingredients may terminate the AMA, and any subsidiary may terminate the AMA, at any time by providing at least 90 days prior notice of termination.

Alto Ingredients recorded revenues of approximately \$12,403,000, \$9,774,000 and \$11,724,000 related to the AMAs in place for the years ended December 31, 2022, 2021 and 2020, respectively. These amounts have been eliminated upon consolidation.

Ethanol Marketing Agreements – Kinergy entered into separate marketing agreements with each of the Company's production facilities which granted Kinergy the exclusive right to purchase, market and sell the alcohols produced at those facilities. Under the terms of the marketing agreements, within ten days after delivering alcohol to Kinergy, an amount is paid to Kinergy equal to (i) the estimated purchase price payable by the third-party purchaser of the alcohol, minus (ii) the estimated amount of transportation costs to be incurred, minus (iii) the estimated incentive fee payable to Kinergy, which equals 1% of the aggregate third-party purchase price, provided that the marketing fee shall not be less than \$0.015 per gallon and not more than \$0.0225 per gallon. Each of the marketing agreements had an initial term of one year and has successive one year renewal periods at the option of the production facility.

Kinergy recorded revenues of approximately \$5,746,000, \$4,496,000 and \$4,275,000 related to the marketing agreements for the years ended December 31, 2022, 2021 and 2020, respectively. These amounts have been eliminated upon consolidation.

Corn Procurement and Handling Agreements – Alto Nutrients entered into separate corn procurement and handling agreements with each of the Company's production facilities, with the exception of the Pacific Aurora facilities. Under the terms of the corn procurement and handling agreements, each facility appointed Alto Nutrients as its exclusive agent to solicit, negotiate, enter into and administer, on its behalf, corn supply arrangements to procure the corn necessary to operate the facility. Alto Nutrients also provides grain handling services including, but not limited to, receiving, unloading and conveying corn into the facility's storage and, in the case of whole corn delivered, processing and hammering the whole corn.

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Under these agreements, Alto Nutrients receives a fee of \$0.03 per bushel of corn delivered to each production facility as consideration for its procurement and handling services, payable monthly. Each corn procurement and handling agreement had an initial term of one year and successive one year renewal periods at the option of the individual facility. Alto Nutrients recorded revenues of approximately \$3,207,000, \$2,694,000 and \$2,595,000 related to the corn procurement and handling agreements for the years ended December 31, 2022, 2021 and 2020, respectively. These amounts have been eliminated upon consolidation.

Through April 15, 2020, each Pacific Aurora production facility operated under a grain procurement agreement with ACEC. Under this agreement, ACEC received a fee of \$0.03 per bushel of corn delivered to each facility as consideration for ACEC's procurement and handling services, payable monthly. The grain procurement agreement had an initial term of one year and successive one year renewal periods at the option of the individual facility. Pacific Aurora recorded expenses of approximately \$210,000 for the year ended December 31, 2020 associated with these agreements. These amounts have not been eliminated upon consolidation as they were with a related but unconsolidated third-party.

Essential Ingredients Marketing Agreements – Alto Nutrients entered into separate marketing agreements with each of the Company's production facilities (except for the Company's Magic Valley facility), which grant Alto Nutrients the exclusive right to market, purchase and sell the various essential ingredients produced at each facility. Under the terms of the marketing agreements, within ten days after a facility delivers essential ingredients to Alto Nutrients, the production facility is paid an amount equal to (i) the estimated purchase price payable by the third-party purchaser of the essential ingredients, minus (ii) the estimated amount of transportation costs to be incurred, minus (iii) the estimated amount of fees and taxes payable to governmental authorities in connection with the tonnage of the essential ingredients produced or marketed, minus (iv) the estimated incentive fee payable to the Company, which equals (a) 5% of the aggregate third-party purchase price for wet corn gluten feed, wet distillers grains, corn condensed distillers solubles and distillers grains with solubles, or (b) 1% of the aggregate third-party purchase price for corn gluten meal, dry corn gluten feed, dry distillers grains, corn germ and corn oil. Each marketing agreement had an initial term of one year and has successive one year renewal periods at the option of the production facility.

Alto Nutrients recorded revenues of approximately \$3,505,000, \$2,871,000 and \$2,778,000 related to the marketing agreements for the years ended December 31, 2022, 2021 and 2020, respectively. These amounts have been eliminated upon consolidation.

5. SEGMENTS.

The Company reports its financial and operating performance in three segments: (1) marketing and distribution, which includes marketing and merchant trading for Company-produced alcohols and essential ingredients on an aggregated basis, and sales of fuel-grade ethanol sourced from third parties (2) Pekin Campus production, which includes the production and sale of alcohols and essential ingredients produced at the Company's Pekin, Illinois campus, and (3) Other production, which includes the production and sale of fuel-grade ethanol and essential ingredients produced at all of the Company's other production facilities on an aggregated basis, none of which are individually so significant to be considered a separately reportable segment.

Income before provision for income taxes includes management fees charged by Alto Ingredients to the segments. The Pekin Campus production segment incurred \$5,046,000, \$4,344,000 and \$4,344,000 in management fees for the years ended December 31, 2022, 2021 and 2020, respectively. The marketing and distribution segment incurred \$3,840,000, \$3,480,000 and \$3,480,000 in management fees for the years ended December 31, 2022, 2021 and 2020, respectively. The Other production segment incurred \$2,400,000, \$1,950,000 and \$3,893,000 in management fees for the years ended December 31, 2022, 2021 and 2020, respectively. Corporate and other includes the results of Eagle Alcohol and selling, general and administrative expenses, consisting primarily of corporate employee compensation, professional fees and overhead costs not directly related to a specific operating segment.

During the normal course of business, the segments do business with each other. The preponderance of this activity occurs when the Company's marketing and distribution segment markets alcohol produced by the production segments for a marketing fee, as discussed in Note 4. These intersegment activities are considered arms'-length transactions. Consequently, although these transactions impact segment performance, they do not impact the Company's consolidated results since all revenues and corresponding costs are eliminated upon consolidation.

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For the years ended December 31, 2022 and 2021, capital expenditures incurred by the Pekin Campus segment were approximately \$25.7 million and \$14.3 million, and by the Other production segment were approximately \$12.3 million and \$2.1 million, respectively. For the year ended December 31, 2020, capital expenditures were substantially all incurred at the Company's Pekin Campus production segment.

The following tables set forth certain financial data for the Company's operating segments (in thousands):

	Years Ended December 31,		
	2022	2021	2020
<u>Net Sales</u>			
Pekin Campus production, recorded as gross:			
Alcohol sales	\$ 521,273	\$ 498,195	\$ 330,432
Essential ingredient sales	225,871	189,535	130,270
Intersegment sales	1,212	1,193	645
Total Pekin Campus sales	<u>748,356</u>	<u>688,923</u>	<u>461,347</u>
Marketing and distribution:			
Alcohol sales, gross	\$ 227,626	\$ 379,422	\$ 256,209
Alcohol sales, net	1,225	1,753	1,529
Intersegment sales	12,459	10,061	9,648
Total marketing and distribution sales	<u>241,310</u>	<u>391,236</u>	<u>267,386</u>
Other Production, recorded as gross:			
Alcohol sales	\$ 253,605	\$ 107,931	\$ 137,703
Essential ingredient sales	90,209	31,056	40,880
Intersegment sales	22	964	1,309
Total Other production sales	<u>343,836</u>	<u>139,951</u>	<u>179,892</u>
Corporate and other	15,812	—	—
Intersegment eliminations	<u>(13,693)</u>	<u>(12,218)</u>	<u>(11,602)</u>
Net sales as reported	<u>\$ 1,335,621</u>	<u>\$ 1,207,892</u>	<u>\$ 897,023</u>
<u>Cost of goods sold:</u>			
Pekin Campus production	\$ 772,755	\$ 638,371	\$ 389,125
Marketing and distribution	229,288	371,371	253,465
Other production	353,775	136,401	206,412
Corporate and other	12,167	—	—
Intersegment eliminations	<u>(4,814)</u>	<u>(6,035)</u>	<u>(4,838)</u>
Cost of goods sold as reported	<u>\$ 1,363,171</u>	<u>\$ 1,140,108</u>	<u>\$ 844,164</u>
<u>Income (loss) before provision (benefit) for income taxes:</u>			
Pekin Campus production	\$ (27,378)	\$ 41,622	\$ 53,898
Marketing and distribution	3,749	11,756	4,889
Other production	(6,997)	(3,762)	(54,677)
Corporate and other	(8,926)	(2,065)	(21,409)
	<u>\$ (39,552)</u>	<u>\$ 47,551</u>	<u>\$ (17,299)</u>
<u>Depreciation and amortization expense:</u>			
Pekin Campus production	\$ 19,136	\$ 17,352	\$ 17,450
Other production	5,085	5,890	12,691
Corporate and other	874	50	127
	<u>\$ 25,095</u>	<u>\$ 23,292</u>	<u>\$ 30,268</u>
<u>Interest expense, net of capitalized interest:</u>			
Pekin Campus production	\$ (381)	\$ 756	\$ 6,038
Marketing and distribution	1,658	963	1,574
Other production	(339)	167	334
Corporate and other	889	1,701	9,997
	<u>\$ 1,827</u>	<u>\$ 3,587</u>	<u>\$ 17,943</u>

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The following table sets forth the Company's total assets by operating segment (in thousands):

	December 31, 2022	December 31, 2021
<i>Total assets:</i>		
Pekin Campus production	\$ 257,089	266,197
Marketing and distribution	114,755	130,302
Other production	51,886	57,046
Corporate and other	54,591	31,408
	<u>\$ 478,321</u>	<u>\$ 484,953</u>

6. PROPERTY AND EQUIPMENT.

Property and equipment consisted of the following (in thousands):

	December 31,	
	2022	2021
Facilities and plant equipment	\$ 386,932	\$ 364,039
Land	3,687	4,072
Other equipment, vehicles and furniture	9,876	7,656
Construction in progress	37,538	22,505
	<u>438,033</u>	<u>398,272</u>
Accumulated depreciation	(198,964)	(175,722)
	<u>\$ 239,069</u>	<u>\$ 222,550</u>

Depreciation expense was \$24,528,000, \$23,292,000 and \$30,268,000 for the years ended December 31, 2022, 2021 and 2020, respectively.

