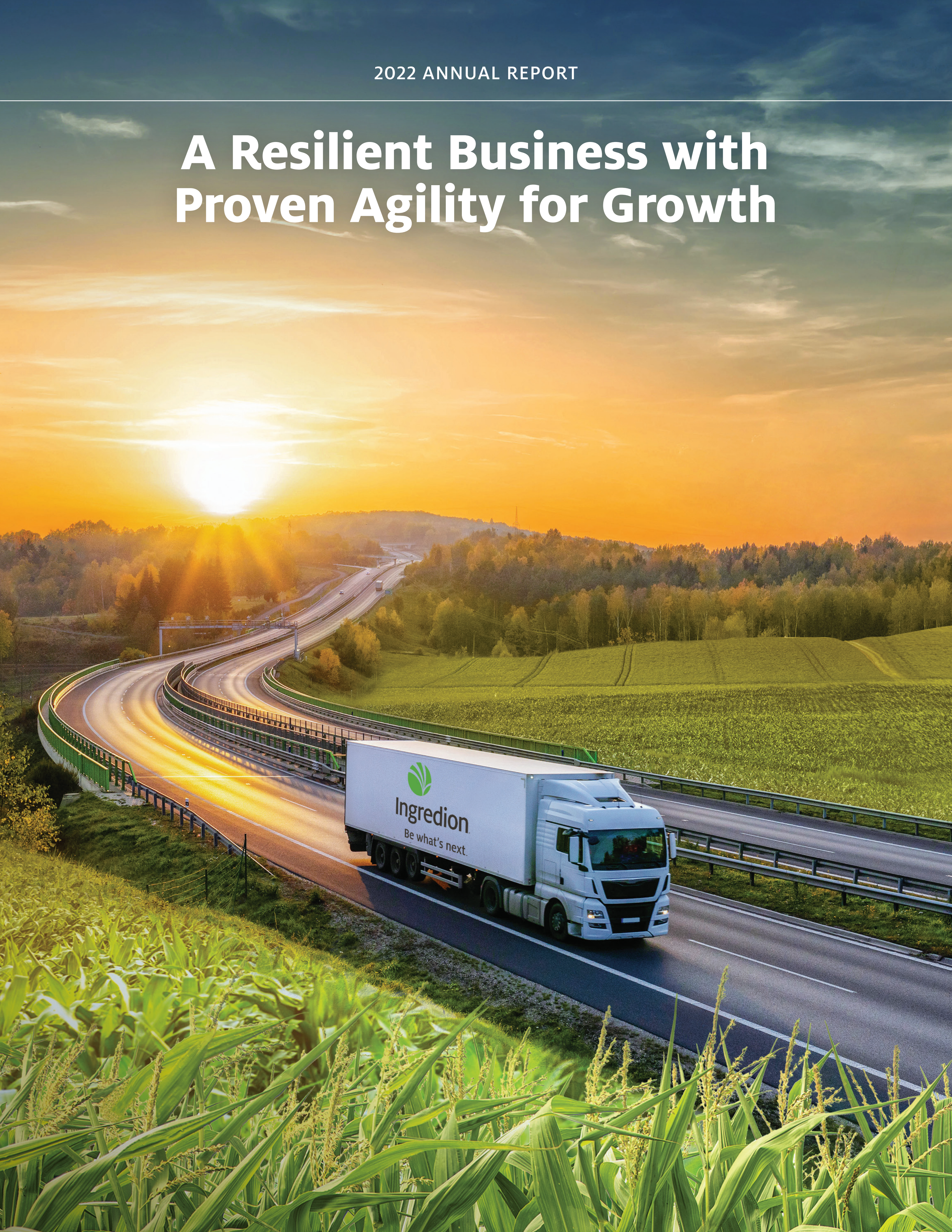
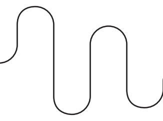

2022 ANNUAL REPORT
A Resilient Business with Proven Agility for Growth
Ingredion
Be what's next.



Dear valued shareholders,

IN 2022, Ingredion delivered outstanding performance with top-line and adjusted operating income both growing by 15%. Our teams demonstrated resilience and agility in overcoming macroeconomic conditions and other unforeseen challenges to successfully execute against our Driving Growth Roadmap and create value for our shareholders and our customers.

STRONG FINANCIAL RESULTS

Net sales for 2022 increased to nearly $8 billion up from $6.9 billion the prior year. Our reported and adjusted operating income reached $762 million and $787 million, respectively, compared to $310 million and $685 million in 2021. Reported and adjusted earnings per share grew to $7.34 and $7.45, respectively, up from $1.73 and $6.67 last year. Also, for the full year, we returned $288 million to Ingredion shareholders through our dividend and stock repurchase programs.

This strong performance was even more noteworthy given the persistent industry-wide market conditions. Our largest raw material input, corn, was significantly impacted by the Ukraine conflict and a drought in Europe. Despite those supply shocks, our team secured the necessary quantities of raw material and maintained shipments to our customers while overcoming input cost inflation.

Also contributing to our success were expanded hedging practices that enabled us to mitigate profit volatility caused by rising commodity prices and offset over $200 million of foreign exchange impact. We also ramped up production and sales from our new facility in Shandong, China despite countrywide COVID-19 restrictions, expanding our capacity for specialty modified starches in a large, growing market.

EXECUTING AGAINST OUR DRIVING GROWTH ROADMAP

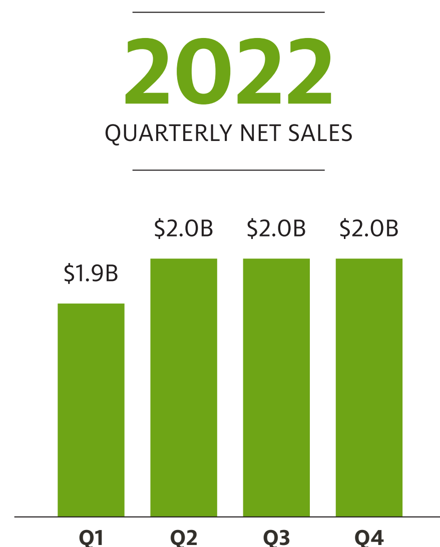
Throughout the year, our teams did an exceptional job executing against our four strategic pillars, fueling our progress, and laying the foundation for continued growth.

Specialty ingredients once again delivered strong double-digit growth and ended the year representing 34% of our total revenue. We made substantial strides by growing our specialties portfolio with net sales higher across all four regions versus the prior year.

Among other highlights, we expanded our starch-based texturizer network to further enhance the resiliency and efficiency of our global supply chain, and we delivered breakthrough product innovations in our PureCircle franchise. In addition, plant-based proteins more than doubled in revenue, and despite a slower sales ramp than we had targeted, we made significant headway on improving product quality, increasing production volume, and developing our customer project pipeline. This positions us well to capitalize on growth opportunities within fortified bakery and snacks, alternative dairy, sports nutrition, and beverage categories.

Our progress in the areas of “Commercial Excellence” and “Cost Competitiveness through Operational Excellence” also contributed significantly to our performance and solidified the foundation for future gains. For instance, our Pricing Centers of Excellence enabled us to deliver $1.3 billion in net sales growth. We also raised the level of sustainable sourcing of our five priority agricultural inputs to 47% from 32% in 2021. Additionally, we are holistically assessing how we purchase, produce, and transport raw materials and finished products to customers at the lowest cost and have made investments to enhance our supply chain

OUR BOARD OF DIRECTORS *Left to right:* Dwayne Wilson, Catherine Suever, Gregory Kenny, Charles Magro, James Zallie, Paul Hanrahan, Stephan Tanda, Jorge Uribe, Rhonda Jordan, Victoria Reich, David Fischer



and drive digital transformation within our manufacturing facilities.

In 2022, we released our 11th annual sustainability report, Making Life Better, and second annual DEI report, Beyond Belonging, charting our path forward as we advanced our purpose-driven and people-centric growth culture. We were honored to be included in Bloomberg's Gender-Equality Index for the sixth consecutive year. Additionally, we were among a select group of companies to have our 2030 emissions reduction targets validated by SBTi, which provides us with a roadmap aligned with climate science and reflects our ambition to make life better for society at large.

LOOKING AHEAD

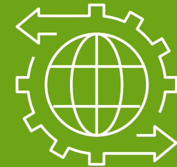
Thanks to the creativity, drive, nimbleness, and commitment of our people, Ingredion turned in a very strong year. Looking to 2023, I am confident that we are well positioned to continue to execute against our strategic pillars for growth and benefit further from our resilient business model. Our priorities will be to drive mix enrichment by growing our specialty ingredient portfolio; continue to optimize our grind and maximize value from the finishing channels for core ingredients to further mitigate profit volatility; and invest in R&D and digital capabilities to drive innovation and enhance customer intimacy.

I would like to thank our shareholders for their continued trust in Ingredion. Finally, I extend my appreciation and gratitude to our board of directors for their continued dedication and support. Together, we look forward to building on our accomplishments in the coming years.

Sincerely,

James P. Zallie
PRESIDENT & CEO

INGREDION ACHIEVED 15% YEAR-OVER-YEAR REVENUE GROWTH DESPITE MARKET CHALLENGES



176%
GLOBAL SUPPLY CHAIN PRESSURE INDEX GROWS SHARPLY†

Ingredion continues to digitally transform our supply chain, better leveraging existing platforms and introducing new tools to increase visibility

† January 2021 to 2022, Global Supply Chain Pressure Index, New York Federal Reserve Bank

14%
COMMODITY PRICES SURGE IN WAKE OF UKRAINE WAR§

Through our global sourcing network and hedging, we met customer orders and reduced exposure to rising commodity costs

§ February 24 to June 8, 2022, Dow Jones Commodity Index

9%
GLOBAL INFLATION HITS 40-YEAR HIGH*

Contracting efforts in 2021 plus 2022 in-year pricing more than offset inflation and increased gross profits by 12%

* International Monetary Fund

33%
AMERICANS RESIGN IN RECORD NUMBERS‡

By emphasizing employee engagement, well-being and strengthening engagement and investing in our communities, we improved retention while training initiatives and internships widened our talent pipeline

‡ Quits Levels, U.S. Bureau of Labor Statistics

11%
DOLLAR CLIMBS AGAINST BASKET OF WORLD CURRENCIES◊

Expanded hedging by our Pricing Centers of Excellence buffered us against the impact of a higher U.S. dollar

◊ January to October 2022, Nominal Broad Dollar Index, Federal Reserve Bank

Agility For Growth

We are purpose-driven and committed to sustainable sourcing. We help customers innovate to meet consumers' needs with great-tasting, functional, and healthy plant-based ingredients.

PURECIRCLE MOMENTUM CONTINUES

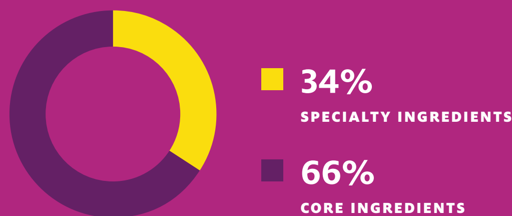
As a global leader in sugar reduction and specialty sweeteners, Ingredion is well-positioned to benefit from the growing consumer demand for food and beverages that are lower in sugar and calories. Throughout the year, PureCircle achieved significant customer wins, implemented effective pricing strategies and developed innovative solutions that strengthened our sugar reduction and specialty sweetener portfolio.

Last year, we received approval from the European Union for our bioconverted Reb M, and our teams are also working to expand access to fermented sugarcane Reb M to more countries throughout Europe. Looking ahead, we are investing capital to expand capacity growth for consumers around the world.

2022

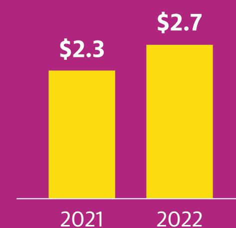
NET SALES SPECIALTY GROWTH

Ingredient Categories



Net Sales Specialty Ingredients

(in billions)



27%

CHINESE PER CAPITA MODIFIED STARCH CONSUMPTION VS. U.S.

EXPANDING OUR FOOD STARCH NETWORK

The versatility, functionality, and affordability of texturizers makes them indispensable and critical. Regardless of the economic cycle, texturizers are essential in maintaining the food supply and helping to feed growing populations. To meet the rising demand for texturizers, we announced a multi-year $160 million investment through 2024 to support the expansion of our modified and clean-label franchise and to increase local production. Last year, we completed one-third of this planned capital investment.

In 2022, despite COVID-19 lockdowns, we successfully opened a state-of-the-art manufacturing facility in Shandong, China, which more than doubled our starch production capacity there. We are now the largest producer of modified starches in China, a significant growth market. To further increase our starch capacity, we accelerated the commissioning of new capacity at our Indianapolis facility. Our expanded starch production and our enhanced capabilities enable us to support our European customers, who anticipated industry shortages for some products due to the severe summer drought in 2022.

A SUSTAINABLE SOURCE OF PROTEIN

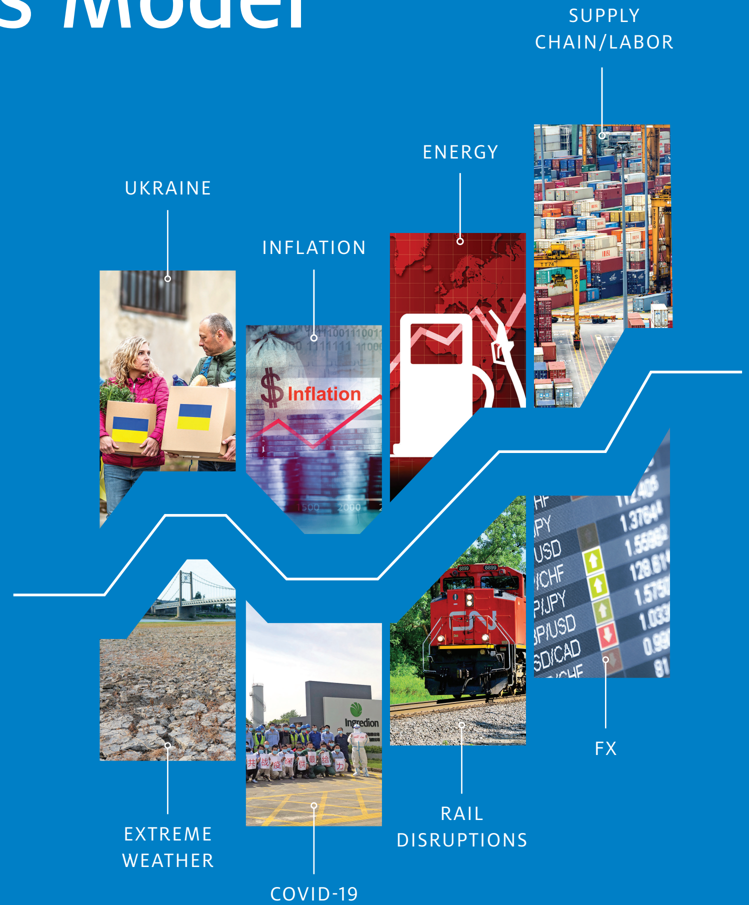
Experts agree that plant-based proteins will play a vital role in the world's ability to achieve food security by 2030. Pulse-based proteins enable manufacturers to formulate non-soy-based gluten-free meat and dairy alternatives with consumer-preferred texture and taste. We are proud that our Ultra Performance line of pea protein solutions was named the best plant-based sustainability winner during the 2022 World Plant-Based Awards. This better tasting, more sustainable product line provides great versatility in a variety of applications.

118%

YEAR-OVER-YEAR REVENUE INCREASE IN PLANT-BASED PROTEINS

Resilient Business Model

In a year marked by upheaval and uncertainty, the resilience of Ingredion's business model—combined with the dedication and responsiveness of our teams and the collaboration of our customers and partners—enabled us to post strong results. In the face of supply chain disruptions, rising energy and commodity costs and a soaring dollar, Ingredion's exceptional performance last year has positioned us for continued growth in years to come.