The Company capitalized interest of \$720,000, \$628,000 and \$224,000 for the years ended December 31, 2022, 2021 and 2020, respectively, related to its capital investment activities.

7. INTANGIBLE ASSETS.

Intangible assets, including goodwill, consisted of the following (in thousands):

	Useful Life (Years)	December 31, 2022			December 31, 2021		
		Gross	Accumulated Amortization	Net Book Value	Gross	Accumulated Amortization	Net Book Value
Non-Amortizing:							
Goodwill		\$ 5,970	\$ —	\$ 5,970	\$ —	\$ —	\$ —
Kinergy tradename		2,678	—	2,678	2,678	—	2,678
Amortizing:							
Customer relationships	12	6,556	(527)	6,029	—	—	—
Eagle tradename	10	420	(40)	380	—	—	—
Total goodwill and intangible assets		<u>\$ 15,624</u>	<u>\$ (567)</u>	<u>\$ 15,057</u>	<u>\$ 2,678</u>	<u>\$ —</u>	<u>\$ 2,678</u>

Goodwill – The Company's recorded goodwill of \$5,970,000 in its Corporate and other segment resulted from the Company's acquisition of Eagle Alcohol. See Note 2.

Kinergy Tradename – The Company recorded tradename of \$2,678,000 as part of the Company's merger with Kinergy in 2006. The Company determined that the tradename has an indefinite life and therefore, rather than being amortized, will be tested annually for impairment. The Company did not record any impairment on its tradename for the years ended December 31, 2022, 2021 and 2020.

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Customer Relationships – The Company recorded customer relationships of \$6,556,000 from the Company’s acquisition of Eagle Alcohol. See Note 2. The Company has established a useful life of twelve years for these customer relationships.

Eagle Tradename – The Company recorded tradename of \$420,000 from the Company’s acquisition of Eagle Alcohol. See Note 2. The Company has established a useful life of ten years for the tradename.

Amortization expense associated with intangible assets totaled \$567,000 for the year ended December 31, 2022. The weighted-average unamortized life of the customer relationships and tradename is 10.9 years.

The expected amortization expense relating to amortizable intangible assets in each of the five years after December 31, 2022 are (in thousands):

Years Ended December 31,	Amount
2023	\$ 588
2024	588
2025	588
2026	588
2027	588
Thereafter	3,469
Total	<u>\$ 6,409</u>

8. DERIVATIVES.

The business and activities of the Company expose it to a variety of market risks, including risks related to changes in commodity prices. The Company monitors and manages these financial exposures as an integral part of its risk management program. This program recognizes the unpredictability of financial markets and seeks to reduce the potentially adverse effects that market volatility could have on operating results.

Commodity Risk – Cash Flow Hedges – The Company uses derivative instruments to protect cash flows from fluctuations caused by volatility in commodity prices for periods of up to twelve months in order to protect gross profit margins from potentially adverse effects of market and price volatility on alcohol sales and purchase commitments where the prices are set at a future date and/or if the contracts specify a floating or index-based price. In addition, the Company hedges anticipated sales of alcohol to minimize its exposure to the potentially adverse effects of price volatility. These derivatives may be designated and documented as cash flow hedges and effectiveness is evaluated by assessing the probability of the anticipated transactions and regressing commodity futures prices against the Company’s purchase and sales prices. Ineffectiveness, which is defined as the degree to which the derivative does not offset the underlying exposure, is recognized immediately in cost of goods sold. For the years ended December 31, 2022, 2021 and 2020, the Company did not designate any of its derivatives as cash flow hedges.

Commodity Risk – Non-Designated Hedges – The Company uses derivative instruments to lock in prices for certain amounts of corn and alcohols by entering into exchange-traded futures contracts or options for those commodities. These derivatives are not designated for hedge accounting treatment. The changes in fair value of these contracts are recorded on the balance sheet and recognized immediately in cost of goods sold. The Company recognized net gains of \$19,263,000, \$21,619,000 and \$14,780,000 as the change in the fair value of these contracts for the years ended December 31, 2022, 2021 and 2020, respectively.

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Non-Designated Derivative Instruments – The classification and amounts of the Company’s derivatives not designated as hedging instruments, and related cash collateral balances, are as follows (in thousands):

As of December 31, 2022				
Type of Instrument	Assets		Liabilities	
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Cash collateral balance	Restricted cash	\$ 13,069		
Commodity contracts	Derivative instruments	\$ 4,973	Derivative instruments	\$ 6,732

As of December 31, 2021				
Type of Instrument	Assets		Liabilities	
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Cash collateral balance	Restricted cash	\$ 11,513		
Commodity contracts	Derivative instruments	\$ 15,839	Derivative instruments	\$ 13,582

The above amounts represent the gross balances of the contracts; however, the Company does have a right of offset with each of its derivative brokers, but the Company’s intent is to close out positions individually, therefore the positions are reported at gross.

The classification and amounts of the Company’s recognized gains (losses) for its derivatives not designated as hedging instruments are as follows (in thousands):

Type of Instrument	Statements of Operations Location	Realized Gains		
		For the Years Ended December 31,		
		2022	2021	2020
Commodity contracts	Cost of goods sold	\$ 23,280	\$ 32,618	\$ 2,102
		<u>\$ 23,280</u>	<u>\$ 32,618</u>	<u>\$ 2,102</u>

Type of Instrument	Statements of Operations Location	Unrealized Gains (Losses)		
		For the Years Ended December 31,		
		2022	2021	2020
Commodity contracts	Cost of goods sold	\$ (4,017)	\$ (10,999)	\$ 12,678
		<u>\$ (4,017)</u>	<u>\$ (10,999)</u>	<u>\$ 12,678</u>

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9. DEBT.

Long-term borrowings are summarized as follows (in thousands):

	December 31, 2022	December 31, 2021
Kinergy line of credit	\$ 18,076	\$ 50,401
Orion term loan	60,000	—
	<u>78,076</u>	<u>50,401</u>
Less unamortized debt discount	(4,686)	—
Less unamortized debt financing costs	(5,034)	(40)
Less current portion	—	—
Long-term debt	<u>\$ 68,356</u>	<u>\$ 50,361</u>

Kinergy Line of Credit – Kinergy has an operating line of credit for an aggregate amount of up to \$100,000,000. The line of credit matures on November 7, 2027. The credit facility is based on Kinergy’s eligible accounts receivable and inventory levels, subject to certain concentration reserves. The credit facility is subject to certain other sublimits, including inventory loan limits. Interest accrues under the line of credit at a rate equal to (i) the daily Secured Overnight Financing Rate, plus (ii) a specified applicable margin ranging between 1.25% and 1.75%. The applicable margin was 1.50%, for a total rate of 5.90% at December 31, 2022. The credit facility’s monthly unused line fee is an annual rate equal to 0.25% to 0.375% depending on the average daily principal balance during the immediately preceding month. Payments that may be made by Kinergy to the Company as reimbursement for management and other services provided by the Company to Kinergy are limited under the terms of the credit facility to \$1,500,000 per fiscal quarter. The credit facility also includes the accounts receivable of Alto Nutrients as additional collateral. Payments that may be made by Alto Nutrients to the Company as reimbursement for management and other services provided by the Company to Alto Nutrients are limited under the terms of the credit facility to \$500,000 per fiscal quarter.

If the monthly excess borrowing availability of Kinergy and Alto Nutrients falls below certain thresholds, they are collectively required to maintain a fixed-charge coverage ratio (calculated as a twelve-month rolling earnings before interest, taxes, depreciation and amortization divided by the sum of interest expense, capital expenditures, principal payments of indebtedness, indebtedness from capital leases and taxes paid during such twelve-month rolling period) of at least 1.1 and are prohibited from incurring certain additional indebtedness (other than specific intercompany indebtedness).

The obligations of Kinergy and Alto Nutrients under the credit facility are secured by a first-priority security interest in all of their assets in favor of the lender. Alto Ingredients has guaranteed all of Kinergy’s obligations under the line of credit. As of December 31, 2022, Kinergy had \$57.9 million in unused borrowing availability under the credit facility.

On November 7, 2022, Kinergy and Alto Nutrients entered into an Amendment No. 6 to its credit facility. Under the Amendment, the parties agreed, among other things, to extend the maturity date of the loans under the credit facility from 2023 to 2027. The parties also agreed to amend the fixed-charge coverage ratio from not less than 2.00 to 1.00 to not less than 1.10 to 1.00 and amended the amount of cash distributions that Kinergy or Alto Nutrients could make to the Company from up to 50% of excess cash flow to up to 75% of excess cash flow.

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Orion Term Loan – On November 7, 2022, the Company entered into a credit agreement with certain funds managed by Orion Infrastructure Capital (collectively, the “Lenders”), and OIC Investment Agent, LLC, as administrative agent and collateral agent (“OIC”), under which the Lenders agreed to extend a senior secured credit facility in the amount of up to \$125,000,000 (the “Term Loan”). The Term Loan is secured by a first priority lien on certain assets of the Company and a second priority lien on certain assets of Kinergy and Alto Nutrients.

The Lenders agreed to advance to the Company up to \$100,000,000, with up to an additional \$25,000,000 upon the satisfaction of certain conditions. The Company also agreed to issue to the Lenders upon its first funding request, an aggregate of 1,282,051 shares of the Company’s common stock, and up to an additional 320,513 shares of the Company’s common stock upon additional funding or fundings.

On November 23, 2022, the Company received its initial funding of \$60,000,000 and issued 1,282,051 shares of common stock. As of December 31, 2022, the amount outstanding under the Term Loan was \$60,000,000. The Company allocated \$3,912,000 of the loan proceeds to additional paid-in capital for the common stock issued based on the relative fair values of the debt and equity instruments and recorded a corresponding amount as a debt issuance discount that will be amortized to interest expense over the term of the loan.

Interest accrues on the unpaid principal amount of the Term Loan at a fixed rate of 10% per annum. The Term Loan matures on November 7, 2028, or earlier upon acceleration.

The Company must prepay amounts outstanding under the Term Loan on a semi-annual basis beginning with the six-month period ending December 31, 2023 in an amount equal to a percentage of the Company’s excess cash flow based on a specified leverage ratio, as follows: (i) if the leverage ratio is greater than or equal to 3.0x, then the mandatory prepayment amount will equal 100% of the Company’s excess cash flow, (ii) if the leverage ratio is less than 3.0x and greater than or equal to 1.5x, then the mandatory prepayment amount will equal 50% of the Company’s excess cash flow and (iii) if the leverage ratio is less than 1.5x, then the mandatory prepayment amount will equal 25% of the Company’s excess cash flow.

The terms and conditions of the Term Loan also contain customary representations, warranties, covenants and other obligations, including events of default, and other customary terms and conditions.

Registration Rights Agreement - On November 7, 2022, the Company entered into a registration rights agreement with the Lenders and agreed to register for resale with the Securities and Exchange Commission the shares of common stock issued to the Lenders under the Term Loan. The related registration statement has been declared effective by the Securities and Exchange Commission.

Pekin Loans – On December 15, 2016, Alto Pekin entered into a credit agreement with 1st Farm Credit Services, PCA and CoBank, ACB, (“CoBank”). Under the terms of the agreement, Alto Pekin borrowed from 1st Farm Credit Services \$64.0 million under a term loan facility that was to mature on August 20, 2021 and up to \$32.0 million under a revolving term loan facility that was to mature on February 1, 2022. These loans were secured by a first-priority security interest in all of Alto Pekin’s assets.

On November 5, 2021, the Company repaid in full the outstanding balances on these loans.

ICP Loans — On September 15, 2017, ICP, Compeer Financial, PCA, or Compeer, and CoBank as agent, entered into a credit agreement. Under the terms of the agreement, ICP borrowed from Compeer \$24.0 million under a term loan facility that was to mature on September 20, 2021, and up to \$18.0 million under a revolving term loan facility that was to mature on September 1, 2022. These loans were secured by a first-priority security interest in all of ICP’s assets.

On November 5, 2021, the Company repaid in full the outstanding balances on these loans.

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Parent Notes Payable – On December 12, 2016, the Company entered into a Note Purchase Agreement with five accredited investors and sold \$55.0 million in aggregate principal amount of senior secured notes to the investors in a private offering for aggregate gross proceeds of 97% of the principal amount of the notes sold. On June 26, 2017, the Company entered into a second Note Purchase Agreement with five accredited investors and sold an additional \$13.9 million in aggregate principal amount of senior secured notes to the investors in a private offering for aggregate gross proceeds of 97% of the principal amount of the notes sold (and collectively with the notes previously sold, the “Notes”). The Notes were secured by a first-priority security interest in all of the Company’s equity interests in Alto Op Co.

On May 14, 2021, with proceeds from the Company’s sale of its Madera, California facility, the Company repaid \$19.3 million of principal on the Notes, resulting in an aggregate remaining balance of \$0.7 million.

On November 5, 2021, the Company repaid the remaining outstanding balance on the Notes.

CARES Act Loans – On May 4, 2020, Alto Ingredients and Alto Pekin, received loan proceeds from Bank of America, NA under the Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”), through the Paycheck Protection Program administered by the U.S. Small Business Administration (“SBA”). Alto Ingredients received \$6.0 million and Alto Pekin received \$3.9 million in loan proceeds. Under the terms of the loans, certain amounts may be forgiven if they are used for qualifying expenses as described in the CARES Act. In June 2021, the SBA approved Alto Pekin’s forgiveness application for the full amount of \$3.9 million. In September 2021, the SBA approved Alto Ingredients’ forgiveness application for the full amount of \$6.0 million. As a result, the Company recognized income from loan forgiveness of \$9.9 million for the year ended December 31, 2021. The SBA may audit the loan forgiveness applications and further examine eligibility for forgiveness, including the facts and circumstances existing at the time the loans were made. The Company can provide no assurance that any loan forgiven will not require repayment following an audit by the SBA.

Maturities of Long-term Debt – The Company’s long-term debt matures as follows (in thousands):

December 31:		
2027	\$	18,076
2028		60,000
	\$	78,076

10. LEASES.

The Company leases equipment and land for certain of its facilities. Operating lease right of use assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. The Company uses its estimated incremental borrowing rate, unless an implicit rate is readily determinable, as the discount rate for each lease in determining the present value of lease payments. For the years ended December 31, 2022 and 2021, the Company’s weighted-average discount rate was 6.00%. Operating lease expense is recognized on a straight-line basis over the lease term.

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Upon the adoption of ASC 842, the Company elected the following practical expedients allowable under the guidance: not to reassess whether any expired or existing contracts are or contain leases; not to reassess the lease classification for any expired or existing leases; not to reassess initial direct costs for any existing leases; not to separately identify lease and non-lease components; and not to evaluate historical land easements. Additionally, the Company elected the short-term lease exemption policy, applying the requirements of ASC 842 to only long-term (greater than 1 year) leases.

The Company determines if an arrangement is a lease or contains a lease at inception. The Company's leases have remaining lease terms of approximately 1 year to 53 years, which includes options to extend the lease when it is reasonably certain the Company will exercise those options. For the year ended December 31, 2022, the weighted-average remaining lease terms of equipment and land-related leases were 5.09 years and 16.75 years, respectively. The Company does not have lease arrangements with residual value guarantees, sale-leaseback terms or material restrictive covenants. The Company does not have any material finance lease obligations nor sublease agreements.

Leases consist of the following (in thousands):

	<u>Classification</u>	<u>December 31,</u>	
		<u>2022</u>	<u>2021</u>
Assets			
Operating	Right of use operating lease assets, net	\$ 18,937	\$ 13,413
Liabilities			
Operating-Current	Current portion, operating leases	\$ 3,849	\$ 3,909
Operating-Noncurrent	Operating leases, net of current portion	\$ 15,062	\$ 9,382

The Components of lease costs were as follows (in thousands):

	<u>Years Ended December 31,</u>		
	<u>2022</u>	<u>2021</u>	<u>2020</u>
Fixed lease cost	\$ 5,224	\$ 4,500	\$ 5,732
Variable lease cost	124	238	212
Net lease cost	\$ 5,348	\$ 4,738	\$ 5,944

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The following table summarizes the remaining maturities of the Company's operating lease liabilities, assuming all land lease extensions are taken, as of December 31, 2022 (in thousands):

Year Ended:	Equipment	Land Related
2023	\$ 4,112	\$ 787
2024	2,869	821
2025	2,416	985
2026	1,838	998
2027	1,334	1,011
2028-76	2,613	5,564
Less interest	(2,572)	(3,865)
	<u>\$ 12,610</u>	<u>\$ 6,301</u>

11. PENSION PLANS.

Retirement Plan - The Company sponsors a defined benefit pension plan (the "Retirement Plan") that is noncontributory, and covers only "grandfathered" unionized employees at its Alto Pekin production facilities. Benefits are based on a prescribed formula based upon the employee's years of service. Employees hired after November 1, 2010, are not eligible to participate in the Retirement Plan. The Company uses a December 31st measurement date for its Retirement Plan. The Company's funding policy is to make the minimum annual contribution required by applicable regulations.

Information related to the Retirement Plan as of and for the years ended December 31, 2022 and 2021 is presented below (dollars in thousands):

	2022	2021
Changes in plan assets:		
Fair value of plan assets, beginning	\$ 19,987	\$ 17,588
Actual gains (losses)	(3,315)	2,399
Benefits paid	(784)	(763)
Company contributions	800	763
Participant contributions	—	—
Fair value of plan assets, ending	<u>\$ 16,688</u>	<u>\$ 19,987</u>
Less: projected accumulated benefit obligation	<u>\$ 17,956</u>	<u>\$ 23,828</u>
Funded status, (underfunded)/overfunded	<u>\$ (1,268)</u>	<u>\$ (3,841)</u>
Amounts recognized in the consolidated balance sheets:		
Other liabilities	\$ (1,268)	\$ (3,841)
Accumulated other comprehensive (gain) loss	\$ (1,166)	\$ 574
Assumptions used in computation of benefit obligations:		
Discount rate	5.15%	2.80%
Expected long-term return on plan assets	6.50%	5.75%
Rate of compensation increase	—	—

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	Years Ended December 31,		
	2022	2021	2020
Components of net periodic benefit costs are as follows:			
Service cost	\$ 404	\$ 436	\$ 405
Interest cost	655	605	690
Amortization of net loss	—	98	—
Expected return on plan assets	(1,090)	(952)	(903)
Net periodic (benefit) cost	<u>\$ (31)</u>	<u>\$ 187</u>	<u>\$ 192</u>

The Company expects to make contributions in the year ending December 31, 2023 of approximately \$1.0 million. Net periodic benefit cost for 2023 is estimated at \$0.2 million.