RISK MITIGATION

Energy and commodity prices remained elevated throughout the year, impacted by extreme weather events and disruptions caused by the war in Ukraine. In response, we expanded our hedging and risk management practices, providing predictable costs during a period of global uncertainty.

At the same time, the dollar appreciated against other major currencies to levels not seen in decades, as the Federal Reserve aggressively hiked interest rates to combat inflation. Accordingly, we took actions throughout the year to offset $177 million in foreign exchange impacts to net sales in EMEA and Asia-Pacific.

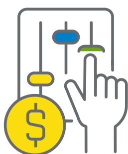
$177M

NEGATIVE FX NET SALES IMPACTS IN EMEA AND ASIA-PACIFIC

PRICING CENTERS OF EXCELLENCE

Our Pricing Centers of Excellence played a critical role in our 2022 results; they were instrumental in enabling us to drive top-line growth, more than offset inflationary cost increases and secure almost $1.3 billion in price mix increases.

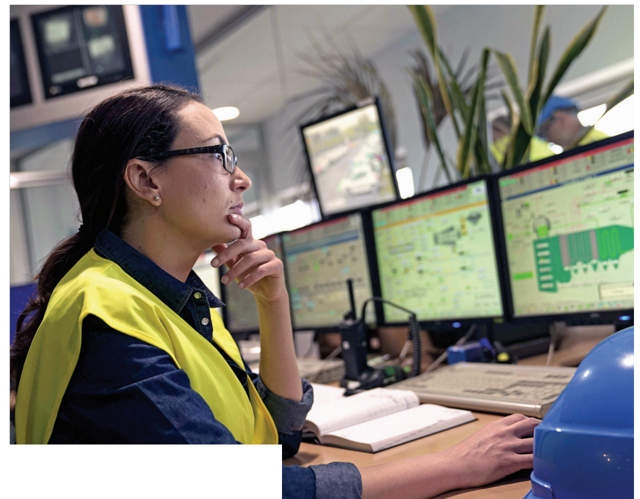
Our broad ingredient portfolio serves customers across branded and private label categories. In 2022, we successfully managed volume by balancing demand across our customers.



ALMOST

$1.3B

IN PRICE MIX INCREASES FOR 2022

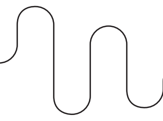


7%

INCREASE IN ON-TIME IN-FULL (OTIF) DELIVERIES

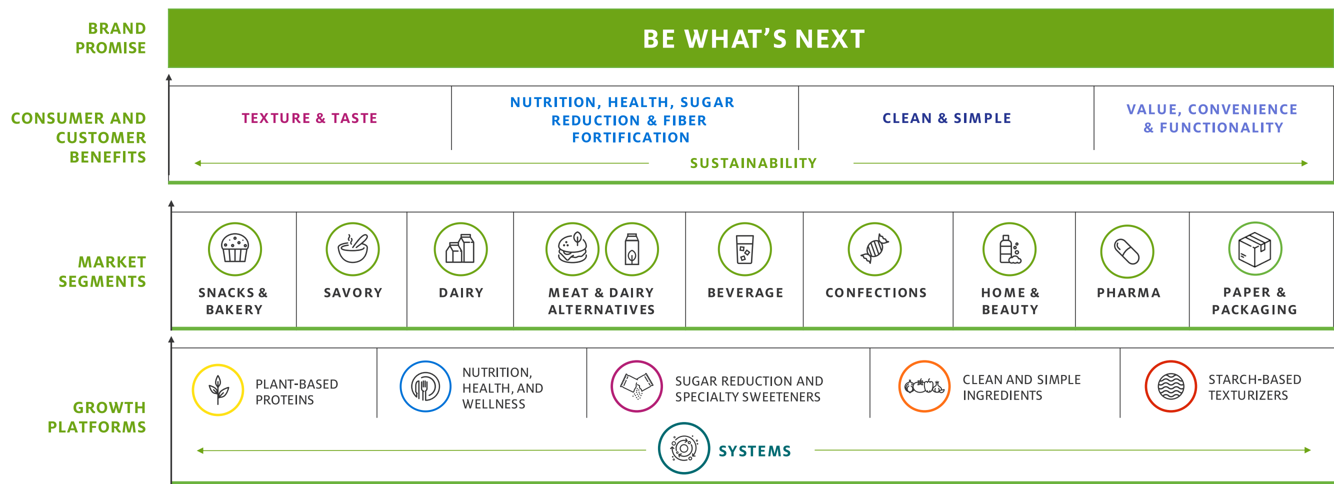
DRIVING OPERATIONAL EXCELLENCE

Throughout the year, supply chain challenges were intensified by labor availability, COVID-19 restrictions and the war in Ukraine. Using computer simulations to model supply chain flows, we were able to reduce our costs and maximize returns under a variety of capacity and service constraint scenarios. When the global corn supply was impacted by events in Ukraine, we leveraged our global procurement and supply chain network to address gaps that arose in various geographies, for instance offsetting shortages in the European Union with supplies from Asia.



Be What's Next

We will continue to build upon our strong, proven business model that delivers growth while seeking to mitigate risk appropriately. Our specialties framework continues to deliver significant shareholder value from a wide variety of versatile ingredients, positioning us to create on-trend solutions for a growing range of customers.



Sustainability

8%

Reduction in global carbon emissions due to exiting coal usage at our Argo, Illinois, facility vs. 2019 base year.

At Ingredion, we believe that environmental, social and governance initiatives are an expression of our values and the foundation of our success. Our 2030 All Life Sustainability Plan—focusing on Everyday Life, Planet Life, and Connected Life—is our roadmap forward.

This year, we made significant progress toward our environmental goals by securing approval for our greenhouse gas emissions reduction targets by the Science Based Targets initiative (SBTi).

47%

COMPLETE*

We committed to sustainably source 100% of our corn, tapioca, potato, stevia and pulses by the end of 2025.

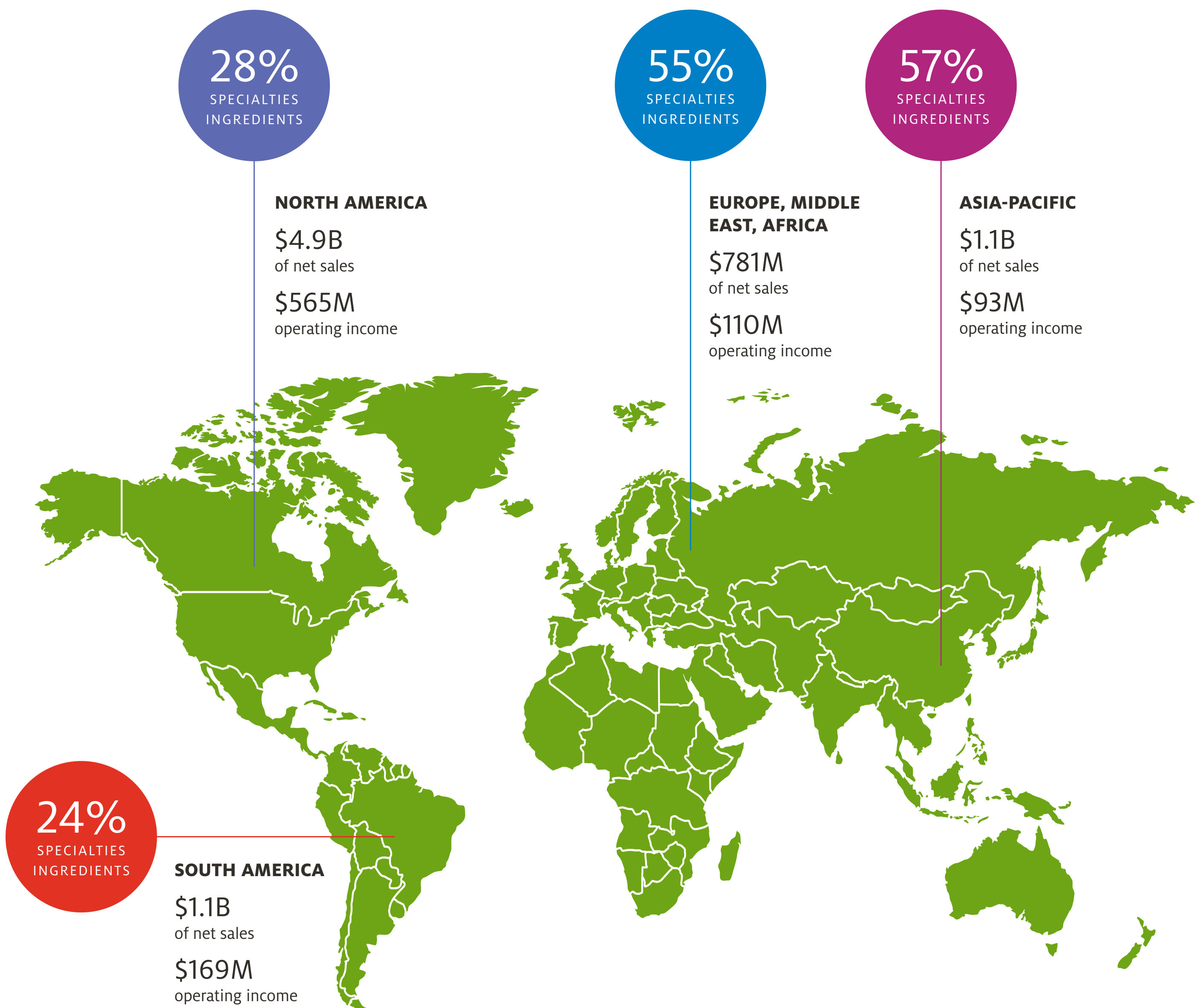
A MOBILE APP FOR TAPIOCA FARMERS IN THAILAND

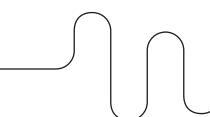
We are determined to innovate boldly in everything we do, in support of our partners, customers, and communities. Recognizing that the majority of small tapioca farms in Thailand have only wireless access, we launched a mobile app that provides farmers with instant access to information on farming and harvesting techniques as well as pricing information. Thanks to this tool, more than 1,000 farmers have increased their yields.

*estimate as of December 2022

Growth Across the Globe

The geographic diversity of our markets—especially those with growing populations—and the range of our ingredients—from encapsulants and emulsifiers to starches and sweeteners—provides a foundation for Ingredion's stable performance and steady growth. In 2022, a number of our businesses achieved record net sales, including Brazil and China, two of our most important markets. Our teams remain intensely focused on getting our ingredients to our customers when and where they need them.



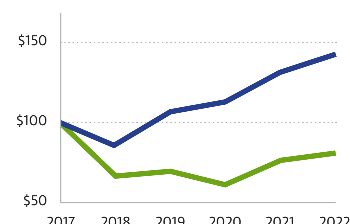


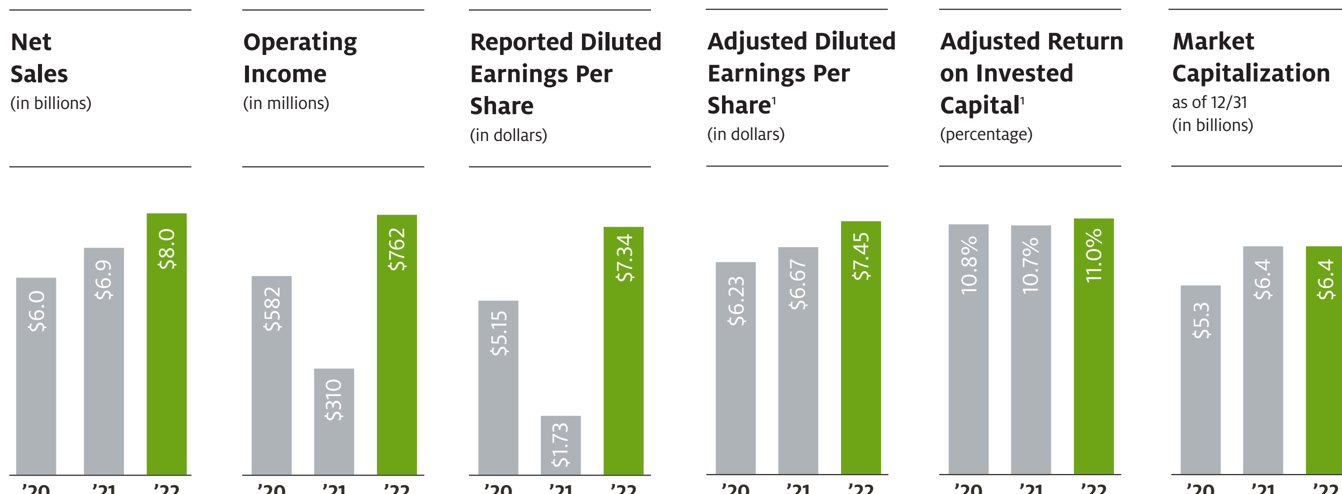
Sales

Based on 2022 Net Sales

Dollars in millions, except per share amounts; years ended December 31	2022	% CHANGE	2021	% CHANGE	2020
Reported Income Statement Data					
Net sales	$7,946	15%	$6,894	15%	$5,987
Operating income	762	146%	310	(47)%	582
Diluted earnings per share	7.34	324%	1.73	(66)%	5.15
Balance Sheet and Other Data					
Cash and cash equivalents	236		328		665
Total assets	7,561		6,999		6,858
Total debt	2,483		2,046		2,186
Total equity (including redeemable equity)	3,262		3,225		3,072
Annual dividends declared per common share	2.72		2.58		2.54
Net debt to adjusted EBITDA ratio[1]	2.2		1.9		1.8
Cash provided by operations	152		392		829
Mechanical stores expense	55		55		54
Depreciation and amortization	215		220		213
Capital expenditures and mechanical stores purchases	300		300		340

Comparison of Cumulative Five-Year Total Return





[1]See Financial Performance Metrics beginning on page 58 of the Annual Report for a reconciliation of these metrics, which are not calculated in accordance with Generally Accepted Accounting Principles (GAAP), to the most comparable GAAP measures

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 1-13397

Ingredion

INGREDION INCORPORATED
(Exact name of registrant as specified in its charter)

Delaware	**22-3514823**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

5 Westbrook Corporate Center, Westchester, Illinois 60154
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code **(708) 551-2600**

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01 per share	**INGR**	**New York Stock Exchange**

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

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

Indicate by check mark 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 Yes ☒ No ❑

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 Exchange Act). Yes ❑ No ☒

The aggregate market value of the registrant's voting stock held by non-affiliates of the registrant on the last day of the most recently completed second fiscal quarter (based upon the per share closing price of $88.16 as reported on the New York Stock Exchange on June 30, 2022, and, for the purpose of this calculation only, the assumption that all of the registrant's directors and executive officers are affiliates) was approximately $5,794,000,000.

The number of shares outstanding of the registrant's common stock, par value $0.01 per share, as of February 15, 2023 was 65,954,699.

Documents Incorporated by Reference:

Information required by Part III (Items 10, 11, 12, 13 and 14) of this document is incorporated by reference to certain portions of the registrant's definitive Proxy Statement to be distributed in connection with its 2023 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission within 120 days after December 31, 2022.

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For purposes of this report, unless the context otherwise requires, all references herein to the "Company," "Ingredion," "we," "us," and "our" shall mean Ingredion Incorporated and its consolidated subsidiaries.

ITEM 1. Business

OUR COMPANY

Ingredion is a leading global ingredients solutions provider that transforms corn, tapioca, potatoes, stevia, grains, fruits, gums and vegetables into value-added ingredients and biomaterials for the food, beverage, brewing and other industries.

Our Purpose is to bring the potential of people, nature and technology together to make life better. We develop, produce and sell a variety of food and beverage ingredients, primarily starches and sweeteners, for a wide range of industries, and we manage our operations geographically on a regional basis, with our businesses and investments classified into the following segments:

- North America – U.S., Mexico and Canada
- South America – Brazil, Argentina, Chile, Colombia, Ecuador, Peru and Uruguay
- Asia-Pacific – South Korea, Thailand, China, Australia, Japan, New Zealand, Indonesia, Singapore, the Philippines, Malaysia, India and Vietnam
- Europe, Middle East and Africa ("EMEA") – Pakistan, Germany, Poland, the United Kingdom and South Africa

Our product lines include starches and sweeteners, animal feed products and edible corn oil. Our starch-based products include both food-grade and industrial starches, as well as biomaterials. Our sweetener products include glucose syrups, high maltose syrups, high fructose corn syrup, caramel color, dextrose, polyols, maltodextrins, and glucose and syrup solids. Our products are derived primarily from the processing of corn and other starch-based materials, such as tapioca, potato and rice.

GEOGRAPHIC SCOPE AND OPERATIONS

We utilize our global network of 47 manufacturing facilities and joint venture partnerships to support key global product lines. We have focused our recent investments on expanding our stevia sweetener and plant-based protein product lines, including pulse-based concentrates, flours and isolates. Our manufacturing process is based on a capital-intensive, two-step process that involves the wet-milling and processing of starch-based materials, primarily corn. During the front-end process, the starch-based materials are steeped in a water-based solution and separated into starch and co-products such as protein, fiber and germ used to produce corn oil. The starch is then either dried for sale or further processed to make starches, sweeteners and other ingredients that serve the particular needs of various industries.

Our North America region includes 22 manufacturing facilities that produce a wide range of starches, sweeteners, gum acacia, peas, and fruit and vegetable concentrates.

Our South America region includes seven manufacturing facilities that produce regular, modified, waxy tapioca starches, high fructose and high maltose syrups and syrup solids, dextrins and maltodextrins, dextrose, specialty starches, caramel color and sorbitol. We also own 49 percent of Ingrear Holding S.A., which operates five manufacturing facilities in Argentina to sell value-added ingredients to customers in the food, beverage, pharmaceutical and other industries in Argentina, Chile and Uruguay (the "Argentina joint venture"). We completed the transaction with Grupo Arcor, an Argentine food company, on August 2, 2021, to combine facilities into the Argentina joint venture, which is managed by a jointly appointed team of executives.

Our Asia-Pacific region manufactures corn-based products in South Korea, China and Thailand, tapioca- and rice-based products in Thailand, and stevia sweetener products in Malaysia and China. We supply tapioca, rice and stevia sweetener products not only to our Asia-Pacific region, but also to the rest of our global network. The region's operations include twelve manufacturing facilities that produce modified, specialty and regular waxy tapioca and rice starches, dextrins, glucose, high maltose syrup, stevia sweeteners, dextrose, high fructose corn syrup, caramel color and pharmaceutical-grade polyols.

We currently own 87 percent of PureCircle Limited ("PureCircle"), one of the leading producers and innovators of stevia sweeteners and flavors for the food and beverage industry. During 2022, we purchased $46 million of outstanding PureCircle minority shares to increase our ownership from the 75 percent controlling interest of shares we acquired on July 1, 2020. Our stevia investments also include certain exclusive commercialization rights to rebaudioside M by fermentation product developed by Amyris, Inc. ("Amyris"), exclusive licensing of the product's manufacturing technology, and a 31 percent ownership stake in a joint venture for the product (the "Amyris joint venture"), which we entered with Amyris on June 1, 2021.

We are continuing to make strategic investments in Asia. On August 1, 2022, we acquired Amishi Drugs and Chemicals Private Limited ("Amishi"), which is an Indian manufacturer of chemically modified starch-based pharmaceutical excipients, for $7 million. On December 1, 2022, we acquired a 65 percent controlling interest in Mannitab Pharma Specialties Private Limited ("Mannitab"), which is an Indian manufacturer of spray dried mannitol and fine grade mannitol, for $22 million, and we agreed to acquire the remaining shares of Mannitab over the next three years.

Our EMEA region includes six manufacturing facilities that produce modified and specialty starches, glucose and dextrose in Pakistan, Germany and the United Kingdom. On April 1, 2021, we acquired KaTech, a German-based provider of advanced texture and stabilization solutions to the food and beverage industry.

We utilize a network of tolling manufacturers in various regions in the production cycle of certain specialty starches. In general, these tolling manufacturers produce certain basic starches for us and we in turn complete the manufacturing process of starches through our finishing channels.

We believe our approach to production and service, which focuses on local management and production improvements of our worldwide operations, provides us with a unique understanding of

the cultures and product requirements in each of the geographic markets in which we operate. This allows us to bring added value to our customers through tailored, innovative solutions. We believe that our centralized production planning, distribution and financial functions similarly give us the ability to serve global customers, leverage digital solutions, ration production capacity, identify synergies, and maximize the benefits of our global presence.

PRODUCTS

Our portfolio of products is generally classified into the following categories: Starch Products, Sweetener Products, and Co-products and others. Within these categories, a portion of our products are considered specialty ingredients and we refer to the remainder of our products as core ingredients.

Starch products

Our starch products represented approximately 46 percent, 45 percent and 46 percent of our net sales for each of 2022, 2021 and 2020, respectively. Starches are an important component in a wide range of processed foods, where they are used for adhesion, clouding, dusting, expansion, fat replacement, freshness, gelling, glazing, mouthfeel, stabilization and texture. Cornstarch is sold to cornstarch packers for sale to consumers. Starches are also used in paper production to create a smooth surface for printed communications and to improve strength in recycled papers. Specialty paper starches are used for enhanced drainage, fiber retention, oil and grease resistance, improved printability and biochemical oxygen demand control. The textile industry uses starches and specialty starches for sizing (abrasion resistance) to provide size and finishes for manufactured products. Industrial starches are used in the production of construction materials, textiles, adhesives, pharmaceuticals and cosmetics, as well as in mining and water filtration. Specialty industrial starches are used for biomaterial applications including biodegradable plastics, fabric softeners and detergents, hair and skin care applications, dusting powders for surgical gloves, and in the production of glass fiber and insulation.

Sweetener products

Our sweetener products represented approximately 33 percent, 33 percent and 35 percent of our net sales for 2022, 2021 and 2020, respectively. Sweeteners include products such as glucose syrups, high maltose syrup, high fructose corn syrup, dextrose, polyols, maltodextrin, glucose syrup solids and non-GMO (genetically modified organism) syrups. Our sweeteners are used in a wide variety of food and beverage products, such as baked goods, snack foods, canned fruits, condiments, candy and other sweets, dairy products, ice cream, jams and jellies, prepared mixes, table syrups, soft drinks, fruit-flavored drinks and many others. These sweetener products also offer functionality in addition to sweetness, such as texture, body and viscosity; help control freezing points, crystallization and browning; add humectancy (ability to add moisture) and flavor; and act as binders. Our high maltose syrups speed the fermentation process, allowing brewers to increase capacity without adding capital. Dextrose has a wide range of applications in the food and confection industries, in solutions for intravenous ("IV") and other pharmaceutical applications, and in numerous industrial applications like wallboard, biodegradable surface agents and moisture control agents. Our specialty sweeteners provide affordable and natural, reduced calorie and sugar-free solutions for our customers.

Co-products and others

Co-products and others accounted for approximately 21 percent, 22 percent and 19 percent of our net sales for 2022, 2021 and 2020, respectively. Refined corn oil (from germ) is sold to packers of cooking oil and to producers of margarine, salad dressings, shortening, mayonnaise and other foods. Corn gluten feed is sold as animal feed. Corn gluten meal is sold as high-protein feed for chickens, pet food and aquaculture. Our other products include fruit and vegetable products, such as concentrates, purees and essences, as well as pulse proteins and hydrocolloids systems and blends.

Specialty ingredients within the product portfolio

Within our three product portfolios, we consider certain of our products to be specialty ingredients. Specialty ingredients accounted for approximately 34 percent of our net sales for 2022, up from 33 percent and 32 percent for 2021 and 2020, respectively. These ingredients deliver more functionality than our other products and add additional customer value. Our specialty ingredients are aligned with growing market and consumer trends such as health and wellness, clean-label, simple ingredients, affordability, indulgence and sustainability.

We drive growth for our specialty ingredients portfolio by leveraging the following growth platforms:

Starch-based Texturizers: These ingredients support the structure and texture behind great eating experiences. Products are made from corn, potato, rice and tapioca, and offer a multitude of textures, functionalities and stability during processing and shelf life to a broad range of food products.

Clean and Simple Ingredients: These functional ingredients address the clean label trend for finished products made with shorter lists of food ingredients that have achieved broad consumer acceptance. From food and beverages to pet food and personal care, consumers are looking for clean, simple, natural and authentic products that they can identify and trust. The broad portfolio of clean label ingredients includes starches, sweeteners, flours, nutrition ingredients, emulsifiers and fruit and vegetable concentrates.

Sugar Reduction and Specialty Sweeteners: These solutions provide sweetness or functional replacement for sugar in reduced-calorie and sugar-free foods and beverages without sacrificing quality and consistency. These specialty ingredients are made from a variety of GMO and non-GMO raw material bases and include such ingredients as stevia sweeteners, polyols, dextrose and allulose, a rare sugar.

Food Systems: These systems deliver ingredient combinations that simplify a customer's production cycle. A food system can address an array of functional challenges including mouthfeel/texture for dairy and alternative dairy products, thickening of sauces, stabilization in high-protein drinks, gelling for fruit fillings, film formers for candy shells, foaming and frothing, adding soluble fibers and nutritional ingredients, adhering particles to breads, and emulsification of flavors.

Plant-based Proteins: These specialty pulse-based protein ingredients bring solutions made from fava beans and peas. They add protein, dietary fiber, micronutrients and texture to food and beverages.

Core ingredients within the product portfolio
We refer to the remainder of our starch products, sweetener products and co-products that do not fall into specialty ingredients, as defined above, as core ingredients. Core ingredients accounted for approximately 66 percent of our net sales for 2022, down from 67 percent in 2021 and 68 percent in 2020.

COMPETITION

The starch and sweetener industry is highly competitive. Competition within our markets is largely based on product functionality, price and quality. The U.S. is a highly competitive market with operations by other starch processors, several of which are divisions of larger enterprises. Some of these competitors, unlike us, have vertically integrated their starch processing and other operations. Competitors include Archer-Daniels-Midland Company, Cargill, Inc., Tate & Lyle PLC, Primient and several others. Our operations in Mexico and Canada face competition from U.S. imports and local producers including ALMEX, a Mexican joint venture between ADM and Primient. In South America, Cargill conducts starch processing operations in Brazil and Argentina. We also face competition from Roquette Frères S.A., primarily in our EMEA, North America and Asia-Pacific regions. Many smaller local corn and tapioca processors also operate in some of our markets.

Several of our products also compete with products made from raw materials other than corn. High fructose corn syrup and monohydrate dextrose compete principally with cane and beet sugar products. Co-products such as corn oil and gluten meal compete with products of the corn dry milling industry and with soybean oil, soybean meal and other products. Fluctuations in prices of these competing products may affect prices of, and profits derived from, our products.

CUSTOMERS

We supply a broad range of customers in over 60 industries worldwide. The following table shows the approximate portion of total net sales by industry for each of the industries we served in 2022:

INDUSTRIES SERVED	TOTAL INGREDION	NORTH AMERICA	SOUTH AMERICA	ASIA PACIFIC	EMEA
Food	54%	53%	49%	58%	66%
Beverage	8	12	1	5	1
Brewing	8	8	18	3	—
Food and Beverage Ingredients	70	73	68	66	67
Animal Nutrition	11	11	15	5	7
Other	19	16	17	29	26
Total Net Sales	100%	100%	100%	100%	100%

No customer accounted for 10 percent or more of our net sales in 2022, 2021 or 2020.

RAW MATERIALS

Corn (primarily yellow dent) is the primary basic raw material we use to produce starches and sweeteners. The price of corn, which is determined by reference to prices on the Chicago Board of Trade, fluctuates as a result of various factors, including farmers' planting decisions; climate; domestic and foreign government policies (including those related to the production of ethanol); livestock feeding; shortages or surpluses of world grain supplies; and trade agreements. We use chips and slices from potato processors as the primary raw material to manufacture potato-based starches. We also use tapioca, gum, rice, stevia, peas and sugar as raw materials. The supply of raw materials has been, and is anticipated to continue to be, adequate for our needs.

Corn is also grown in other areas of the world, including China, Brazil, Europe, Argentina, Mexico, South Africa, Canada and Pakistan. Our subsidiaries outside the U.S. utilize both local supplies of corn and corn imported from other geographic areas, including the U.S. The supply of corn for these subsidiaries is generally expected to be adequate for our needs. Corn prices for our non-U.S. subsidiaries generally fluctuate as a result of the same factors that affect U.S. corn prices.

We also utilize specialty grains such as waxy and high amylose corn, as well as proprietary seed varietals in our operations. In general, the planning cycle for our specialty grain sourcing begins three years in advance of the anticipated delivery of the specialty corn, since the necessary seed must be grown in the season before we contract to buy the grain. To secure these specialty grains at the time of our anticipated needs, we contract with certain farmers to grow the specialty corn approximately two years in advance of delivery. These specialty grains have a higher cost due to their more limited supply and require longer planning cycles to mitigate the risk of supply shortages.

Due to the competitive nature of our industry and the availability of substitute products not produced from corn, such as sugar from cane or beets, end-product prices may not necessarily fluctuate in a timely manner that correlates to raw material costs of corn.

We use derivative hedging contracts to protect the gross margin of our firm-priced business, primarily in North America, and we follow a policy of hedging our exposure to commodity price fluctuations with commodities futures and options contracts, primarily for certain North American corn purchases. Other operations may be hedged at any given time based on management's judgment as to the need to fix the costs of our raw materials to protect our profitability. Outside North America, we generally enter short-term commercial sales contracts and adjust our selling prices based upon the local raw material costs. See Item 7A. Quantitative and Qualitative Disclosures about Market Risk for additional information.

Other raw materials used in our manufacturing processes include chips and slices from potato processors as the primary raw material to manufacture potato-based starches. We also use tapioca, particularly in certain of our production processes in the Asia-Pacific region. In addition to corn, potatoes, and tapioca, we use pulses, gums, rice, stevia, yellow peas and sugar as raw materials, among others.

RESEARCH AND DEVELOPMENT

Our global network of approximately 500 scientists creates innovative food solutions in 32 Ingredion Idea Labs® with headquarters in Bridgewater, New Jersey. Activities at Bridgewater include plant science and physical, chemical and biochemical modifications to food formulations, food sensory evaluation,

and development of non-food applications such as starch-based biopolymers. In addition, we have product application technology centers that direct our product development teams worldwide to create product application solutions to better serve the ingredient needs of our customers. Product development activity is focused on developing product applications for identified customer and market needs. Through this approach, we have developed value-added products for use by customers in various industries. We usually collaborate with customers to develop the desired product application either in the customers' facilities, our technical service laboratories, or on a contract basis.

Our research and development ("R&D") is supported by our marketing, product technology, and technology support staff, as well as technical support services, to assist our customers with application development and co-creation. We invest in R&D and digital transformation solutions to support new product development and innovation, to enable greater value delivery to our customers, to reduce waste and lower our costs and to drive operational excellence.

SALES AND DISTRIBUTION

Our salaried sales personnel, who are generally dedicated to customers in a geographic region, sell our products directly to manufacturers and distributors. In addition, we have staff that provides technical support to our sales personnel on an industry basis. We generally contract with trucking companies to deliver our bulk products to customer destinations. In North America, we generally use trucks to ship to nearby customers. For those customers located considerable distances from our manufacturing facilities, we primarily use either rail or a combination of railcars and trucks to deliver our products.

PATENTS AND TRADEMARKS

As of December 31, 2022, we owned more than 1,800 patents and patents pending, which relate to a variety of products and processes, as well as a number of established trademarks under which we market our products. We also have the right to use other patents and trademarks pursuant to patent and trademark licenses. We do not believe that any individual patent or trademark is material to our business.