The following table summarizes the expected benefit payments for the Company's Retirement Plan for each of the next five fiscal years and in the aggregate for the five fiscal years thereafter (in thousands):

December 31:	
2023	\$ 950
2024	980
2025	1,040
2026	1,050
2027	1,070
2028-32	6,030
	<u>\$ 11,120</u>

See Note 17 for discussion of the Retirement Plan's fair value disclosures.

Historical and future expected returns of multiple asset classes were analyzed to develop a risk-free real rate of return and risk premiums for each asset class. The overall rate for each asset class was developed by combining a long-term inflation component, the risk-free real rate of return, and the associated risk premium. A weighted-average rate was developed based on those overall rates and the target asset allocation of the Retirement Plan.

The Company's pension committee is responsible for overseeing the investment of pension plan assets. The pension committee is responsible for determining and monitoring the appropriate asset allocations and for selecting or replacing investment managers, trustees, and custodians. The Retirement Plan's current investment target allocations are 50% equities and 50% debt. The pension committee periodically reviews the actual asset allocation in light of these targets and rebalances investments as necessary. The pension committee also evaluates the performance of investment managers as compared to the performance of specified benchmarks and peers and monitors the investment managers to ensure adherence to their stated investment style and to the Retirement Plan's investment guidelines.

Postretirement Plan - The Company also sponsors a health care plan and life insurance plan (the "Postretirement Plan") that provides postretirement medical benefits and life insurance to certain "grandfathered" unionized employees at its Alto Pekin production facilities. Employees hired after December 31, 2000, are not eligible to participate in the Postretirement Plan. The plan is contributory, with contributions required at the same rate as active employees. Benefit eligibility under the plan reduces at age 65 from a defined benefit to a defined dollar cap based upon years of service.

ALTO INGREDIENTS, INC.
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Information related to the Postretirement Plan as of December 31, 2022 and 2021 is presented below (dollars in thousands):

	<u>2022</u>	<u>2021</u>
Amounts at the end of the year:		
Accumulated/projected benefit obligation	\$ 3,907	\$ 4,313
Fair value of plan assets	—	—
Funded status, (underfunded)/overfunded	<u>\$ (3,907)</u>	<u>\$ (4,313)</u>
Amounts recognized in the consolidated balance sheets:		
Accrued liabilities	\$ (310)	\$ (210)
Other liabilities	\$ (3,597)	\$ (4,103)
Accumulated other comprehensive (income) loss	\$ (656)	\$ (290)
Discount rate used in computation of benefit obligations	4.95%	2.50%

	Years Ended December 31,		
	<u>2022</u>	<u>2021</u>	<u>2020</u>
Components of net periodic benefit costs are as follows:			
Service cost	\$ 26	\$ 42	\$ 54
Interest cost	105	105	151
Amortization of prior service cost	—	25	30
Net periodic benefit cost	<u>\$ 131</u>	<u>\$ 172</u>	<u>\$ 235</u>
Amounts recognized in the plan for the year:			
Participant contributions	\$ 43	\$ 32	\$ 26
Benefits paid	\$ 215	\$ 217	\$ 200

The Company does not expect to recognize any amortization of net actuarial loss during the year ended December 31, 2022.

The following table summarizes the expected benefit payments for the Company's Postretirement Plan for each of the next five fiscal years and in the aggregate for the five fiscal years thereafter (in thousands):

December 31:	
2023	\$ 310
2024	340
2025	350
2026	410
2027	420
2028-2032	1,760
	<u>\$ 3,590</u>

For purposes of determining the cost and obligation for pre-Medicare postretirement medical benefits, a 7.50% annual rate of increase in the per capita cost of covered benefits (i.e., health care trend rate) was assumed for the Postretirement Plan in 2024, adjusted to a rate of 4.50% in 2033. Assumed health care cost trend rates have a significant effect on the amounts reported for health care plans.

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12. INCOME TAXES.

The Company recorded a provision (benefit) for income taxes as follows (in thousands):

	Years Ended December 31,		
	2022	2021	2020
Current provision (benefit)	\$ 1,925	\$ 1,469	\$ —
Deferred provision (benefit)	—	—	(17)
Total	\$ 1,925	\$ 1,469	\$ (17)

A reconciliation of the differences between the United States statutory federal income tax rate and the effective tax rate as provided in the consolidated statements of operations is as follows:

	Years Ended December 31,		
	2022	2021	2020
Statutory rate	21.0%	21.0%	21.0%
State income taxes, net of federal benefit	5.8	6.0	5.7
Change in valuation allowance	(33.9)	(18.8)	(9.4)
Stock-based compensation	3.1	—	—
Non-deductible items	(1.6)	0.4	(0.4)
Income from loan forgiveness	—	(5.5)	—
Fair value adjustments	—	—	(12.7)
Noncontrolling interest	—	—	(3.4)
Other	0.6	(0.1)	(0.8)
Effective rate	(5.0)%	3.0%	(0.0)%

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Deferred income taxes are provided using the asset and liability method to reflect temporary differences between the financial statement carrying amounts and the tax bases of assets and liabilities using presently enacted tax rates and laws. The components of deferred income taxes included in the consolidated balance sheets were as follows (in thousands):

	December 31,	
	2022	2021
Deferred tax assets:		
Net operating loss carryforwards	\$ 58,131	\$ 46,159
Capital loss	26,043	28,640
Disallowed interest	2,395	1,059
R&D, Energy and AMT credits	3,742	3,742
Pension liability	1,354	2,189
Railcar contracts	786	618
Stock-based compensation	634	479
Derivatives	460	—
Allowance for credit losses and other assets	311	367
Intangibles	89	—
Other	3,208	2,646
Total gross deferred tax assets	97,153	85,899
Less: valuation allowance	(87,949)	(75,584)
Total deferred tax assets, net of valuation allowance	9,204	10,315
Deferred tax liabilities:		
Property and equipment	(9,125)	(8,896)
Intangibles	—	(749)
Derivatives	—	(606)
Other	(315)	(300)
Total deferred tax liabilities	(9,440)	(10,551)
Net deferred tax liabilities, included in other liabilities	\$ (236)	\$ (236)

A portion of the Company's net operating loss carryforwards are subject to provisions of the tax law that limit the use of losses incurred by a corporation prior to the date certain ownership changes occur. These limitations also apply to certain depreciation deductions associated with assets on hand at the time of the ownership change and otherwise allowable during the five-year period following the ownership change. As the five-year limitation period lapsed in 2019, these disallowed deductions are reflected in property and equipment in the schedule above but continue to be subject to the annual limitation that applies to the pre-change net operating losses. Due to the limitation on the use of net operating losses and depreciation deductions, a significant portion of these carryforwards will expire regardless of whether the Company generates future taxable income. After reducing these net operating loss carryforwards for the amount which will expire due to this limitation, the Company had remaining federal net operating loss carryforwards of approximately \$207,102,000 and state net operating loss carryforwards of approximately \$233,170,000 at December 31, 2022. These net operating loss carryforwards expire as follows (in thousands):

Tax Years	Federal	State
2023–2027	\$ —	\$ 47,896
2028–2032	15,245	72,150
2033–2037	83,771	33,449
2038 and after*	108,086	79,675
Total NOLs	\$ 207,102	\$ 233,170

* Includes indefinite life federal net operating losses of \$108.1 million generated after 2017.

Approximately \$130,058,000 is available to utilize against federal taxable income for 2023.

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To the extent amounts are not utilized in any year, they may be carried forward to the next year until expiration. These amounts may change if there are future additional limitations on their utilization.

Federal capital loss of \$100,487,000 may be carried forward for 5 years and will expire in 2025. State capital loss of \$95,469,000 may be carried forward for 5 years for most of the states in which the Company files returns and will expire in 2025.

In assessing whether the deferred tax assets are realizable, a more likely than not standard is applied. If it is determined that it is more likely than not that deferred tax assets will not be realized, a valuation allowance must be established against the deferred tax assets. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which the associated temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment.

A valuation allowance was established in the amount of \$87,949,000 and \$75,584,000 as of December 31, 2022 and 2021, respectively, based on the Company's assessment of the future realizability of certain deferred tax assets. The valuation allowance on deferred tax assets is related to future deductible temporary differences and net operating loss carryforwards for which the Company has concluded it is more likely than not that these items will not be realized in the ordinary course of operations.

For the year ended December 31, 2022, the Company recorded an increase in valuation allowance of \$12,365,000. This was primarily related to additional net operating losses accumulated for the year. For the year ended December 31, 2021, the Company recorded a decrease in valuation allowance of \$10,104,000. This was primarily related to utilization of net operating losses as the Company generated taxable income for the year. For the year ended December 31, 2020, the Company recorded an increase in valuation allowance of \$1,623,000. This was primarily the offsetting impact of an increase in deferred tax assets associated with the capital loss carryforward offset by changes in depreciation and other adjustments associated with property plant and equipment, and mark-to-market adjustments related to derivatives in 2020.