HUMAN CAPITAL

We believe the strength of our workforce is one of the significant contributors to our success as a global company. Attracting, developing and retaining global talent with the right skills to drive our business is central to our values and long-term growth strategy. All our employees contribute to our success and help us drive financial performance.

Workforce profile

As of December 31, 2022, Ingredion employed approximately 11,700 people, of whom approximately 3,100 were located in the U.S. and Canada. Approximately 29 percent of our U.S. and Canadian employees are members of labor unions, and three different collective bargaining agreements that expire at various dates in 2023 cover up to 430 of these employees.

The following table provides additional information about our employees as of December 31, 2022:

REGION	APPROXIMATE NUMBER OF EMPLOYEES
North America	5,100
South America	2,300
Asia-Pacific	2,600
EMEA	1,700
Total Ingredion	11,700

Workplace safety

The overall well-being and safety of our employees and customers is one of our top priorities. We continue our strong focus on maintaining an injury-free workplace and invest in training, workplace resources and continuous improvement methodologies to improve safety results and ensure responsible management of all our facilities, particularly in our manufacturing plants, which continue to represent the greatest safety and health risks. A workplace safety goal represents a part of each employee's personal performance objectives each year as we strive to achieve an injury-free work environment.

Culture and employee engagement

We conduct confidential engagement surveys of our global workforce, and executive officers and leaders throughout the organization review aggregate survey results and create action plans at global, regional, functional and managerial levels. Furthermore, we employ a flexible approach for our office-based employees on how and where we work. We focus on agile ways of working that enable colleagues to work remotely when appropriate and organize our office spaces to foster connection and collaboration.

Diversity, Equity & Inclusion ("DEI")

Our Executive Leadership Team and Board of Directors lead our DEI commitment and drive it throughout the organization. Our recently refreshed DEI strategy is aligned with our Purpose. Our program structure includes Regional Diversity Councils and a Global DEI Council, which are collectively composed of regional and functional business leaders, human resource partners and select Business Resource Group ("BRG") leaders. We include specific DEI metrics as an element of personal objectives within our annual incentive plan for our CEO and other senior leaders.

We leverage the diverse experience and skills of our BRGs to help inform our business strategy. Our nine BRGs, which we have implemented across our global operations, play a role in connecting employees across regions, by providing colleagues with opportunities to enhance cultural awareness, enable collaboration, and inform our strategies for a broad consumer marketplace.

We participate in the Paradigm for Parity® coalition, pledging our goal to achieve gender parity at manager level and above by 2030. As of December 31, 2022, employees who self-identify as women accounted for more than 25 percent of both our Executive Leadership Team and independent members of our Board of Directors. Additionally, the Bloomberg Gender-Equality Index ("GEI"), a modified market capitalization-weighted index that aims to track the performance of public companies committed to

transparency in gender-data reporting, has included Ingredion in the GEI for six years. We use the GEI as a benchmark to measure our performance and evaluate opportunities for improvement.

GOVERNMENT REGULATION

As a manufacturer and marketer of food items and items for use in the pharmaceutical industry, our operations and the use of many of our products are subject to federal, state, foreign and local statutes and regulations, including the Federal Food, Drug and Cosmetic Act and the Occupational Safety and Health Act. We and many of our products are also subject to regulation by the U.S. Food and Drug Administration and other government agencies. Among other things, applicable regulations of these agencies prescribe requirements and establish standards for product quality, purity and labeling. Failure to comply with one or more regulatory requirements can result in a variety of sanctions, including monetary fines. No such fines of a material nature were imposed on us in 2022. We may also be required to comply with federal, state, foreign and local laws regulating food handling and storage. We believe these laws and regulations have not negatively affected our competitive position.

Our operations are also subject to federal, state, foreign and local laws and regulations for environmental matters, including air and water quality, as well as other regulations intended to protect public health and the environment. We operate industrial boilers that fire natural gas, coal, or biofuels to operate our manufacturing facilities. Those boilers, along with product dryers, are our primary source of greenhouse gas emissions. In January 2023, the European Union ("EU") finalized the Corporate Sustainability Reporting Directive, which will introduce more detailed sustainability reporting requirements for EU companies, including companies such as Ingredion, that meet certain EU net sales thresholds.

During 2022, we spent approximately $22 million for environmental control and wastewater treatment equipment to be incorporated into existing facilities and in planned construction projects. We currently anticipate that we will invest approximately $27 million for environmental facilities and programs in 2023.

Based on current laws and regulations and their enforcement and interpretation, we do not expect that the costs of future environmental compliance will be a material expense, although there can be no assurance that we will remain in compliance or that the costs of remaining in compliance will not have a material adverse effect on our future financial condition and results of operations.

ADDITIONAL INFORMATION

Our Internet address is www.ingredion.com. We make available, free of charge through our Internet website, our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended. We make these reports available as soon as reasonably practicable after we electronically file them with or furnish them to the Securities and Exchange Commission. Our corporate governance guidelines, board committee charters and code of ethics are posted on our website, the address of which is www.ingredion.com, and will be made available in print without charge to any stockholder upon request in writing to Ingredion Incorporated, 5 Westbrook Corporate Center, Westchester, Illinois 60154, Attention: Corporate Secretary. The information on, or accessible through, our website is not a part of, and is not incorporated by reference into, this report.

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

Set forth below, as of January 31, 2023, is information about our executive officers that indicates their positions and offices with Ingredion and other recent business experience. Our Board of Directors elects our executive officers annually to serve until the next annual election of officers and until their respective successors have been elected and been qualified, or until their earlier resignation or removal by the Board of Directors.

NAME	AGE	POSITIONS, OFFICES AND BUSINESS EXPERIENCE
James P. Zallie	61	Mr. Zallie has been President and Chief Executive Officer since January 1, 2018. Before that, he was Executive Vice President, Global Specialties and President, Americas from January 2016 to December 2017. He is also a director of Sylvamo Corporation, a global producer of uncoated papers.
Valdirene Evans	55	Ms. Evans has been Senior Vice President and President, APAC and Global Head of Pharma, Home and Beauty since October 2020. Before that, she was Senior Vice President and President, Asia-Pacific from March 2018 to September 2020.
Larry Fernandes	58	Mr. Fernandes has been Senior Vice President and Chief Commercial and Sustainability Officer of Ingredion since July 2018. Before that, he was Senior Vice President and Chief Commercial Officer from March 2018 to July 2018 and President and General Director, Mexico from January 2014 to February 2018.
Davida M. Gable	56	Ms. Gable has been Vice President, Corporate Controller since joining Ingredion in October 2021. Before that, she was Head of Global Accounting and External Reporting at Wayfair Inc., an e-commerce company, from August 2020 to September 2021, and Assistant Controller at AK Steel Holdings Corporation, an integrated steel manufacturer from May 2013 to July 2020.
James D. Gray	56	Mr. Gray has been Executive Vice President and Chief Financial Officer since March 2017. Before that, he was Vice President, Corporate Finance and Planning.
Tanya Jaeger de Foras	52	Ms. Jaeger de Foras has been Senior Vice President, Chief Legal Officer, Corporate Secretary and Chief Compliance Officer since joining Ingredion in November 2021. Before that, she was Deputy General Counsel and Chief Compliance Officer from September 2019 through September 2021, as well as EMEA Regional General Counsel from June 2015 to August 2019, for Whirlpool Corporation, a global home appliance manufacturer.

NAME	AGE	POSITIONS, OFFICES AND BUSINESS EXPERIENCE
Jorgen Kokke	54	Mr. Jorgen Kokke has been Executive Vice President and President, Americas since October 2020. Before, that, he was Vice President, Global Specialties and President, North America from February 2018 until September 2020.
Pierre Perez y Landazuri	54	Mr. Perez y Landazuri has been Senior Vice President, Corporate Strategy, Specialties and President EMEA since September 2021. Before that, he was Senior Vice President Texture, Protein and Performance Specialties and President EMEA from January 2021 to September 2021, and Senior Vice President and President, EMEA from January 2018 to January 2021.
Eric Seip	55	Mr. Seip has been Senior Vice President, Global Operations and Chief Supply Chain Officer since joining Ingredion in January 2021. Before that, Mr. Seip was Senior Vice President, Global Supply Chain at ChampionX Holding Inc. (formerly Ecolab), from January 2020 until January 2021. Prior to that, he was Senior Vice President, Global Supply Chain at Ecolab from December 2011 through December 2019. From August 2017 through December 2018, Mr. Seip also held the role of Senior Vice President, Supply Chain Ecolab Middle East Africa (MEA).
Nancy Wolfe	53	Ms. Wolfe has been Senior Vice President and Chief Human Resources Officer since joining Ingredion in January 2022. Before that, she was Senior Vice President, Human Resources at Bayer Crop Science (formerly Monsanto), an agriculture, chemical and biochemical solutions company, from June 2018 to January 2022, and Vice President and Chief of Staff at Bayer Crop Science from August 2013 through June 2018.
Jeremy Xu	55	Mr. Xu has been Senior Vice President and Chief Innovation Officer since joining Ingredion in October 2020. Before that, he was President, Human Nutrition and Health, at Royal DSM, a multinational corporation active in fields of health, nutrition and materials from May 2016 to September 2020.

ITEM 1A. Risk Factors

Our business and assets are subject to varying degrees of risk and uncertainty. The following are factors that we believe could cause our actual results to differ materially from expected and historical results. Additional risks that are currently unknown to us or that we currently view as immaterial may also impair our business or adversely affect our financial condition or results of operations. In addition, forward-looking statements within the meaning of the federal securities laws that are contained in this annual report on Form 10-K or in our other SEC filings or public statements may be subject to the risks described below as well as other risks and uncertainties. See the cautionary notice regarding forward-looking statements in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

RISKS RELATED TO OUR BUSINESS AND OUR INDUSTRY

Our business may be adversely affected by impacts on the availability and prices of raw materials and energy supplies, volatility in foreign exchange and interest rates, and other effects of the conflict between Russia and Ukraine.

Our business may be adversely affected by the effects of the ongoing conflict between Russia and Ukraine. Although our operations in Russia and Ukraine accounted for less than one half of one percent of our net sales in fiscal year 2022, the region is a source of raw material and energy supply for both us and certain companies whose products we distribute. Economic sanctions and export control measures imposed on Russia and designated Russian enterprises, Belarus and certain regions of Ukraine have resulted in increased volatility in the availability and prices of such raw materials and energy supplies. In addition, sanctions and macroeconomic effects of the conflict have contributed to greater volatility in foreign exchange and interest rates that affect our financial results. Developments relating to the conflict might result in a continuation of these impacts and in other impacts that could adversely affect our business or results of operations.

Changes in consumer preferences and perceptions may lessen the demand for our products, which could reduce our sales and profitability and harm our business.

Food products are often affected by changes in consumer tastes, national, regional and local economic conditions and demographic trends. For instance, changes in prevailing health or dietary preferences causing consumers to avoid food products containing sweetener products, including high fructose corn syrup, in favor of foods that are perceived as being healthier, could materially reduce our sales and profitability. Increasing concern among consumers, public health professionals and government agencies about the potential health concerns associated with obesity and inactive lifestyles (reflected, for instance, in taxes on certain beverages designed to combat obesity, which have been imposed recently in North America) represent a significant cost to some of our customers, including those engaged in the food and soft drink industries, and could materially affect demand for our products.

Current economic conditions may adversely impact demand for our products, reduce access to credit, affect investment returns and cause our customers and others with whom we do business to suffer financial hardship, all of which could adversely impact our business, results of operations, financial condition and cash flows.

General business and economic conditions that could affect us include barriers to trade (including as a result of tariffs, duties and border taxes, among other factors), the strength of the economies in which we operate, unemployment, inflation and fluctuations in debt markets. While currently these conditions have not impaired our ability to access credit markets and finance our operations, we are subject to the risk of a further deterioration in the financial markets.

These economic developments could have a number of other effects on our business, including reduced consumer demand for products, pressure to extend our customers' payment terms, insolvency of our customers resulting in increased provisions for credit losses, decreased customer demand, including order delays or cancellations and counterparty failures negatively impacting our operations.

In connection with our defined benefit pension plans, adverse changes in investment returns earned on pension assets and discount rates used to calculate pension and related liabilities or changes in required pension funding levels may have an unfavorable impact on future pension expenses and cash flows.

Volatile worldwide economic conditions and market instability may make it difficult for us, our customers and our suppliers to accurately forecast future product demand trends, which could cause us to produce products in excess of demand and increase our inventory carrying costs. Alternatively, this forecasting difficulty may cause a shortage of products that could affect our ability to satisfy the demand for our products.

Our reliance on certain industries for a significant portion of our sales could have a material adverse effect on our business.

Of our 2022 net sales, approximately 54 percent were generated by sales to the food industry, 11 percent by sales to the animal nutrition industry, 8 percent by sales to the beverage industry, and 8 percent by sales to the brewing industry. If our customers in any of these industries were to substantially decrease their purchases, our business might be materially adversely affected.

The coronavirus 19 disease ("COVID-19") pandemic could have a material adverse effect on our business.

The ongoing COVID-19 pandemic has had, and could continue to have, negative impacts on our business, including causing significant volatility in the commodity and currency markets, changes in consumer demand, behavior or preference, disruptions in our supply chain and manufacturing capacity, limitations on our employees' ability to work and changes in the economic or political conditions in markets we serve which could constrain or halt shipments to customers. These risks individually and in the aggregate could have a material effect on our operating results, financial condition, cash flows and prospects.

The uncertainty of acceptance of products developed through biotechnology could affect our profitability.

The commercial success of agricultural products developed through biotechnology, including genetically modified corn, depends in part on public acceptance of their development, cultivation, distribution and consumption. Public attitudes can be influenced by claims that genetically modified products are unsafe for consumption or that they pose unknown risks to the environment, even if such claims are not based on scientific studies. These public attitudes can influence regulatory and legislative decisions about biotechnology. The sale of our products, which may contain genetically modified corn, could be delayed or impeded because of adverse public perception regarding the safety of our products and the potential effects of these products on human health, the environment and animals.

Our future growth could be negatively impacted if we fail to continue introducing innovative new products and services.

A significant portion of our growth depends on innovation in products, processes and services. Our R&D efforts may not result in new products and services at a rate or of a quality sufficient to gain market acceptance.

It may be difficult to preserve operating margins and maintain market share in the highly competitive environment in which we operate.

We operate in a highly competitive environment. Competition in markets in which we compete is largely based on price, quality and product availability. Many of our products compete with virtually identical or similar products manufactured by other companies in the starch and sweetener industry. In the U.S., our competitors include divisions of larger enterprises that have greater financial resources than we do. Some of these competitors, unlike us, have vertically integrated their corn refining and other operations. Many of our products also compete with products made from raw materials other than corn, including cane and beet sugar. Fluctuation in prices of these competing products may affect prices of, and profits derived from, our products. In addition, government programs supporting sugar prices indirectly impact the price of corn sweeteners, especially high fructose corn syrup. Furthermore, co-products such as corn oil and gluten meal compete with products of the corn dry milling industry and with soybean oil, soybean meal and other products, the price of some of which may be affected by government programs such as tariffs or quotas.

Due to market volatility, we may be unable to pass potential increases in the cost of corn and other raw materials on to customers through product price increases, to purchase quantities of corn and other raw materials at prices sufficient to sustain or increase our profitability, or to supply product quantities and meet shipment delivery requirements that our customers demand.

The price and availability of corn and other raw materials are subject to volatility as a result of economic and industry conditions, including supply and demand factors such as supply chain disruptions, crop disease and severe weather conditions that include drought, floods, frost and ocean currents. These conditions are difficult to anticipate, are beyond our control and could adversely impact our profitability by affecting the prices we pay for raw materials.

Inputs to our procurement, production processes and delivery channels, such as raw material, energy, and freight and logistics, may experience price fluctuations, supply chain interruptions, and shortages that could adversely affect our results of operations.