Unrecognized Tax Benefits

A reconciliation of the beginning balance and the ending balance of gross unrecognized tax benefits, before interest and penalties, for the period presented is as follows (in thousands):

	December 31,	
	2022	2021
Unrecognized tax benefits at beginning of year	\$ —	\$ —
Increases related to current year tax positions	—	—
Decreases related to current year tax positions	—	—
Increases related to prior year tax positions	739	—
Decreases related to prior year tax positions	—	—
Decreases related to expiration of prior year tax positions	—	—
Decreases related to settlements of prior year tax positions	—	—
Unrecognized tax benefits at end of year	<u>\$ 739</u>	<u>\$ —</u>

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The Company recorded unrecognized tax benefits for uncertain tax positions of approximately \$739,000 as of December 31, 2022, of which \$739,000 would impact the effective tax rate, if recognized.

The Company recognizes interest and penalties related to income tax matters as a component of interest expense and other income (expense), respectively. As of December 31, 2022, the Company accrued penalties of \$74,000 and interest of \$23,000 related to uncertain tax positions. The Company does not expect the unrecognized tax benefits to change significantly over the next 12 months.

The Company is subject to income tax in the United States federal jurisdiction and various state jurisdictions and has identified its federal tax return and tax returns in state jurisdictions below as “major” tax filings. These jurisdictions, along with the years still open to audit under the applicable statutes of limitation, are as follows:

Jurisdiction	Tax Years
Federal	2019 – 2021
Alabama	2019 – 2021
Arizona	2018 – 2021
Arkansas	2019 – 2021
California	2018 – 2021
Colorado	2018 – 2021
Connecticut	2019 – 2021
Georgia	2019 – 2021
Idaho	2019 – 2021
Illinois	2019 – 2021
Indiana	2019 – 2021
Iowa	2019 – 2021
Kansas	2019 – 2021
Louisiana	2019 – 2021
Michigan	2019 – 2021
Minnesota	2019 – 2021
Mississippi	2019 – 2021
Missouri	2019 – 2021
Nebraska	2019 – 2021
New Mexico	2019 – 2021
Oklahoma	2019 – 2021
Oregon	2019 – 2021
Pennsylvania	2019 – 2021
Rhode Island	2019 – 2021
South Carolina	2019 – 2021
Tennessee	2019 – 2021
Texas	2018 – 2021

However, because the Company had net operating losses and credits carried forward in several of the jurisdictions, including the United States federal and California jurisdictions, certain items attributable to closed tax years are still subject to adjustment by applicable taxing authorities through an adjustment to tax attributes carried forward to open years.

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13. PREFERRED STOCK.

The Company has 6,734,835 undesignated shares of authorized and unissued preferred stock, which may be designated and issued in the future on the authority of the Company's Board of Directors. As of December 31, 2022, the Company had the following designated classes of preferred stock:

Series A Preferred Stock – The Company has authorized 1,684,375 shares of Series A Cumulative Redeemable Convertible Preferred Stock ("Series A Preferred Stock"), with none outstanding at December 31, 2022 and 2021. Shares of Series A Preferred Stock that are converted into shares of the Company's common stock revert to undesignated shares of authorized and unissued preferred stock.

Upon any issuance, the Series A Preferred Stock would rank senior in liquidation and dividend preferences to the Company's common stock. Holders of Series A Preferred Stock would be entitled to quarterly cumulative dividends payable in arrears in cash in an amount equal to 5% per annum of the purchase price per share of the Series A Preferred Stock. The holders of the Series A Preferred Stock would have conversion rights initially equivalent to two shares of common stock for each share of Series A Preferred Stock, subject to customary antidilution adjustments. Certain specified issuances will not result in antidilution adjustments. The shares of Series A Preferred Stock would also be subject to forced conversion upon the occurrence of a transaction that would result in an internal rate of return to the holders of the Series A Preferred Stock of 25% or more. Accrued but unpaid dividends on the Series A Preferred Stock are to be paid in cash upon any conversion of the Series A Preferred Stock.

The holders of Series A Preferred Stock would have a liquidation preference over the holders of the Company's common stock equivalent to the purchase price per share of the Series A Preferred Stock plus any accrued and unpaid dividends on the Series A Preferred Stock. A liquidation would be deemed to occur upon the happening of customary events, including transfer of all or substantially all of the Company's capital stock or assets or a merger, consolidation, share exchange, reorganization or other transaction or series of related transactions, unless holders of 66 2/3% of the Series A Preferred Stock vote affirmatively in favor of or otherwise consent to such transaction.

Series B Preferred Stock – The Company has authorized 1,580,790 shares of Series B Cumulative Convertible Preferred Stock ("Series B Preferred Stock"), with 926,942 shares outstanding at December 31, 2022 and 2021. Shares of Series B Preferred Stock that are converted into shares of the Company's common stock revert to undesignated shares of authorized and unissued preferred stock.

The Series B Preferred Stock ranks senior in liquidation and dividend preferences to the Company's common stock. Holders of Series B Preferred Stock are entitled to quarterly cumulative dividends payable in arrears in cash in an amount equal to 7.00% per annum of the purchase price per share of the Series B Preferred Stock; however, subject to the provisions of the Letter Agreement described below, such dividends may, at the option of the Company, be paid in additional shares of Series B Preferred Stock based initially on the liquidation value of the Series B Preferred Stock. In addition to the quarterly cumulative dividends, holders of the Series B Preferred Stock are entitled to participate in any common stock dividends declared by the Company to its common stockholders. The holders of Series B Preferred Stock have a liquidation preference over the holders of the Company's common stock initially equivalent to \$19.50 per share of the Series B Preferred Stock plus any accrued and unpaid dividends on the Series B Preferred Stock. A liquidation will be deemed to occur upon the happening of customary events, including the transfer of all or substantially all of the capital stock or assets of the Company or a merger, consolidation, share exchange, reorganization or other transaction or series of related transaction, unless holders of 66 2/3% of the Series B Preferred Stock vote affirmatively in favor of or otherwise consent that such transaction shall not be treated as a liquidation. The Company believes that such liquidation events are within its control and therefore has classified the Series B Preferred Stock in stockholders' equity.

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As of December 31, 2022, the Series B Preferred Stock was convertible into 964,230 shares of the Company's common stock. The conversion ratio is subject to customary antidilution adjustments. In addition, antidilution adjustments are to occur in the event that the Company issues equity securities, including derivative securities convertible into equity securities (on an as-converted or as-exercised basis), at a price less than the conversion price then in effect. The shares of Series B Preferred Stock are also subject to forced conversion upon the occurrence of a transaction that would result in an internal rate of return to the holders of the Series B Preferred Stock of 25% or more. The forced conversion is to be based upon the conversion ratio as last adjusted. Accrued but unpaid dividends on the Series B Preferred Stock are to be paid in cash upon any conversion of the Series B Preferred Stock.

The holders of Series B Preferred Stock vote together as a single class with the holders of the Company's common stock on all actions to be taken by the Company's stockholders. Each share of Series B Preferred Stock entitles the holder to approximately 0.03 votes per share on all matters to be voted on by the stockholders of the Company. Notwithstanding the foregoing, the holders of Series B Preferred Stock are afforded numerous customary protective provisions with respect to certain actions that may only be approved by holders of a majority of the shares of Series B Preferred Stock.

In 2008, the Company entered into Letter Agreements with Lyles United LLC ("Lyles United") and other purchasers under which the Company expressly waived its rights under the Certificate of Designations relating to the Series B Preferred Stock to make dividend payments in additional shares of Series B Preferred Stock in lieu of cash dividend payments without the prior written consent of Lyles United and the other purchasers.

On or about December 19, 2019, the Company and the holders of its Series B Preferred Stock entered into letter agreements under which the holders agreed that until the earlier of (i) the Company's repayment of its obligations in respect of its senior secured notes and thereafter until the next scheduled quarterly installment of Series B Preferred Stock dividends, or (ii) the occurrence of a specified event of default under the letter agreement, or (iii) two years from the date of the letter agreement (collectively, the "Waiver Period"), the holders waived any rights and remedies against the Company with respect to any unpaid dividends. Cumulative dividends on the Series B Preferred Stock continued to accrue during the Waiver Period and remained owing to the holders of the Series B Preferred Stock. The letter agreement expired in December 2021. As a result, the Company paid all accrued and unpaid Series B Preferred Stock dividends and resumed quarterly dividend payments on its Series B Preferred Stock on December 31, 2021.