Our finished products are made primarily from corn. Purchased corn and other raw material costs generally account for between 40 percent and 60 percent of our finished product costs. Some of our products are based upon specific varieties of corn that are produced in significantly smaller volumes than yellow dent corn. These specialty grains cost more due to their more limited availability and require planning cycles of up to three years to ensure we receive an adequate supply. We also manufacture certain starch-based products from potatoes. Our current potato starch requirements constitute a material portion of the total available North American supply. It is possible that, in the long term, continued growth in demand for potato starch-based ingredients and new product development could result in capacity constraints. Also, we utilize

tapioca in the manufacturing of starch products primarily in Thailand, as well as pulses, gum, rice, stevia and other raw materials around the world. A significant supply disruption or sharp increase in prices of any of these raw materials that we are unable to recover through pricing increases to our customers could have an adverse impact on our growth and profitability, especially if such an event disproportionately affects us as compared to our competitors.

Our business could be adversely affected by fluctuations in our energy costs, which represented approximately 7 percent of our finished product costs in 2022. We use energy primarily to create steam required for our production processes and to dry products. We consume natural gas, electricity, coal, fuel oil, wood and other biomass sources to generate energy.

Because we ship products worldwide, our business could be adversely affected by fluctuations in freight and logistics costs, and disruptions in supply channels between parties and locations that include our suppliers, production and storage facilities, tolling and packaging partners, distributors and customers. Risks to our business include impacts from labor strikes or weather-related events that affect transportation by rail, air, shipping or mobile transport.

The market prices for our raw materials, supply chain freight and logistics, and energy may vary considerably depending on supply and demand, world economies, trade agreements and tariffs and other factors. We purchase these commodities and services based on our anticipated usage and future outlook for these costs. We may not be able to purchase these commodities and services at prices that we can adequately pass on to customers, which could have an adverse impact on our growth and profitability.

In North America, we sell a large portion of our finished products derived from corn at firm prices established in supply contracts typically lasting for a period of one year. To minimize the effect of volatility in the cost of corn related to these firm-priced supply contracts, we enter into corn futures and options contracts, or take other hedging positions in the corn futures market. These derivative contracts typically mature within one year. At expiration, we settle the derivative contracts at a net amount equal to the difference between the then-current price of the commodity and the derivative contract price. The fluctuations in the fair value of these hedging instruments may adversely affect our cash flow. We fund any unrealized losses or receive cash for any unrealized gains on futures contracts on a daily basis. While the corn futures contracts or hedging positions are intended to minimize the effect of volatility of corn costs on operating profits, the hedging activity can result in losses, some of which may be material. In addition, our hedging activities may not be fully successful in limiting the effect of volatility in the cost of corn.

An inability to contain costs could adversely affect our future profitability and growth.

Our future profitability and growth depend on our ability to contain operating costs and per unit product costs and to maintain and implement effective cost control programs, while also maintaining competitive pricing and superior quality products, customer service and support. Our ability to maintain a competitive cost structure depends on continued containment of manufacturing, delivery and administrative costs, as well as the implementation of cost-effective purchasing programs for raw materials, energy and related manufacturing requirements.

If we are unable to contain our operating costs and maintain the productivity and reliability of our production facilities, our profitability and growth could be adversely affected.

Operating difficulties at our manufacturing facilities and liabilities relating to product safety and quality could adversely affect our operating results.

Producing starches and sweeteners through corn refining is a capital-intensive industry. We conduct preventive maintenance and de-bottlenecking programs at our manufacturing facilities designed to maintain and improve grind capacity and facility reliability. If we encounter operating difficulties at a facility for an extended period of time or start-up problems with any capital improvement projects, we may not be able to meet a portion of our sales order commitments and could incur significantly higher operating expenses, both of which could adversely affect our operating results. Furthermore, we use boilers to generate steam required in our production processes. An event that impaired the operation of a boiler for an extended period of time could have a significant adverse effect on the operations of any manufacturing facility in which such event occurred.

In addition, we are subject to risks related to such matters as product safety and quality and customer product liability claims. The liabilities that could result from these risks may not always be covered by, or could exceed the limits of, our insurance coverage related to product liability and food safety matters. In addition, negative publicity caused by product liability and food safety matters may damage our reputation. The occurrence of any of the matters described above could adversely affect our revenues and operating results.

Global climate change and legal, regulatory, or market measures to address climate change, may negatively affect our business, operations and financial results.

We are subject to risks associated with the long-term effects of climate change on the global economy and on our industry in particular. Extreme weather and natural disasters within or outside the United States, such as drought, wildfires, storms, changes in ocean currents and flooding, could make it more difficult and costly for us to manufacture and deliver our products to our customers, obtain raw materials from our suppliers, or perform other critical corporate functions. In particular, if such climate change impacts negatively affect agricultural productivity, we may be subject to decreased availability or less favorable pricing from certain commodities that are necessary for our products, such as corn, specialty grains, rice, stevia, peas and sugar. Adverse weather conditions and natural disasters could reduce crop size and crop quality, which could reduce our supplies of raw materials, lower recoveries of usable raw materials, increase the prices of our raw materials, increase our costs of storing and transporting raw materials, or disrupt production schedules. Our manufacturing operations also could be adversely affected by reduced water availability resulting from droughts.

There is a growing societal concern that carbon dioxide and other greenhouse gases in the atmosphere may have an adverse effect on global temperatures, weather patterns and the frequency and severity of natural disasters. The increasing concern over climate change could result in new domestic or international legal requirements for us to reduce greenhouse gas emissions and other environmental impacts of our operations, improve our energy efficiency, or undertake sustainability measures that exceed those we currently pursue. Furthermore, such measures may result in the taxation of greenhouse gas emissions. Any such regulatory requirements could cause disruptions in the manufacture of our products and result in increased capital, procurement, manufacturing and distribution costs. Our reputation and brand could be harmed if we fail, or are seen as having failed, to respond responsibly and effectively to changes in legal and regulatory measures adopted to address climate change.

In addition, changing customer preferences may result in increased demands regarding packaging materials and other components in our products and their environmental impact on sustainability. Further, customers may place increasing importance on purchasing products that are sustainably grown and made, requiring us to incur additional costs for increased due diligence and reporting. These demands may cause us to incur additional costs or make other changes to other operations to respond to such demands, which could adversely affect our financial results.

We may not successfully identify and complete acquisitions or strategic alliances on favorable terms or achieve anticipated synergies relating to any acquisitions or alliances, and such transactions could result in unforeseen operating difficulties and expenditures and require significant management resources.

We regularly review potential acquisitions of complementary businesses, technologies, services, or products, as well as potential strategic alliances. We may be unable to find suitable acquisition candidates or appropriate partners with which to form partnerships or strategic alliances. Even if we identify appropriate acquisition or alliance candidates, we may be unable to complete such acquisitions or alliances on favorable terms, or at all. In addition, the process of integrating an acquired business, technology, service, or product into our existing business and operations may result in unforeseen operating difficulties and expenditures. Integration of an acquired company may also require significant management resources that otherwise would be available for ongoing development of our business. Moreover, we may not realize the anticipated benefits of any acquisition or strategic alliance and such transactions may not generate anticipated financial results. Future acquisitions could also require us to issue equity securities, incur debt, assume contingent liabilities, or amortize expenses related to intangible assets, any of which could harm our business.

We operate a multinational business subject to the economic, political and other risks inherent in conducting operations in foreign countries and with foreign currencies.

We have operated in foreign countries and with foreign currencies for many years, and our results are subject to foreign currency exchange fluctuations. We primarily sell products derived from world commodities. Historically, we have been able to adjust local prices relatively quickly to offset the effect of local currency depreciation versus the U.S. dollar, although we cannot guarantee our ability to do this in the future. The anticipated strength in the U.S. dollar may continue to involve risks, as it could take us an extended period of time to fully recapture the impact of a loss of foreign currency value versus the U.S. dollar. We may hedge transactions that are denominated in a currency other than the currency of the operating unit entering into the underlying transaction. Our hedging activities may not be fully successful in limiting the adverse impacts of our currency risks.

Our operations are subject to political, economic and other risks. There has been and continues to be significant political uncertainty in some countries in which we operate. Economic changes, terrorist activity and political unrest may result in business interruption or decreased demand for our products. Country capital controls, such as those in Pakistan, may prevent the repatriation of dividends from owned entities in the country. Protectionist trade measures and import and export licensing requirements could also adversely affect our results of operations.

Our profitability could be negatively impacted if we fail to maintain satisfactory labor relations.

We have employees domiciled in the U.S. as well as worldwide who belong to labor unions. Strikes, lockouts, or other work stoppages or slowdowns involving our unionized employees, or attempts to organize for collective bargaining purposes among non-unionized employees, could have a material adverse effect on our business. For example, from September 2022 to January 2023, we experienced a strike involving approximately 103 employees at our production facility in Cedar Rapids, Iowa, although this incident did not have a material impact on our business.

The inability for us to attract, develop, retain, motivate, and maintain good relationships with our workforce, including key personnel, could negatively impact our business and our profitability.

Our future success depends on our ability to attract, develop, retain, motivate, and maintain good relationships with qualified personnel, particularly those who have extensive expertise in the ingredients solutions industry and who may also have long service with our company. Such personnel are members of our senior executive leadership and work in key areas throughout our U.S. and international operations such as manufacturing, sales, and innovation, all of which are critical to our future growth and profitability. We face intensive competition in retaining and hiring individuals with the requisite expertise, both within and outside the ingredients solutions industry, including from companies that have greater resources than we do.

Changes in labor markets as a result of COVID-19 and other socioeconomic and demographic changes, have increased the competition for hiring and retaining talent. As a result of this competition, we may be unable to continue to attract, develop, retain, motivate, and maintain good relationships with suitably qualified individuals at acceptable compensation levels who have the managerial, operational, and technical knowledge and experience to meet our needs. Furthermore, any failure by us to

manage internal succession or to effectively transfer knowledge from departing employees to others in the organization could adversely affect our business and results of operations. Even if we succeed in hiring new personnel to fill vacancies, lengthy training and orientation periods might be required before new employees are able to achieve acceptable productivity levels. Any failure by us to attract, develop, retain, motivate, and maintain good relationships with qualified individuals could adversely affect our business and results of operations.

Natural disasters, war, acts and threats of terrorism, pandemics and other significant events could negatively impact our business.

The economies of any countries in which we sell or manufacture products or purchase raw materials could be affected by natural disasters. Such natural disasters could include, among others, earthquakes, floods, or severe weather conditions; war, acts of war or terrorism; or the outbreak of an epidemic or pandemic such as COVID-19. Any such event could result in disruptions to operations, asset write-offs, decreased sales and overall reduced cash flows. The impacts of COVID-19 adversely affected our results of operations in periods since the first quarter of 2020.

The recognition of impairment charges on goodwill or long-lived assets could adversely impact our future financial position and results of operations.

We have $1.3 billion of total net intangible assets as of December 31, 2022, consisting of $900 million of goodwill and $401 million of other net intangible assets, which constitute 12 percent and 5 percent, respectively, of our total assets as of such date. Additionally, we have approximately $2.9 billion of long-lived assets, or 39 percent of our total assets, as of December 31, 2022.

We perform an annual impairment assessment for goodwill and our indefinite-lived intangible assets and as necessary for other long-lived assets. If the results of such assessments were to show that the fair value of these assets were less than the carrying values, we could be required to recognize a charge for impairment of goodwill or long-lived assets, which could be material.

The future occurrence of a potential indicator of impairment, such as a significant adverse change in the business climate that would require a change in our assumptions or strategic decisions made in response to economic or competitive conditions, could require us to perform an assessment prior to the next required assessment date of July 1, 2023.

Our profitability may be affected by other factors beyond our control.

Our operating income and ability to sustain or increase profitability depend to a large extent upon our ability to price finished products at a level that will cover manufacturing and raw material costs and provide an acceptable profit margin. Our ability to maintain appropriate price levels is determined by a number of factors largely beyond our control, such as aggregate industry supply and market demand, which may vary from time to time, and the economic conditions of the geographic regions in which we conduct our operations.

RISKS RELATED TO OUR REGULATORY COMPLIANCE

Government policies and regulations could adversely affect our operating results.

Our operating results could be affected by changes in trade, monetary and fiscal policies, laws and regulations, and other activities of the U.S. and foreign governments, agencies and similar organizations. These conditions include, among others, changes in a country's or region's economic or political conditions, modification or termination of trade agreements or treaties promoting free trade, creation of new trade agreements or treaties, trade regulations affecting production, pricing and marketing of products, local labor conditions and regulations, reduced protection of intellectual property rights, changes in the regulatory or legal environment, restrictions on currency exchange activities, currency exchange rate fluctuations, burdensome taxes and tariffs, and other trade barriers. International risks and uncertainties, including changing social and economic conditions as well as terrorism, political hostilities and war, could limit our ability to transact business in these markets and could adversely affect our revenues and operating results. Furthermore, the national and global regulation or taxation of greenhouse gas emissions could negatively affect our business, operations and financial results.

Our operations could be adversely affected by actions taken in connection with cross-border disputes by the governments of countries in which we conduct business.

Changes in our tax rates or exposure to additional income tax liabilities could impact our profitability.

We are subject to income taxes in the U.S. and in foreign jurisdictions. Our effective tax rates could be adversely affected by changes in the mix of earnings by jurisdiction, changes in tax laws, or tax rates changes in the valuation of deferred tax assets and liabilities and material adjustments from tax audits.

The recoverability of our deferred tax assets is dependent upon our ability to generate future taxable income. In addition, we are subject to ongoing audits in various jurisdictions and final determinations of prior-year tax liabilities are dependent upon many factors, including negotiations and dispute resolutions with tax or other governmental authorities. The outcome of these final determinations could have a material effect on our profitability and cash flows.

Pillar One and Pillar Two of the base erosion and profit shifting ("BEPS") project undertaken by the Organisation for Economic Co-operation and Development ("OECD") could result in significant tax law changes in jurisdictions in which we do business. An OECD-led coalition of countries is contemplating changes to long-standing international tax norms that determine each country's right to tax cross-border transactions. These contemplated changes, if adopted by countries in which we do business, could increase tax uncertainty and the risk of double taxation, thereby adversely affecting our provision for income taxes.

RISKS RELATED TO OUR FINANCING ACTIVITIES

Increased interest rates could increase our borrowing costs.

We continue to issue debt securities to finance capital expenditures, working capital and acquisitions, and for other general corporate purposes. An increase in interest rates in the general economy could

result in an increase in our borrowing costs for these financings, as well as under our revolving credit facility, which bears interest at an unhedged floating rate.

We may not have access to the funds required for future growth and expansion.

We may not have access to additional funds we need to grow and expand our operations. We expect to fund our capital expenditures from operating cash flow to the extent we are able to do so. If our operating cash flow is insufficient to fund our capital expenditures, we may either reduce our capital expenditures or utilize borrowings under our revolving credit facility, which also provides liquidity support for our commercial paper program. For further strategic growth through mergers or acquisitions, we may also seek to generate additional liquidity through the sale of debt or equity securities in private or public markets or through the sale of assets. Our cash flows from operations may not be sufficient to fund anticipated capital expenditures and, in such an event, we may not be able to obtain additional funds from financial markets or from the sale of assets at terms favorable to us. If we are unable to generate sufficient cash flows or raise sufficient additional funds to cover our capital expenditures or to finance strategic growth opportunities, we may not be able to achieve our desired operating efficiencies and expansion plans, which may adversely impact our competitiveness and, therefore, our results of operations. Our working capital requirements, including margin requirements on open positions on futures exchanges, are directly affected by the price of corn and other agricultural commodities, which may fluctuate significantly and change quickly.

RISKS RELATED TO OUR INFORMATION TECHNOLOGY SYSTEMS

Our information technology systems, processes and sites may suffer interruptions, security breaches, or failures which may affect our ability to conduct our business.