Registration Rights Agreement – In connection with the sale of its Series B Preferred Stock, the Company entered into a registration rights agreement with Lyles United. The registration rights agreement is effective until the holders of the Series B Preferred Stock, and their affiliates, as a group, own less than 10% for each of the series issued, including common stock into which such Series B Preferred Stock has been converted. The registration rights agreement provides that holders of a majority of the Series B Preferred Stock, including common stock into which such Series B Preferred Stock has been converted, may demand and cause the Company to register on their behalf the shares of common stock issued, issuable or that may be issuable upon conversion of the Preferred Stock and as payment of dividends thereon, and upon exercise of the related warrants (collectively, the "Registrable Securities"). The Company is required to keep such registration statement effective until such time as all of the Registrable Securities are sold or until such holders may avail themselves of Rule 144 for sales of Registrable Securities without registration under the Securities Act of 1933, as amended. The holders are entitled to two demand registrations on Form S-1 and unlimited demand registrations on Form S-3; provided, however, that the Company is not obligated to effect more than one demand registration on Form S-3 in any calendar year. In addition to the demand registration rights afforded the holders under the registration rights agreement, the holders are entitled to unlimited "piggyback" registration rights. These rights entitle the holders who so elect to be included in registration statements to be filed by the Company with respect to other registrations of equity securities. The Company is responsible for all costs of registration, plus reasonable fees of one legal counsel for the holders, which fees are not to exceed \$25,000 per registration. The registration rights agreement includes customary representations and warranties on the part of both the Company and the holders and other customary terms and conditions.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

14. COMMON STOCK AND WARRANTS.

Warrants issued to Senior Noteholders – On December 22, 2019, in connection with an extension of the Company’s senior secured notes, the Company issued warrants to purchase an aggregate of 5,500,000 shares of the Company’s common stock. The warrants had an exercise price of \$1.00 per share and were exercisable commencing June 22, 2020 and were to expire on December 22, 2020. The Company had determined that the warrants issued in this transaction did not meet the conditions for classification in stockholders’ equity and as such, the Company recorded them as a liability at fair value. These warrants were initially valued at \$977,000 as of December 31, 2019. Until they were exercised, the Company revalued them at each reporting period. In August 2020, these warrants were fully exercised for \$1.00 per share. See Note 17 for the Company’s fair value assumptions.

Warrants issued in Equity Offering – On October 28, 2020, the Company closed an underwritten public offering of 5,075,000 shares of its common stock at a public offering price of \$8.42 per share and 5-year pre-funded warrants to purchase 3,825,493 shares of common stock at a public offering price of \$8.42 per pre-funded warrant. The Company had determined that the warrants issued in this transaction did not meet the conditions for classification in stockholders’ equity and as such, the Company recorded them as a liability at fair value. In November 2020, these warrants were fully exercised. For the period they were outstanding in 2020, the Company revalued them at each reporting period. See Note 17 for the Company’s fair value assumptions.

In addition, in a concurrent private placement, the Company also issued to the investor, for a nominal price, warrants to purchase an additional 8,900,493 shares of common stock at an exercise price of \$9.757 per share. The warrants became exercisable after the six-month anniversary of the offering and expired unexercised on April 28, 2022. The Company had determined that when initially issued, these warrants did not meet the conditions for classification in stockholders’ equity, however, in November 2020, the Company amended these warrants which then met the conditions of classification in stockholders’ equity and as such, the Company recorded them initially as a liability at fair value and upon their amendment, reclassified their then fair value to equity. See Note 17 for the Company’s fair value assumptions.

The aggregate gross proceeds from the offerings of common stock, pre-funded warrants and warrants were approximately \$75.0 million. The net offering proceeds were approximately \$70.5 million after deducting underwriting discounts and commissions and other estimated offering expenses.

The following table summarizes warrant activity for the years ended December 31, 2022, 2021 and 2020 (number of shares in thousands):

	Number of Shares	Price per Share	Weighted Average Exercise Price
Balance at December 31, 2019	5,500	\$ 1.00	\$ 1.00
Warrants exercised	(5,500)	\$ 1.00	\$ 1.00
Pre-funded warrants issued	3,825	\$ 0.00	\$ 0.00
Pre-funded warrants exercised	(3,825)	\$ 0.00	\$ 0.00
Series A warrants issued	8,900	\$ 9.76	\$ 9.76
Balance at December 31, 2020	8,900	\$ 9.76	\$ 9.76
Balance at December 31, 2021	8,900	\$ 9.76	\$ 9.76
Warrants expired	(8,900)	\$ 9.76	\$ 9.76
Balance at December 31, 2022	—	\$ —	\$ —

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Nonvoting Common Stock – In 2015, the Company issued nonvoting common stock convertible at a holder’s election into voting common stock. As of December 31, 2022, an aggregate of 3,539,236 shares of nonvoting common stock had been converted into an equal number of shares of the Company’s voting common stock. As of December 31, 2022, 896 shares of nonvoting common stock were outstanding.

At-the-Market Program – In October 2018, the Company established an “at-the-market” equity distribution program under which it could offer and sell shares of common stock to, or through, sales agents by means of ordinary brokers’ transactions on The Nasdaq Stock Market, in block transactions, or as otherwise agreed between the Company and its sales agent at prices deemed appropriate. For the years ended December 31, 2020 and 2019, the Company sold 1,421,000 and 3,137,000 shares of common stock through its “at-the-market” equity distribution program that resulted in net proceeds of \$5,296,000 and \$3,670,000 and fees paid to its sales agent of \$171,000 and \$66,000, respectively. The Company terminated its “at-the-market” program in October 2020.

15. STOCK-BASED COMPENSATION.

The Company has two equity incentive compensation plans: a 2006 Stock Incentive Plan and a 2016 Stock Incentive Plan.

2006 Stock Incentive Plan – The 2006 Stock Incentive Plan authorized the issuance of incentive stock options (“ISOs”) and non-qualified stock options (“NQOs”), restricted stock, restricted stock units, stock appreciation rights, direct stock issuances and other stock-based awards to the Company’s officers, directors or key employees or to consultants that do business with the Company for up to an aggregate of 1,715,000 shares of common stock. In June 2016, the 2006 Stock Incentive plan was terminated, except to the extent of issued and outstanding unvested stock awards and options.

2016 Stock Incentive Plan – On June 16, 2016, the Company’s shareholders approved the 2016 Stock Incentive Plan, which authorizes the issuance of ISOs, NQOs, restricted stock, restricted stock units, stock appreciation rights, direct stock issuances and other stock-based awards to the Company’s officers, directors or key employees or to consultants that do business with the Company initially for up to an aggregate of 1,150,000 shares of common stock. On June 14, 2018, the Company’s shareholders approved an increase to the aggregate number of shares authorized under the 2016 Stock Incentive Plan to 3,650,000 shares. On November 7, 2019, the Company’s shareholders approved an increase to the aggregate number of shares authorized under the 2016 Stock Incentive Plan to 5,650,000 shares. On November 18, 2020, the Company’s shareholders approved an increase to the aggregate number of shares authorized under the 2016 Stock Incentive Plan to 7,400,000 shares. On June 23, 2022, the Company’s shareholders approved an increase to the aggregate number of shares authorized under the 2016 Stock Incentive Plan to 8,900,000 shares.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Stock Options – Summaries of the status of Company’s stock option plans as of December 31, 2022 and 2021 and of changes in options outstanding under the Company’s plans during those years are as follows (number of shares in thousands):

	Years Ended December 31,			
	2022		2021	
	Number of Shares	Weighted Average Exercise Price	Number of Shares	Weighted Average Exercise Price
Outstanding at beginning of year	74	\$ 3.74	207	\$ 4.16
Options exercised	—	—	(124)	3.74
Options expired	—	—	(9)	12.90
Outstanding at end of year	74	\$ 3.74	74	\$ 3.74
Options exercisable at end of year	74	\$ 3.74	74	\$ 3.74

Stock options outstanding as of December 31, 2022 were as follows (number of shares in thousands):

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Number Outstanding	Weighted-Average Remaining Contractual Life (yrs.)	Weighted-Average Exercise Price	Number Exercisable	Weighted-Average Exercise Price
\$ 3.74	74	0.46	\$ 3.74	74	\$ 3.74

The aggregate intrinsic value of the options outstanding was \$(63,000), \$79,000 and \$262,000 as of December 31, 2022, 2021 and 2020, respectively.

Restricted Stock – A summary of unvested restricted stock activity is as follows (shares in thousands):

	Number of Shares	Weighted-Average Grant Date Fair Value Per Share
Unvested at December 31, 2020	2,260	\$ 1.34
Issued	750	\$ 5.76
Vested	(1,525)	\$ 1.64
Canceled	(98)	\$ 2.77
Unvested at December 31, 2021	1,387	\$ 3.30
Issued	872	\$ 6.21
Vested	(1,051)	\$ 2.66
Canceled	(39)	\$ 6.23
Unvested at December 31, 2022	1,169	\$ 5.95

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The fair value of the common stock at vesting aggregated \$6,900,000, \$8,810,000 and \$1,639,000 for the years ended December 31, 2022, 2021 and 2020, respectively. Stock-based compensation expense related to employee and non-employee restricted stock and option grants recognized in the accompanying consolidated statements of operations, was as follows (in thousands):

	Years Ended December 31,		
	2022	2021	2020
Employees	\$ 2,689	\$ 1,758	\$ 2,025
Non-employees	644	1,125	654
Total stock-based compensation expense	<u>\$ 3,333</u>	<u>\$ 2,883</u>	<u>\$ 2,679</u>

Employee grants typically have a two or three-year vesting schedule, while non-employee grants have a one-year vesting schedule. At December 31, 2022, the total compensation expense related to unvested awards which had not been recognized was \$4,863,000 and the associated weighted-average period over which the compensation expense attributable to those unvested awards will be recognized was approximately 0.55 years.

16. COMMITMENTS AND CONTINGENCIES.

Commitments – The following is a description of significant commitments at December 31, 2022:

Sales Commitments – At December 31, 2022, the Company had entered into sales contracts with its major customers to sell certain quantities of alcohol and essential ingredients. The Company had open alcohol indexed-price contracts for 91,290,000 gallons as of December 31, 2022 and open fixed-price alcohol sales contracts totaling \$116,036,000 as of December 31, 2022. The Company had open fixed-price sales contracts for essential ingredients totaling \$15,902,000 and open indexed-price sales contracts of essential ingredients for 142,000 tons as of December 31, 2022. These sales contracts are scheduled for completion over the next twelve months.