Our operations rely on certain key information technology systems, which are dependent on services provided by third parties and provide critical data connectivity, information and services for internal and external users. These interactions include, among others, ordering and managing materials from suppliers, risk management activities, converting raw materials to finished products, inventory management, shipping products to customers, processing transactions, summarizing and reporting results of operations, human resources benefits and payroll management, complying with regulatory, legal and tax requirements, and other processes necessary to manage our business. Increased information technology security and social engineering threats and more sophisticated computer crime, including advanced persistent threats, pose potential risks to the security of our information technology systems, networks and services, as well as the confidentiality, availability and integrity of our third-party and employee data. We have put in place security measures to protect ourselves against cyber-based attacks and disaster recovery plans for our critical systems. If our information technology systems are breached, damaged, or cease to function properly due to any number of causes, such as catastrophic events, power outages, security breaches, or cyber-based attacks, and if our disaster recovery plans do not effectively mitigate the risks on a timely basis, we may encounter significant disruptions that could interrupt our ability to manage our operations, cause loss of valuable data and actual or threatened legal actions and cause us to suffer damage to our reputation. These factors may adversely impact our revenues, operating results and financial condition. For example, we reported a malware incident that occurred from October 2019 to December 2019, although this incident did not have a material impact on our business.

The costs to address the foregoing security problems and security vulnerabilities before or after a cyber incident could be significant. Remediation efforts may not be successful and could result in interruptions, delays or cessation of service and loss of existing or potential customers that may impede our sales, manufacturing or other critical functions. Breaches of our security measures and the unapproved dissemination of proprietary information or sensitive or confidential data about us, our employees, our customers or other third parties could expose us, our employees, our customers or other affected third parties to a risk of loss or misuse of this information, result in regulatory enforcement, litigation and potential liability for us, damage our brand and reputation or otherwise harm our business. We rely in certain limited capacities on third-party data management providers and other vendors whose possible security problems and security vulnerabilities may have similar effects on us.

RISKS RELATED TO INVESTMENT IN OUR COMMON STOCK

Volatility in the stock market, fluctuations in quarterly operating results and other factors could adversely affect the market price of our common stock.

The market price for our common stock in the past has been, and in the future may continue to be, significantly affected by factors such as our announcement of new products or services or such announcements by our competitors; technological innovation by us, our competitors or other vendors; quarterly variations in our operating results or the operating results of our competitors; general conditions in our or our customers' markets; and changes in earnings estimates by analysts or reported results that vary materially from such estimates. In addition, the stock market has experienced significant price fluctuations that have affected the market prices of equity securities of many companies that have been unrelated to the operating performance of any individual company.

We may not continue to pay dividends or to pay dividends at the same rate we have paid in our most recent fiscal quarters.

The payment of dividends, as well as the amount of any dividends, is solely at the discretion of our Board of Directors. Future dividend payments, if any, also will be subject to our financial results and the availability of statutory surplus funds to pay dividends. These factors could result in a change to our current policy of paying dividends.

Any failure by us to maintain effective control over financial reporting could result in loss of investor confidence and adversely impact our stock price.

If we experience material weaknesses in our internal control over financial reporting and are unable to remediate such material weaknesses, or are otherwise unable to maintain effective internal

control over financial reporting or our disclosure controls and procedures, our ability to record, process and report financial information accurately and to prepare financial statements within required time periods, could be adversely affected, which could subject us to litigation or investigations requiring management resources and payment of legal and other expenses, negatively affect investor confidence in our financial statements and adversely impact our stock price. For example, we previously reported a material weakness in our internal control over financial reporting, which we fully remediated in fiscal 2021, related to ineffective information technology general controls ("ITGCs") related to user access over certain information technology ("IT") systems.

ITEM 1B. Unresolved Staff Comments

None.

ITEM 2. Properties

We own or lease, directly and through our consolidated subsidiaries, 47 manufacturing facilities. In addition, we lease our corporate headquarters in Westchester, Illinois; our R&D facility in Bridgewater, New Jersey; and shared service centers in Tulsa, Oklahoma; Guadalajara, Mexico; and Kuala Lumpur, Malaysia.

Our four reportable business segments include the following manufacturing facilities as of January 31, 2023:

NORTH AMERICA

Cardinal, Ontario, Canada	Owned
London, Ontario, Canada	Owned
Vanscoy, Saskatchewan, Canada	Owned
San Juan del Rio, Queretaro, Mexico	Owned
Guadalajara, Jalisco, Mexico	Owned
Mexico City, CDMX, Mexico	Owned
Oxnard, California, U.S.	Leased
Idaho Falls, Idaho, U.S.	Owned
Bedford Park, Illinois, U.S.	Owned
Mapleton, Illinois, U.S.	Owned
Indianapolis, Indiana, U.S.	Owned
Cedar Rapids, Iowa, U.S.	Owned
Fort Fairfield, Maine, U.S.	Owned
Belcamp, Maryland, U.S.	Owned
North Kansas City, Missouri, U.S.	Owned
South Sioux City, Nebraska, U.S.	Owned
Winston-Salem, North Carolina, U.S.	Owned
Salem, Oregon, U.S.	Owned
Charleston, South Carolina, U.S.	Owned
Richland, Washington, U.S.	Owned
Moses Lake, Washington, U.S.	Owned
Plover, Wisconsin, U.S.	Owned

SOUTH AMERICA

Alcantara, Brazil	Owned
Balsa Nova, Brazil	Owned
Cabo, Brazil	Owned
Mogi-Guacu, Brazil	Owned
Barranquilla, Colombia	Owned
Cali, Colombia	Owned
Lima, Peru	Owned

ASIA-PACIFIC

Ganzhou, China	Owned
Shandong Province, China	Owned
Shanghai, China	Owned
Ahmedabad, Gujarat, India	Owned
Malegaon, Nashik, Maharashtra, India	Owned
Enstek, Malaysia	Owned
Icheon, South Korea	Owned
Incheon City, South Korea	Owned
Ban Kao Dien, Thailand	Owned
Kalasin, Thailand	Owned
Sikhiu, Thailand	Owned
Banglen, Thailand	Leased

EMEA

Hamburg, Germany	Owned
Wesenberg, Germany	Owned
Cornwala, Jaranwala, Pakistan	Owned
Mehran, Jamshoro, Pakistan	Owned
Rakh Canal, Faisalabad, Pakistan	Owned
Goole, United Kingdom	Partially leased

We believe our manufacturing facilities are sufficient to meet our current production commitments. We conduct preventive maintenance and de-bottlenecking programs designed to improve grind capacity and facility reliability. Furthermore, for the foreseeable future, we intend to continue capital investments to support the updating, modification, improvement and efficient operation of our facilities for the foreseeable future.

We have electricity co-generation facilities at our manufacturing facilities in London, Ontario, Canada; Cardinal, Ontario, Canada; Bedford Park, Illinois; Winston-Salem, North Carolina; San Juan del Rio, Queretaro and Mexico City, CDMX, Mexico; Cali, Colombia; Cornwala, Jaranwala, Pakistan; and Balsa Nova and Mogi-Guacu, Brazil. These facilities provide electricity at a lower cost than is available from third parties. We generally own and operate the co-generation facilities, except for the facilities at our Mexico City and Brazil locations, which are owned by and operated pursuant to co-generation agreements with third parties.

ITEM 3. Legal Proceedings

In September 2022, following certain air emissions testing Ingredion performed at our Bedford Park, Illinois manufacturing facility, we reported to the Illinois Environmental Protection Agency (the "Illinois EPA") that certain emissions had exceeded applicable limits under an air emissions permit. On February 8, 2023, the Illinois EPA issued a Notice of Violation with respect to the matter addressed in our report. Violations of the Illinois environmental statute could result in the imposition of civil or criminal monetary penalties. We are engaged in discussions with the Illinois EPA regarding this matter.

In 2015 and 2016, Ingredion self-reported certain monitoring and recordkeeping issues relating to environmental regulatory matters involving its Indianapolis, Indiana manufacturing facility. In September 2017, following inspections and the provision by Ingredion of requested information to the U.S. Environmental Protection Agency (the "EPA"), the EPA issued Ingredion a Notice of Violation, which included additional alleged violations beyond those self-reported by Ingredion. These additional alleged violations primarily relate to the results of stack testing at the facility. The allegations in the Notice of Violation, whether from the self-reported information, the inspections or the additional requested information, are not material to us. The EPA has referred the overall matter to the U.S. Department of Justice, Environment and Natural Resources Division (the "DOJ"). The DOJ and Ingredion are engaged in discussions with respect to a resolution of this matter.

We are currently subject to claims and suits arising in the ordinary course of business, including those relating to labor matters, certain environmental proceedings and commercial claims. We also routinely receive inquiries from regulators and other government authorities relating to various aspects of our business, including with respect to compliance with laws and regulations relating to the environment, and at any given time, we have matters at various stages of resolution with the applicable governmental authorities. The outcomes of these matters are not within our complete control and may not be known for prolonged periods of time. We do not believe that the results of currently known legal proceedings and inquires will be material to us. There can be no assurance, however, that such claims, suits or investigations or those arising in the future, whether taken individually or in the aggregate, will not have a material adverse effect on our financial condition or results of operations.

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

Trading

Ingredion's common stock is listed on the New York Stock Exchange (symbol: INGR).

Holders

As of January 31, 2023, there were 3,143 holders of record of our common stock.

Dividends

We have a history of paying quarterly dividends. The amount and timing of the dividend payment, if any, is based on a number of factors, including our estimated earnings, financial position and cash flow. The payment of a dividend, as well as the amount of any dividend, is solely at the discretion of our Board of Directors. Future dividend payments will be subject to our financial results and the availability of funds and statutory surplus to pay dividends.

Issuer purchases of equity securities

The following provides information about our stock repurchase program:

(shares in thousands)	TOTAL NUMBER OF SHARES PURCHASED	AVERAGE PRICE PAID PER SHARE	TOTAL NUMBER OF SHARES PURCHASED AS PART OF PUBLICLY ANNOUNCED PLANS OR PROGRAMS	MAXIMUM NUMBER (OR APPROXIMATE DOLLAR VALUE) OF SHARES THAT MAY YET BE PURCHASED UNDER THE 2022 STOCK REPURCHASE PROGRAM
October 1 – October 31, 2022	—	—	—	6,000
November 1 – November 30, 2022	—	—	—	6,000
December 1 – December 31, 2022	—	—	—	6,000
TOTAL	—	—	—	

On September 26, 2022, the Board of Directors approved a new stock repurchase program authorizing us to purchase up to 6.0 million shares of our outstanding common stock until December 31, 2025. At December 31, 2022, we had 6.0 million shares available for repurchase under the stock repurchase program.

ITEM 6. [Reserved]

Not applicable.

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

OVERVIEW

We are a major supplier of high-quality food and industrial ingredient solutions to customers around the world. We have 47 manufacturing facilities located in North America, South America, Asia-Pacific and EMEA and we manage and operate our businesses at a regional level. We believe this approach provides us with a unique understanding of the cultures and product requirements in each of the geographic markets in which we operate, bringing added value to our customers. Our ingredients are used by customers in the food, beverage, brewing and animal feed industries, among others.

Effectively managing our manufacturing costs, including costs for corn, other raw materials and utilities, is critical to the success of our business. In addition, our global operations expose us to fluctuations in foreign currency exchange rates. We use derivative financial instruments, when appropriate, for the purpose of managing the risks and costs associated with fluctuations in certain raw material and energy costs, foreign exchange rates and interest rates. The capital-intensive nature of our business requires that we generate significant cash flow over time in order to reinvest selectively in our operations and grow organically, as well as to expand through strategic acquisitions and alliances.

We have been navigating evolving global conditions that have varying impacts on our customers, suppliers, employees, operations and, ultimately, our profitability and cash flows. During 2022, we continued to achieve strong price mix, which included increased prices for our products to manage the effects of increasing corn and freight costs. Our ability to respond to changing customer demands, increasing inflation, fluctuating foreign exchange rates, and shifting supply channels was affected by a variety of factors, including the continuing conflict between Russia and Ukraine, the ongoing global COVID-19 pandemic with lockdowns in China and weather-related effects on crop yields in Europe.

In 2022, net sales increased over 15 percent to $7.9 billion from $6.9 billion in 2021. The increase in net sales was driven by strong price mix, partly offset by foreign currency impacts and lower volumes. Our operating income of $762 million for 2022 increased from operating income of $310 million in 2021. Net income attributable to Ingredion for 2022 was $492 million, or $7.34 diluted earnings per share, which represented an increase from $117 million, or $1.73 diluted earnings per share, for 2021. The increases in operating income, net income and diluted earnings per share were primarily due to stronger price mix that more than offset higher corn and input costs. Our results for 2022 compared to 2021 were also impacted by a $340 million impairment charge related to the contribution of Ingredion Argentina's net assets to the Argentina joint venture recorded during 2021.

RESULTS OF OPERATIONS

We have significant operations in four reporting segments: North America, South America, Asia-Pacific and EMEA. Fluctuations in foreign currency exchange rates affect the U.S. dollar amounts of our foreign subsidiaries' revenues and expenses. For most of our foreign subsidiaries, the local foreign currency is the functional currency. Accordingly, revenues and expenses denominated in the functional currencies of these subsidiaries are translated into U.S. dollars at the applicable average exchange rates for the period.

We acquired the majority of shares of Mannitab on December 1, 2022, fully acquired Amishi on August 1, 2022, and KaTech on April 1, 2021. The results of the acquired businesses are included in our consolidated financial results beginning on the respective acquisition dates, which affects the comparability of results between years. In addition, our share of results in joint ventures are classified in our Consolidated Statements of Income in Other operating expense (income) and comparability between years and between financial statement line items is affected by the timing of and consideration provided to the investments. While we identify the impacts of acquisitions and investments on our results, our discussion below also addresses results of operations excluding those impacts, where appropriate, to provide a more comparable and meaningful analysis.

For the Year Ended December 31, 2022 with Comparatives for the Year Ended December 31, 2021

Net sales

Net sales increased 15 percent to $7,946 million for 2022 compared to $6,894 million for 2021. The increase in net sales was driven by strong price mix. This was partially offset by foreign currency impacts and lower volumes.

Cost of sales

Cost of sales increased by 16 percent to $6,452 million in 2022 compared to cost of sales of $5,563 million in 2021. The increase in cost of sales primarily reflected higher net corn costs. Our gross profit margin of 19 percent in 2022 was unchanged from 2021.

Operating expenses

Operating expenses increased 7 percent to $715 million in 2022 compared to $668 million in 2021. The increase in operating expenses during 2022 was primarily attributable to cost impacts of higher inflation. Operating expenses as a percentage of net sales were approximately 9 percent in 2022 and 2021.

Other operating expense (income)

Other operating expense (income) was $13 million in 2022 compared to $(34) million in 2021. The 2022 expense was primarily attributable to charges resulting from a U.S. based work stoppage. During 2021 we recorded $15 million of income from Brazil indirect tax credits and a net gain of $8 million related to the formation of the Amyris joint venture.

Restructuring/impairment charges and related adjustments

Restructuring and impairment charges decreased to $4 million in 2022 from $387 million in 2021, which primarily reflected an impairment charge of $340 million we recorded in 2021 for net assets from our Argentina business we contributed to the Argentina joint venture. In addition, the completion of our Cost Smart restructuring program resulted in $4 million of pre-tax restructuring charges in 2022 as compared to $44 million in 2021.

Financing costs

Financing costs increased 34 percent to $99 million in 2022 compared to $74 million in 2021. The increase was primarily due to higher outstanding debt balances, as well as higher interest rates in 2022 as compared to 2021.

Provision for income taxes

Our effective income tax rates for 2022 and 2021 were 24.9 percent and 49.6 percent, respectively. The decrease was primarily attributable to the $340 million impairment charge related to net assets contributed to the Argentina joint venture during 2021, which did not have a corresponding income tax benefit. The effect of this charge was partially offset by a 2021 reversal of an accrual from unremitted earnings of a foreign subsidiary.

Net income attributable to non-controlling interests

Net income attributable to non-controlling interests increased to $10 million in 2022 from $8 million in 2021.