Purchase Commitments – At December 31, 2022, the Company had indexed-price purchase contracts to purchase 26,848,000 gallons of alcohol and fixed-price purchase contracts to purchase \$118,000 of alcohol from its suppliers. The Company had fixed-price purchase contracts to purchase \$87,195,000 of corn from its suppliers as of December 31, 2022. The Company had indexed-price purchase contracts for natural gas totaling 2,475,000 MMBTU. The Company also had future commitments for certain capital projects totaling \$20,986,000. These purchase commitments are scheduled to be satisfied through 2023.

Contingencies – The following is a description of significant contingencies at December 31, 2022:

Litigation – The Company is subject to various claims and contingencies in the ordinary course of its business, including those related to litigation, business transactions, employee-related matters, and others. When the Company is aware of a claim or potential claim, it assesses the likelihood of any loss or exposure. If it is probable that a loss will result and the amount of the loss can be reasonably estimated, the Company will record a liability for the loss. If the loss is not probable or the amount of the loss cannot be reasonably estimated, the Company discloses the claim if the likelihood of a potential loss is reasonably possible, and the amount involved could be material. While the Company can provide no assurances, the Company does not expect that any of its pending legal proceedings will have a material financial impact on the Company's operating results.

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

17. FAIR VALUE MEASUREMENTS.

The fair value hierarchy prioritizes the inputs used in valuation techniques into three levels, as follows:

- Level 1 – Observable inputs – unadjusted quoted prices in active markets for identical assets and liabilities;
- Level 2 – Observable inputs other than quoted prices included in Level 1 that are observable for the asset or liability through corroboration with market data; and
- Level 3 – Unobservable inputs – includes amounts derived from valuation models where one or more significant inputs are unobservable. For fair value measurements using significant unobservable inputs, a description of the inputs and the information used to develop the inputs is required along with a reconciliation of Level 3 values from the prior reporting period.

Pooled separate accounts – Pooled separate accounts invest primarily in domestic and international stocks, commercial paper or single mutual funds. The net asset value is used as a practical expedient to determine fair value for these accounts. Each pooled separate account provides for redemptions by the Retirement Plan at reported net asset values per share, with little to no advance notice requirement, therefore these funds are classified within Level 2 of the valuation hierarchy.

Long-Lived Assets Held-for-Sale – The Company recorded its long-lived assets associated with its property and equipment held-for-sale at fair value at December 31, 2022 and 2021 of \$0 and \$1,000,000, respectively. The fair values of these assets are based on observable values for the assets through corroboration with market data and are designated as Level 3 inputs.

Warrants issued in Equity Offering – The Company issued pre-funded warrants and other warrants with exercise prices of \$0.001 and \$9.757, respectively. The Company valued these warrants upon issuance using the Binomial valuation methodology. On November 16, 2020, the pre-funded warrants were exercised, and as a result, were revalued immediately prior to their exercise. Further, the other warrants were amended on November 24, 2020, resulting in equity accounting, and accordingly were revalued immediately prior to their amendment. The assumptions used were as follows (fair value dollars in thousands):

Warrant Type	Valuation Date	Exercise Price	Volatility	Risk Free Interest Rate	Term (years)	Fair Value
Pre-funded	10/28/2020	\$ 0.01	97.0%	0.34%	5.00	\$ 23,638
Other	10/28/2020	\$ 9.76	134.0%	0.14%	1.50	\$ 27,048
Pre-funded	11/16/2020	\$ 0.01	97.0%	0.40%	4.95	\$ 21,916
Other	11/24/2020	\$ 9.76	135.0%	0.13%	1.45	\$ 31,231

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The fair values of the warrants are based on unobservable inputs and are designated as Level 3 inputs. The changes in the Company's fair value of its Level 3 inputs with respect to its warrants were as follows (in thousands):

	Warrants to Senior Note holders	Pre-funded Warrants	Other Warrants
Balance, December 31, 2019	\$ 977	\$ —	\$ —
Issuance of warrants in October 2020 offering	—	23,638	27,048
Exercise of warrants/reclass to equity in 2020	(8,474)	(21,917)	(31,231)
Adjustments to fair value for 2020	7,497	(1,721)	4,183
Balance, December 31, 2021 and 2022	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

Other Derivative Instruments – The Company's other derivative instruments consist of commodity positions. The fair values of the commodity positions are based on quoted prices on the commodity exchanges and are designated as Level 1 inputs.

The following table summarizes recurring and nonrecurring fair value measurements by level at December 31, 2022 (in thousands):

	Fair Value	Level 1	Level 2	Level 3	Benefit Plan Percentage Allocation
Assets:					
Derivative financial instruments	\$ 4,973	\$ 4,973	\$ —	\$ —	
Defined benefit plan assets(1) (pooled separate accounts):					
Large U.S. Equity(2)	4,586	—	4,586	—	28%
Small/Mid U.S. Equity(3)	2,986	—	2,986	—	18%
International Equity(4)	2,406	—	2,406	—	14%
Fixed Income(5)	6,710	—	6,710	—	40%
	<u>\$ 21,661</u>	<u>\$ 4,973</u>	<u>\$ 16,688</u>	<u>\$ —</u>	
Liabilities:					
Derivative financial instruments	<u>\$ 6,732</u>	<u>\$ 6,732</u>	<u>\$ —</u>	<u>\$ —</u>	

ALTO INGREDIENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The following table summarizes recurring and nonrecurring fair value measurements by level at December 31, 2021 (in thousands):

	<u>Fair Value</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Benefit Plan Percentage Allocation</u>
Assets:					
Derivative financial instruments	\$ 15,839	\$ 15,839	\$ —	\$ —	
Long-lived assets held-for-sale	1,000	—	—	1,000	
Defined benefit plan assets(1) (pooled separate accounts):					
Large U.S. Equity(2)	5,612	—	5,612	—	28%
Small/Mid U.S. Equity(3)	3,684	—	3,684	—	18%
International Equity(4)	2,909	—	2,909	—	15%
Fixed Income(5)	7,782	—	7,782	—	39%
	<u>\$ 36,826</u>	<u>\$ 15,839</u>	<u>\$ 19,987</u>	<u>\$ 1,000</u>	
Liabilities:					
Derivative financial instruments	<u>\$ 13,582</u>	<u>\$ 13,582</u>	<u>\$ —</u>	<u>\$ —</u>	

(1) See Note 11 for accounting discussion.

(2) This category includes investments in funds comprised of equity securities of large U.S. companies. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.

(3) This category includes investments in funds comprised of equity securities of small- and medium-sized U.S. companies. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.

(4) This category includes investments in funds comprised of equity securities of foreign companies, including emerging markets. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.

(5) This category includes investments in funds comprised of U.S. and foreign investment-grade fixed income securities, high-yield fixed income securities that are rated below investment-grade, U.S. treasury securities, mortgage-backed securities, and other asset-backed securities. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.

INDEX TO EXHIBITS

Exhibit Number	Description*	Where Located				Filed Herewith
		Form	File Number	Exhibit Number	Filing Date	
2.1	Asset Purchase Agreement dated April 23, 2021 by and among the Registrant, Pacific Ethanol Madera LLC and Seaboard Energy California, LLC	10-Q	000-21467	10.1	08/10/2021	
2.2	First Amendment to Asset Purchase Agreement dated July 30, 2021 by and among the Registrant, Pacific Ethanol Madera LLC and Seaboard Energy California, LLC	10-Q	000-21467	10.2	08/10/2021	
2.3	Asset Purchase Agreement dated November 5, 2021 by and among the Registrant, Pacific Ethanol Stockton LLC and Pelican Acquisition LLC	10-K	000-21467	2.3	03/15/2022	
3.1	Certificate of Incorporation	10-Q	000-21467	3.1	11/06/2015	
3.2	Certificate of Designations, Powers, Preferences and Rights of the Series A Cumulative Redeemable Convertible Preferred Stock	10-Q	000-21467	3.2	11/06/2015	
3.3	Certificate of Designations, Powers, Preferences and Rights of the Series B Cumulative Convertible Preferred Stock	10-Q	000-21467	3.3	11/06/2015	
3.4	Certificate of Amendment to Certificate of Incorporation dated June 3, 2010	10-Q	000-21467	3.4	11/06/2015	
3.5	Certificate of Amendment to Certificate of Incorporation effective June 8, 2011	10-Q	000-21467	3.5	11/06/2015	
3.6	Certificate of Amendment to Certificate of Incorporation effective May 14, 2013	10-Q	000-21467	3.6	11/06/2015	
3.7	Certificate of Amendment to Certificate of Incorporation effective July 1, 2015	10-Q	000-21467	3.7	11/06/2015	
3.8	Certificate of Amendment to Certificate of Incorporation effective January 12, 2021	8-K	000-21467	3.1	01/13/2021	
3.9	Second Amended and Restated Bylaws	8-K	000-21467	3.2	01/13/2021	
4.1	Description of Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934	10-K	000-21467	4.1	03/30/2020	
10.1	2006 Stock Incentive Plan, as amended#	S-8	333-196876	4.1	06/18/2014	
10.2	2016 Stock Incentive Plan, as amended#	S-8	333-266035	4.11	07/06/2022	
10.3	Form of Employee Restricted Stock Agreement under 2016 Stock Incentive Plan#	10-K	000-21467	10.5	03/15/2018	