Net Income attributable to Ingredion

Net income attributable to Ingredion for 2022 increased to $492 million from $117 million in 2021. The increase in net income was largely attributable to the $340 million impairment charge for the Argentina assets contributed to the Argentina joint venture in the prior year. The increase was also impacted by strong price mix that more than offset higher corn and input costs.

North America

Net sales

North America's net sales increased 19 percent to $4,934 million in 2022 from $4,137 million in 2021. The increase was primarily driven by a 19 percent improvement in price mix and a 1 percent increase in volume. These impacts were partially offset by an unfavorable foreign exchange impact of 1 percent.

Operating income

North America's operating income increased 16 percent to $565 million in 2022 from $487 million in 2021. The increase was driven by favorable price mix.

South America

Net sales

South America's net sales increased 6 percent to $1,124 million in 2022 from $1,057 million in 2021. Excluding the effects of revenues from operations we contributed to the Argentina joint venture, net sales were 23 percent higher than in 2021. The increase reflected a 22 percent improvement in price mix and a 2 percent increase in volume. The effect of these factors was partially offset by an unfavorable foreign exchange impact of 1 percent.

Operating income

South America's operating income increased 22 percent to $169 million in 2022 from $138 million in 2021. The increase was driven by favorable price mix, partially offset by higher corn and input costs.

Asia-Pacific

Net sales

Asia-Pacific's net sales increased 11 percent to $1,107 million in 2022 from $997 million in 2021. The increase was driven by favorable price mix of 14 percent and favorable volumes of 5 percent. These impacts were partially offset by unfavorable foreign exchange impacts of 8 percent.

Operating income

Asia-Pacific's operating income increased 7 percent to $93 million in 2022 from $87 million in 2021. The increase was primarily driven by the favorable price mix that was partially offset by foreign exchange impacts.

EMEA

Net sales

EMEA's net sales increased by 11 percent to $781 million in 2022 from $703 million in 2021. The increase was driven by favorable price mix of 23 percent and increased volumes of 2 percent, which were partially due to the purchase of KaTech on April 1, 2021. The effect of these factors was partially offset by unfavorable foreign exchange impacts of 14 percent.

Operating income

EMEA's operating income increased 4 percent to $110 million in 2022 compared to $106 million in 2021. Favorability in Europe was partially offset by foreign exchange impacts across the region.

For the Year Ended December 31, 2021 with Comparatives for the Year Ended December 31, 2020

A discussion of the year-over-year comparison of results for 2021 and 2020 is not included in this report and can be found in Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations in Ingredion's annual report on Form 10-K for the fiscal year ended December 31, 2021.

LIQUIDITY AND CAPITAL RESOURCES

As of December 31, 2022, Ingredion had total available liquidity of approximately $1,626 million. Domestic liquidity of $612 million consisted of $2 million in cash and cash equivalents and $610 million available through a $1 billion commercial paper program that had $390 million of outstanding borrowings. The commercial paper program, which we entered on July 27, 2021, is backed by $1 billion of borrowing availability under a five-year revolving credit agreement that we entered on June 30, 2021, as described below.

As of December 31, 2022, we had international liquidity of approximately $1,014 million, consisting of $234 million of cash and cash equivalents and $3 million of short-term investments held by our operations outside the U.S., as well as $777 million of unused operating lines of credit in foreign countries where we operate. As the parent company, we guarantee certain obligations of our consolidated subsidiaries. As of December 31, 2022, our guarantees aggregated $63 million. We believe that those consolidated subsidiaries will be able to meet their financial obligations as they become due.

We have entered into a revolving credit agreement for an unsecured revolving credit facility in an aggregate principal amount of $1 billion outstanding at any time, which will mature on June 30, 2026. Loans under the facility accrue interest at a per annum rate equal, at our option, to either a specified Secured Overnight Financing Rate ("SOFR") plus an applicable margin, or a base rate (generally determined according to the highest of the prime rate, the federal funds rate or the specified SOFR plus 1.00 percent) plus an applicable margin. The revolving credit agreement contains customary

affirmative and negative covenants that, among other matters, specify customary reporting obligations, and that, subject to exceptions, restrict the incurrence of additional indebtedness by our subsidiaries, the incurrence of liens and the consummation of certain mergers, consolidations and sales of assets. We are subject to compliance, as of the end of each quarter, with a maximum leverage ratio of 3.5 to 1.0 and a minimum ratio of consolidated EBITDA to consolidated net interest expense of 3.5 to 1.0, with each financial covenant calculated for the most recently completed four-quarter period. As of December 31, 2022, we were in compliance with these financial covenants.

On July 27, 2021, we established the commercial paper program under which we may issue senior unsecured notes of short maturities up to a maximum aggregate principal amount of $1 billion outstanding at any time. The notes may be sold from time to time on customary terms in the U.S. commercial paper market. We use and intend to continue using the note proceeds for general corporate purposes. During 2022, the average amount of commercial paper outstanding was $522 million with a weighted average interest rate of 1.97 percent over a weighted average maturity of 16 days. As of December 31, 2022, we had $390 million of commercial paper outstanding with a weighted average interest rate of 4.75 percent over a weighted average maturity of 7 days. The amount of commercial paper outstanding under this program in 2023 is expected to fluctuate.

On December 16, 2022 we entered into a new two-year, senior, unsecured $200 million term loan, which bears interest, payable quarterly in arrears, at a variable annual rate based on an adjusted daily SOFR plus a margin of 1.10 percent per annum. The term loan will mature and all principal thereunder will be payable on December 16, 2024. The term loan agreement contains customary affirmative and negative covenants that, among other matters, specify customary reporting obligations, and that, subject to exceptions, restrict the incurrence of additional indebtedness by our subsidiaries, the incurrence of liens and the consummation of certain mergers, consolidations and sales of assets. We are subject to compliance, as of the end of each quarter, with a maximum leverage ratio of 3.5 to 1.0 and a minimum ratio of consolidated EBITDA to consolidated net interest expense of 3.5 to 1.0, with each financial covenant calculated for the most recently completed four-quarter period.

As of December 31, 2022, we had total debt outstanding of approximately $2.5 billion, or approximately $1.9 billion excluding the outstanding commercial paper and other short-term borrowings. Of our outstanding debt, $1.7 billion consists of senior notes that do not require principal repayment until 2026 through 2050. The weighted average interest rate on our total indebtedness was approximately 3.5 percent for 2022 and approximately 3.0 percent for 2021.

The principal source of our liquidity is our internally generated cash flow, which we supplement as necessary with our ability to borrow under our credit facilities and to raise funds in the capital markets. We currently expect that our available cash balances, future cash flow from operations, access to debt markets and borrowing capacity under our revolving credit facility and commercial paper program, will provide us with sufficient liquidity to fund our anticipated capital expenditures, dividends and other operating, investing and financing activities for at least the next twelve months and for the foreseeable future thereafter. Our future cash flow needs will depend on many factors, including our rate of revenue growth, cost of raw materials, changing working capital requirements, the timing and extent of our expansion into new markets, the timing of introductions of new products, potential acquisitions of complementary businesses and technologies, continuing market acceptance of our new products and general economic and market conditions. We may need to raise additional capital or incur indebtedness to fund our needs for less predictable strategic initiatives, such as acquisitions.

NET CASH FLOWS

Our cash provided by operating activities decreased to $152 million in 2022 from $392 million in 2021, primarily due to changes in working capital. Cash used for working capital increased to $664 million for 2022, primarily due to increases in trade accounts receivable and inventory. Cash used for trade accounts receivable increased because of higher pricing and higher freight charges for products we sold, and cash used for inventory increased due primarily to higher input costs from raw materials during 2022. Our cash used by investing activities decreased to $320 million in 2022 from $335 million in 2021, primarily as a result of less cash used for acquisitions in 2022. In 2022, we had cash provided by financing activities of $103 million, as compared to cash used for financing activities of $373 million in 2021. Cash provided by financing activities in 2022 was primarily provided by proceeds from borrowings, including under our new $200 million term loan, which exceeded our payments on debt.

We used $300 million of cash for capital expenditures and mechanical stores purchases to update, expand and improve our facilities in 2022, which was unchanged from the $300 million we paid in 2021 for the same purposes. Capital investment commitments for 2023 are anticipated to be approximately $300 million.

In August 2022, we acquired Amishi for $7 million, net of cash acquired. In December 2022, we acquired a 65 percent controlling interest in Mannitab for $22 million, net of cash acquired.

We declare and pay cash dividends to our common stockholders of record on a quarterly basis. Dividends paid, including those to non-controlling interests, decreased 2 percent to $181 million during 2022 compared to $184 million during 2021. The decrease was primarily due to a reduction in shares outstanding in 2022, as a result of our repurchase during 2022 of 1,283 thousand outstanding shares of common stock in open market transactions at a net cost of $112 million.

We have not provided foreign withholding taxes, state income taxes and federal and state taxes on foreign currency gains/losses on accumulated undistributed earnings of certain foreign subsidiaries because these earnings are considered to be permanently reinvested. It is not practicable to determine the amount of the unrecognized deferred tax liability related to the undistributed earnings. We do not anticipate the need to repatriate funds to the U.S. to satisfy domestic liquidity needs arising in the ordinary course of business, including liquidity needs associated with our domestic debt service requirements.

KEY FINANCIAL PERFORMANCE METRICS

We use certain key financial performance metrics to monitor our progress towards achieving our long-term strategic business objectives. These metrics relate to our ability to drive profitability, create value for stockholders and monitor our financial leverage. We

assess whether we are achieving our profitability and value creation objectives by measuring our Adjusted Return on Invested Capital ("Adjusted ROIC"). We monitor our financial leverage by regularly reviewing our ratio of net debt to adjusted earnings before interest, taxes, depreciation and amortization ("Net Debt to Adjusted EBITDA"). We believe these metrics provide valuable information to help us run our business and are useful to investors.

The metrics Adjusted ROIC and Net Debt to Adjusted EBITDA include certain financial measures (Adjusted operating income, net of tax, and Adjusted EBITDA, respectively) that are not calculated in accordance with U.S. generally accepted accounting principles ("GAAP"). We also have presented below the most comparable financial measures calculated using components determined in accordance with GAAP. Management uses these non-GAAP financial measures internally for strategic decision-making, forecasting future results and evaluating current performance. Management believes that the non-GAAP financial measures provide a more consistent comparison of our operating results and trends for the periods presented. These non-GAAP financial measures are used in addition to and in conjunction with results presented in accordance with GAAP and reflect an additional way of viewing aspects of our operations that, when viewed with our GAAP results, provides a more complete understanding of factors and trends affecting our business. The non-GAAP financial measures should be considered as a supplement to, and not as a substitute for, or superior to, the corresponding measures calculated in accordance with GAAP.

In accordance with our long-term strategy, we set certain objectives relating to these key financial performance metrics that we strive to meet. However, no assurance can be given that we will continue to meet our financial performance metric targets. See Item 1A. Risk Factors and Item 7A. Quantitative and Qualitative Disclosures About Market Risk for a discussion of factors that could affect our ability to meet those targets. The objectives reflect our current aspirations in light of our present plans and existing circumstances. We may change these objectives from time to time to address new opportunities or changing circumstances as appropriate to meet our long-term needs and those of our stockholders.

A reconciliation of non-GAAP historical financial measures to the most comparable GAAP measure is provided in the tables below.

Adjusted ROIC

Adjusted ROIC is a financial performance ratio not defined under GAAP, and it should be considered in addition to, and not as a substitute for, GAAP financial measures. Ingredion defines Adjusted ROIC as Adjusted operating income, net of tax, divided by Average end-of-year balances for current year and prior year Total net debt and equity. Similarly named measures may not be defined and calculated by other companies in the same manner. Ingredion believes Adjusted ROIC is meaningful to investors as it focuses on profitability and value-creating potential, taking into account the amount of capital invested. The most comparable measure calculated using components determined in accordance with GAAP is Return on Invested Capital, which Ingredion defines as Net income, divided by Average end-of-year balances for current year and prior year Total net debt and equity, as provided in the table below.

RETURN ON INVESTED CAPITAL *(dollars in millions)*	**YEAR ENDED DECEMBER 31, 2022**	**2021**
Net income (a)	$502	$125
Adjusted for:		
Provision for income taxes	166	123
Other non-operating (income)	(5)	(12)
Financing costs	99	74
Restructuring/impairment charges[(i)]	4	47
Acquisition/integration costs[(ii)]	1	3
Impairment on disposition of assets	—	340
Other matters[(iii)]	20	(15)
Income taxes (at effective rates of 27.0% and 25.6%, respectively)[(iv)]	(212)	(175)
Adjusted operating income, net of tax (b)	575	510
Short-term debt	543	308
Long-term debt	1,940	1,738
Less: Cash and cash equivalents	(236)	(328)
Short-term investments	(3)	(4)
Total net debt	2,244	1,714
Share-based payments subject to redemption	48	36
Total redeemable non-controlling interests	51	71
Total equity	3,163	3,118
Total net debt and equity	$5,506	$4,939
Average current and prior year Total net debt and equity (c)	$5,223	$4,766
Return on Invested Capital (a ÷ c)	9.6%	2.6%
Adjusted Return on Invested Capital (b ÷ c)	11.0%	10.7%

(i) In 2022, we recorded $4 million of pre-tax restructuring charges for the Cost Smart programs. In 2021, we recorded $47 million of pre-tax restructuring charges primarily related to our Cost Smart programs.

(ii) 2022 acquisition/integration costs are reduced by $4 million to exclude acquisition/integration costs already included in financing costs above.

(iii) In 2022, we recorded pre-tax charges of $20 million primarily related to the impacts of a U.S.-based work stoppage. In 2021, we recorded $15 million of pre-tax benefits for Brazil indirect tax matters.

(iv) The effective income tax rate was 27.0 percent for 2022 and 25.6 percent for 2021.

	YEAR ENDED DECEMBER 31, 2022			**YEAR ENDED DECEMBER 31, 2021**		
(dollars in millions)	**INCOME BEFORE INCOME TAXES**	**PROVISION FOR INCOME TAXES**	**EFFECTIVE INCOME TAX RATE**	**INCOME BEFORE INCOME TAXES**	**PROVISION FOR INCOME TAXES**	**EFFECTIVE INCOME TAX RATE**
As reported	$668	$166	24.9%	$248	$123	49.6%
Add back (deduct):						
Acquisition/integration costs	5	—		3	(3)	
Restructuring/impairment charges	4	1		47	11	
Impairment on disposition of assets	—	—		340	—	
Fair value adjustments on equity investments	—	—		(6)	(1)	
Other matters	20	5		(15)	7	
Other tax matters	—	12		—	27	
Tax item-Mexico	—	4		—	(6)	
Adjusted non-GAAP	$697	$188	27.0%	$617	$158	25.6%

Our long-term objective is to maintain an Adjusted ROIC in excess of 10 percent. For 2022, we achieved an Adjusted ROIC of 11.0 percent as compared to 10.7 percent for 2021.

Net debt to adjusted EBITDA

Net Debt to Adjusted EBITDA is a financial performance ratio that is not defined under GAAP, and should be considered in addition to, and not as a substitute for, GAAP financial measures. Ingredion defines this measure as Short-term and Long-term debt less Cash and cash equivalents and Short-term investments, divided by Adjusted EBITDA. Similarly named measures may not be defined and calculated by other companies in the same manner. Ingredion believes Total net debt to Adjusted EBITDA is meaningful to investors as it focuses on Ingredion's leverage on a comparable Adjusted EBITDA basis and helps investors better understand the time required to pay back Ingredion's outstanding debt. The most comparable ratio calculated using components determined in accordance with GAAP is Total net debt to Income before income taxes, calculated as Short-term and Long-term debt less Cash and cash equivalents and Short-term investments, divided by Income before income taxes, as provided in the table below.