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Exhibit Number	Description*	Where Located				
		Form	File Number	Exhibit Number	Filing Date	Filed Herewith
10.4	Form of Non-Employee Director Restricted Stock Agreement under 2016 Stock Incentive Plan#	10-K	000-21467	10.6	03/15/2017	
10.5	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and Bryon T. McGregor#	10-K	000-21467	10.9	03/15/2017	
10.6	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and James R. Sneed#	10-K	000-21467	10.12	03/15/2017	
10.7	Second Amended and Restated Employment Agreement dated July 26, 2018 between the Registrant and Michael D. Kandris#	8-K	000-21467	10.1	08/07/2020	
10.8	Employment Agreement dated February 1, 2022 between the Registrant and Auste M. Graham#	10-K	000-21467	10.9	03/15/2022	
10.9	Consulting Agreement dated May 28, 2022 between the Registrant and Christopher W. Wright	8-K	000-21467	10.1	06/01/2022	
10.10	Form of Indemnity Agreement between the Registrant and each of its Executive Officers and Directors#	10-K	000-21467	10.46	03/31/2010	
10.11	Policy for Recoupment of Incentive Compensation dated March 29, 2018#	10-K	000-21467	10.17	03/18/2019	
10.12	Form of Clawback Policy Acknowledgement and Agreement#	10-K	000-21467	10.18	03/18/2019	
10.13	Registration Rights Agreement dated March 27, 2008 between the Registrant and Lyles United, LLC	8-K	000-21467	10.4	03/27/2008	
10.14	Letter Agreement dated March 27, 2008 between the Registrant and Lyles United, LLC	8-K	000-21467	10.5	03/27/2008	
10.15	Letter Agreement dated May 22, 2008 among the Registrant, Neil M. Koehler, Bill Jones, Paul P. Koehler and Thomas D. Koehler#	8-K	000-21467	10.3	05/23/2008	
10.16	Second Amended and Restated Credit Agreement dated August 2, 2017 among Kinergy Marketing LLC, Pacific Ag. Products, LLC, Wells Fargo Bank, National Association, and the parties thereto from time to time as lenders	8-K	000-21467	10.1	08/08/2017	

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Exhibit Number	Description*	Where Located				
		Form	File Number	Exhibit Number	Filing Date	Filed Herewith
10.17	<u>Amendment No. 1 to Second Amended and Restated Credit Agreement dated March 27, 2019 by and among Kinergy Marketing LLC, Pacific Ag. Products, LLC and Wells Fargo Bank, National Association</u>	10-Q	000-21467	10.7	05/03/2019	
10.18	<u>Amendment No. 2 to Second Amended and Restated Credit Agreement dated July 31, 2019 by and among Kinergy Marketing LLC, Pacific Ag. Products, LLC, the parties thereto from time to time as lenders and Wells Fargo Bank, National Association</u>	8-K	000-21467	10.1	08/06/2019	
10.19	<u>Amendment No. 3 to Second Amended and Restated Credit Agreement dated November 19, 2019 by and among Kinergy Marketing LLC, Pacific Ag. Products, LLC, the parties thereto from time to time as lenders and Wells Fargo Bank, National Association</u>	10-K	000-21467	10.61	03/30/2020	
10.20	<u>Waiver, Consent and Amendment No. 4 to Second Amended and Restated Credit Agreement dated March 8, 2021 by and among Kinergy Marketing LLC, Alto Nutrients, LLC and Wells Fargo Bank, National Association</u>	10-K	000-21467	10.20	03/15/2022	
10.21	<u>Waiver, Consent, and Amendment No. 5 to Second Amended and Restated Credit Agreement dated June 10, 2021 by and among Kinergy Marketing LLC, Alto Nutrients, LLC and Wells Fargo Bank, National Association</u>	10-K	000-21467	10.21	03/15/2022	
10.22	<u>Amendment No. 6 to Second Amended and Restated Credit Agreement dated November 7, 2022 by and among Kinergy Marketing LLC, Alto Nutrients, LLC and Wells Fargo Bank, National Association</u>	8-K	000-21467	10.2	11/14/2022	
10.23	<u>Second Amended and Restated Guarantee dated August 2, 2017 by the Registrant in favor of Wells Fargo Bank, National Association, for and on behalf of the lenders</u>	8-K	000-21467	10.2	08/08/2017	

INDEX TO EXHIBITS

Exhibit Number	Description*	Where Located				
		Form	File Number	Exhibit Number	Filing Date	Filed Herewith
10.24	Credit Agreement dated November 7, 2022 by and among the Registrant, the subsidiary guarantors signatory thereto, Orion Energy Credit Opportunities Fund III, L.P., Orion Energy Credit Opportunities Fund III GPFA PV, L.P., Orion Energy Credit Opportunities Fund III GPFA, L.P., Orion Energy Credit Opportunities Fund III PV, L.P., and OIC Investment Agent, LLC	8-K	000-21467	10.1	11/14/2022	
10.25	Registration Rights Agreement dated November 7, 2022 by and among Alto Ingredients, Inc., Orion Energy Credit Opportunities Fund III, L.P., Orion Energy Credit Opportunities Fund III GPFA PV, L.P., Orion Energy Credit Opportunities Fund III GPFA, L.P. and Orion Energy Credit Opportunities Fund III PV, L.P.	8-K	000-21467	10.3	11/14/2022	
21.1	Subsidiaries of the Registrant					X
23.1	Consent of Independent Registered Public Accounting Firm					X
31.1	Certification Required by Rule 13a-14(a) of the Securities Exchange Act of 1934, as amended, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification Required by Rule 13a-14(a) of the Securities Exchange Act of 1934, as amended, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1	Certification of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
101.INS	Inline XBRL Instance Document					X
101.SCH	Inline XBRL Taxonomy Extension Schema					X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase					X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase					X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase					X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase					X
104	Cover Page Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibits 101)					X

(#) A contract, compensatory plan or arrangement to which a director or executive officer is a party or in which one or more directors or executive officers are eligible to participate.

(*) Certain of the agreements filed as exhibits contain representations and warranties made by the parties thereto. The assertions embodied in such representations and warranties are not necessarily assertions of fact, but a mechanism for the parties to allocate risk. Accordingly, investors should not rely on the representations and warranties as characterizations of the actual state of facts or for any other purpose at the time they were made or otherwise.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on this 14th day of March, 2023.

ALTO INGREDIENTS, INC.

/s/ MICHAEL D. KANDRIS

Michel D. Kandris
President and Chief Executive Officer

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ WILLIAM L. JONES</u> William L. Jones	Chairman of the Board and Director	March 14, 2023
<u>/s/ MICHAEL D. KANDRIS</u> Michael D. Kandris	President, Chief Executive Officer (Principal Executive Officer), Chief Operating Officer and Director	March 14, 2023
<u>/s/ BRYON T. MCGREGOR</u> Bryon T. McGregor	Chief Financial Officer (Principal Financial and Accounting Officer)	March 14, 2023
<u>/s/ TERRY L. STONE</u> Terry L. Stone	Director	March 14, 2023
<u>/s/ DOUGLAS L. KIETA</u> Douglas L. Kieta	Director	March 14, 2023
<u>/s/ GILBERT E. NATHAN</u> Gilbert E. Nathan	Director	March 14, 2023
<u>/s/ DIANNE S. NURY</u> Dianne S. Nury	Director	March 14, 2023
<u>/s/ MARIA G. GRAY</u> Maria G. Gray	Director	March 14, 2023

Subsidiary Name	State or Jurisdiction of Incorporation or Organization
Kinergy Marketing LLC	Oregon
Alto Nutrients, LLC	California
Alto Op Co.	Delaware
Alto West, LLC	Delaware
Alto Columbia, LLC	Delaware
Alto Magic Valley, LLC	Delaware
Alto Central, LLC	Delaware
Alto Canton, LLC	Delaware
Alto Pekin, LLC	Delaware
Alto ICP, LLC	Delaware
Eagle Alcohol Company LLC	Missouri

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in Registration Statements (Nos. 333-169002, 333-176540, 333-185884, 333-189478, 333-196876, 333-212070, 333-225622, 333-234613, 333-250180 and 333-266035) on Form S-8 and (Nos. 333-238939 and 333-268583) on Form S-3 of Alto Ingredients, Inc. of our reports dated March 14, 2023, relating to the consolidated financial statements and the effectiveness of internal control over financial reporting of Alto Ingredients, Inc., appearing in this Annual Report on Form 10-K of Alto Ingredients, Inc. for the year ended December 31, 2022.

/s/ RSM US LLP

Rochester, Minnesota
March 14, 2023

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

I, Michael D. Kandris, certify that:

1. I have reviewed this Annual Report on Form 10-K of Alto Ingredients, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 14, 2023

/s/ Michael D. Kandris

Michael D. Kandris
President and Chief Executive Officer
(Principal Executive Officer)

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

I, Bryon T. McGregor, certify that:

1. I have reviewed this Annual Report on Form 10-K of Alto Ingredients, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 14, 2023

/s/ Bryon T. McGregor

Bryon T. McGregor
Chief Financial Officer
(Principal Financial Officer)

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

In connection with the Annual Report on Form 10-K of Alto Ingredients, Inc. (the "Company") for the year ended December 31, 2022 (the "Report"), the undersigned hereby certify in their capacities as Chief Executive Officer and Chief Financial Officer of the Company, respectively, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: March 14, 2023

By: /s/ Michael D. Kandris
Michael D. Kandris
President and Chief Executive Officer
(Principal Executive Officer)

Dated: March 14, 2023

By: /s/ Bryon T. McGregor
Bryon T. McGregor
Chief Financial Officer
(Principal Financial Officer)

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