	AS OF DECEMBER 31,	
NET DEBT TO ADJUSTED EBITDA RATIO	2022	2021
Short-term debt	$543	$308
Long-term debt	1,940	1,738
Less: Cash and cash equivalents	(236)	(328)
Short-term investments	(3)	(4)
Total net debt (a)	2,244	1,714
Income before income taxes (b)	668	248
Adjusted for:		
Depreciation and amortization	215	220
Financing costs	99	74
Other non-operating (income)	(5)	(12)
Restructuring/impairment[(i)]	4	38
Acquisition/integration costs[(ii)]	1	3
Impairment from disposition of assets	—	340
Other matters[(iii)]	20	(15)
Adjusted EBITDA (c)	$1,002	$896
Net Debt to Income before income tax ratio (a ÷ b)	3.4	6.9
Net Debt to Adjusted EBITDA ratio (a ÷ c)	2.2	1.9

(i) Restructuring/impairment charges are reduced by $9 million in 2021 to exclude the accelerated depreciation associated with Cost Smart programs that are included in Depreciation and amortization above.

(ii) 2022 acquisition/integration costs are reduced by $4 million to exclude acquisition/integration costs already included in financing costs above.

(iii) We recorded $20 million of pre-tax charges primarily related to the impacts of a U.S.-based work stoppage in 2022 and $15 million of pre-tax benefits for Brazil indirect tax matters in 2021.

Our long-term objective is to target a ratio of Net Debt to Adjusted EBITDA of 2.5 or less. As of December 31, 2022 and December 31, 2021, the ratio was 2.2 and 1.9, respectively.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our Consolidated Financial Statements have been prepared in accordance with GAAP. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of revenues and expenses during the reporting period. Actual results may differ from these estimates under different assumptions and conditions.

We have identified below the most critical accounting policies upon which the financial statements are based and that involve our most complex and subjective decisions and assessments. Our senior management has discussed the development, selection and disclosure of these policies with members of the Audit Committee of our Board of Directors. These accounting policies are provided in the Notes to the Consolidated Financial Statements. The discussion that follows should be read in conjunction with the Consolidated Financial Statements and related notes included elsewhere in this annual report on Form 10-K.

Business combinations

Our acquisitions of Amishi and the majority of shares of Mannitab in 2022, KaTech in 2021, and PureCircle and Verdient in 2020 were accounted for in accordance with Accounting Standards Codification ("ASC") Topic 805, Business Combinations. In purchase accounting, identifiable assets acquired and liabilities assumed are recognized at their estimated fair values on the date of acquisition and any remaining purchase price is recorded as goodwill. In determining the fair values of assets acquired and liabilities assumed, we make significant estimates and assumptions, particularly for long-lived tangible and intangible assets. Critical estimates used in valuing tangible and intangible assets include, but are not limited to, future expected cash flows, discount rates, market prices and asset lives. Although our estimates of fair value are based upon assumptions believed to be reasonable, actual results may differ. See Note 2 of the Notes to the Consolidated Financial Statements for more information related to our acquisitions.

Property, plant and equipment and definite-lived intangible assets

We have substantial investments in property, plant and equipment ("PP&E") and definite-lived intangible assets. For PP&E, we recognize the cost of depreciable assets in operations over the estimated useful life of the assets and evaluate the recoverability of these assets whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. For definite-lived intangible assets, we recognize the cost of these amortizable assets in operations over their estimated useful life and evaluate the recoverability of the assets whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. The carrying values of PP&E and definite-lived intangible assets at December 31, 2022 were $2.4 billion and $258 million, respectively.

In assessing the recoverability of the carrying value of PP&E and definite-lived intangible assets, we may have to make projections regarding future cash flows. In developing these projections, we make a variety of important assumptions and estimates that have a significant impact on our assessments of whether the carrying values of PP&E and definite-lived intangible assets should be adjusted to reflect impairment. Among these are assumptions and estimates about the future growth and profitability of the related asset group, anticipated future economic, regulatory and political conditions in the asset group's market, and estimates of terminal or disposal values.

To optimize our operations, we continually review whether to further consolidate our manufacturing facilities or redeploy assets for other uses when we believe we can achieve a higher return on our investment. This review may result in closing or sale of certain manufacturing facilities, which could have a significant negative impact on our results of operations in the period we decide to close or sell the facility.

The future occurrence of a potential indicator of impairment, such as a significant adverse change in the business climate that would require a change in our assumptions or strategic decisions made in response to economic or competitive conditions, could require us to perform tests of recoverability in the future.

Indefinite-lived intangible assets and goodwill

We have certain indefinite-lived intangible assets in the form of tradenames and trademarks. Our methodology for allocating the purchase price of acquisitions is based on established valuation techniques that reflect the consideration of a number of factors, including valuations performed by third-party appraisers when appropriate. Goodwill is measured as the excess of the cost of an acquired business over the fair value assigned to identifiable assets acquired and liabilities assumed. We have identified several reporting units for which cash flows are determinable and to which goodwill may be allocated. Goodwill is either assigned to a specific reporting unit or allocated between reporting units based on the relative excess fair value of each reporting unit. The carrying value of indefinite-lived intangible assets and goodwill at December 31, 2022 was $143 million and $900 million, respectively, compared to $143 million and $914 million, respectively, at December 31, 2021.

We assess indefinite-lived intangible assets and goodwill for impairment as of July 1 each year (or more frequently if impairment indicators arise). We first assess qualitative factors to determine whether it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is impaired, which include net sales derived from these intangibles and certain market and industry conditions. After assessing the qualitative factors, if we determine that it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is greater than its carrying amount, then we are not required to compute the fair value of the indefinite-lived intangible asset. If the qualitative assessment leads us to conclude otherwise, then we are required to determine the fair value of the indefinite-lived intangible assets and perform a quantitative impairment test in accordance with ASC subtopic 350-30, Intangibles–Goodwill and Other. Based on our assessment's results, we concluded that as of July 1, 2022, there were no impairments in our indefinite-lived intangible assets.

In testing goodwill for impairment, we first assess qualitative factors in determining whether it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount. After assessing the qualitative factors, if we determine that it is more-likely-than-not that the fair value of a reporting unit is greater than its carrying amount, then we do not perform an impairment test. If we conclude otherwise, then we perform the impairment test as described in ASC Topic 350, Intangibles–Goodwill and Other. Under this impairment test, the fair value of the reporting unit is compared to its carrying value. If the fair value of the reporting unit exceeds the carrying value of its net assets, goodwill is not considered impaired, and no further testing is required. If the carrying value of the net assets exceeds the fair value of the reporting unit, then an impairment exists for the difference between the fair value and carrying value of the reporting unit. This difference may not exceed the goodwill recorded at the reporting unit.

When we test goodwill for impairment, we make certain estimates and judgments, which include identifying reporting units and determining the reporting units' fair values based on both discounted cash flow analyses and an analysis of market multiples. To determine the fair value of reporting units, we use significant assumptions and estimates for discount and long-term net sales growth rates, in addition to operating and capital expenditure requirements. We consider changes in discount rates for the reporting units based on current market interest rates and specific risk factors within each geographic region. We also evaluate qualitative factors, such as legal, regulatory or competitive forces, in estimating the impact to the fair value of the reporting units, noting no significant changes that would result in any reporting unit failing the impairment test. Changes in assumptions concerning projected results or other underlying assumptions could have a significant impact on the fair value of the reporting units in the future. Based on the results of the annual assessment, we concluded that as of July 1, 2022, there were no impairments in our reporting units.

Retirement benefits

We and our subsidiaries sponsor noncontributory defined benefit pension plans (qualified and non-qualified) covering a substantial portion of employees in the U.S. and Canada, and certain employees in other countries. We also provide healthcare and life insurance benefits for retired employees in the U.S., Canada and Brazil. In order to measure the expense and obligations associated with these benefits, our management must make a variety of estimates and assumptions, including discount rates, expected long-term rates of return, rate of compensation increases, employee turnover rates, retirement rates, mortality rates and other factors. We review our actuarial assumptions on an annual basis as of December 31 (or more frequently if a significant event requiring remeasurement occurs) and modify our assumptions based on current rates and trends when it is appropriate to do so. The effects of modifications are recognized immediately on the Consolidated Balance Sheets but are generally amortized into operating earnings over future periods, with the deferred amount recorded in accumulated other comprehensive loss ("AOCL"). We believe the assumptions utilized in recording our obligations under our plans, which are based on our experience, market conditions and input from our actuaries, are reasonable. We use third-party specialists to assist management in evaluating our assumptions and estimates, as well as to appropriately measure the costs and obligations associated with our retirement benefit plans. Had we used different estimates and assumptions for these plans, our retirement benefit obligations and related expense could vary from the actual amounts recorded and such differences could be material. Additionally, adverse changes in investment returns earned on pension assets and discount rates used to calculate pension and postretirement benefit related liabilities or changes in required funding levels may have an unfavorable impact on future expense and cash flow. Net periodic pension and postretirement benefit cost for all of our plans was $6 million in 2022 and $3 million in 2021.

We determine our assumption for the discount rate used to measure year-end pension and postretirement obligations based on high-quality fixed-income investments that match the duration of the expected benefit payments, which has been benchmarked using a long-term, high-quality AA corporate bond index. We use a full yield curve approach in the estimation of the service and interest cost components of benefit cost by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. The weighted average discount rate used to determine our obligations under U.S. pension plans as of December 31, 2022 and 2021, was 5.19 percent and 2.91 percent, respectively. The weighted average discount rate used to determine our obligations under non-U.S. pension plans as of 2022 and 2021, was 5.66 percent and 3.47 percent, respectively. The weighted average discount rate used to determine our obligations under our postretirement plans as of December 31, 2022 and 2021, was 7.30 percent and 4.22 percent, respectively.

A one percentage point decrease in the discount rates at 2022, would have increased the accumulated benefit obligation and projected benefit obligation by the following amounts (millions):

U.S. PENSION PLANS	
Accumulated benefit obligation	$34
Projected benefit obligation	34
NON-U.S. PENSION PLANS	
Accumulated benefit obligation	$18
Projected benefit obligation	19
POSTRETIREMENT PLANS	
Accumulated benefit obligation	$8

Our investment approach and related asset allocation for the U.S. and Canada plans is a liability-driven investment approach by which a higher proportion of investments will be in interest-rate sensitive investments (fixed income) under an active-management approach. The approach seeks to protect the current funded status of the plans from market volatility with a greater asset allocation to interest-rate sensitive assets. The greater allocation to interest-rate sensitive assets is expected to reduce volatility in plan-funded status by more closely matching movements in asset values to changes in liabilities.

Our current investment policy for our pension plans is to balance risk and return through diversified portfolios of actively managed equity index instruments, fixed income index securities and short-term investments. Maturities for fixed income securities are managed so that sufficient liquidity exists to meet near-term benefit payment obligations. The asset allocation is reviewed regularly, and portfolio investments are rebalanced to the targeted allocation when considered appropriate or to raise sufficient liquidity when necessary to meet near-term benefit payment obligations. For 2022 net periodic pension cost, we assumed an expected long-term rate of return on assets, which is based on the fair value of plan assets, of 4.10 percent for U.S. plans and approximately 3.06 percent for Canadian plans. In developing the expected long-term rate of return assumption on plan assets, which consist mainly of U.S. and Canadian debt and equity securities, management evaluated historical rates of return achieved on plan assets and the asset allocation of the plans, input from our independent actuaries and investment consultants, and historical trends in long-term inflation rates. Projected return estimates made by such consultants are based upon broad equity and bond indices. We also maintain several funded pension plans in other international locations. The expected returns on plan assets for these plans are determined based on each plan's investment approach and asset allocations. A hypothetical 25 basis point decrease in the expected long-term rate of return assumption would increase 2023 net periodic pension cost for the U.S. and Canada plans by approximately $1 million each.

Healthcare cost trend rates are used in valuing our postretirement benefit obligations and are established based on actual health care cost trends and consultation with actuaries and benefit providers. At December 31, 2022, the health care cost trend rate assumptions for the next year for the U.S., Canada and Brazil plans were 6.82 percent, 4.82 percent and 8.68 percent, respectively.

See Note 11 of the Notes to the Consolidated Financial Statements for more information related to our benefit plans.

NEW ACCOUNTING STANDARDS

For information about new accounting standards, see Note 1 of the Notes to the Consolidated Financial Statements.

FORWARD-LOOKING STATEMENTS

This Form 10-K contains or may contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Ingredion intends these forward-looking statements to be covered by the safe harbor provisions for such statements.

Forward-looking statements include, among others, any statements regarding Ingredion's prospects, future operations, or future financial condition, earnings, net sales, tax rates, capital expenditures, cash flows, expenses or other financial items, including management's plans or strategies and objectives for any of the foregoing and any assumptions, expectations or beliefs underlying any of the foregoing.

These statements can sometimes be identified by the use of forward-looking words such as "may," "will," "should," "anticipate," "assume," "believe," "plan," "project," "estimate," "expect," "intend," "continue," "pro forma," "forecast," "outlook," "propels," "opportunities," "potential," "provisional," or other similar expressions or the negative thereof. All statements other than statements of historical facts therein are "forward-looking statements."

These statements are based on current circumstances or expectations, but are subject to certain inherent risks and uncertainties, many of which are difficult to predict and beyond our control. Although we believe our expectations reflected in these forward-looking statements are based on reasonable assumptions, investors are cautioned that no assurance can be given that our expectations will prove correct.

Actual results and developments may differ materially from the expectations expressed in or implied by these statements, based on various risks and uncertainties, including effects of the conflict between Russia and Ukraine, including the impacts on

the availability and prices of raw materials and energy supplies and volatility in foreign exchange and interest rates; changing consumption preferences relating to high fructose corn syrup and other products we make; the effects of global economic conditions and the general political, economic, business, and market conditions that affect customers and consumers in the various geographic regions and countries in which we buy our raw materials or manufacture or sell our products, and the impact these factors may have on our sales volumes, the pricing of our products and our ability to collect our receivables from customers; future purchases of our products by major industries which we serve and from which we derive a significant portion of our sales, including, without limitation, the food, beverage, animal nutrition, and brewing industries; the impact of COVID-19 on our business, the demand for our products and our financial results; the uncertainty of acceptance of products developed through genetic modification and biotechnology; our ability to develop or acquire new products and services at rates or of qualities sufficient to gain market acceptance; increased competitive and/or customer pressure in the corn-refining industry and related industries, including with respect to the markets and prices for our primary products and our co-products, particularly corn oil; price fluctuations, supply chain disruptions, and shortages affecting inputs to our production processes and delivery channels, including raw materials, energy costs and availability and freight and logistics; our ability to contain costs, achieve budgets and realize expected synergies, including with respect to our ability to complete planned maintenance and investment projects on time and on budget as well as with respect to freight and shipping costs; operating difficulties at our manufacturing facilities and liabilities relating to product safety and quality; the effects of climate change and legal, regulatory, and market measures to address climate change; our ability to successfully identify and complete acquisitions or strategic alliances on favorable terms as well as our ability to successfully integrate acquired businesses or implement and maintain strategic alliances and achieve anticipated synergies with respect to all of the foregoing; economic, political and other risks inherent in conducting operations in foreign countries and in foreign currencies; the behavior of financial and capital markets, including with respect to foreign currency fluctuations, fluctuations in interest and exchange rates and market volatility and the associated risks of hedging against such fluctuations; the failure to maintain satisfactory labor relations; our ability to attract, develop, motivate, and maintain good relationships with our workforce; the impact on our business of natural disasters, war, threats or acts of terrorism, the outbreak or continuation of pandemics such as COVID-19, or the occurrence of other significant events beyond our control; the impact of impairment charges on our goodwill or long-lived assets; changes in government policy, law, or regulation and costs of legal compliance, including compliance with environmental regulation; changes in our tax rates or exposure to additional income tax liability; increases in our borrowing costs that could result from increased interest rates; our ability to raise funds at reasonable rates and other factors affecting our access to sufficient funds for future growth and expansion; security breaches with respect to information technology systems, processes, and sites; volatility in the stock market and other factors that could adversely affect our stock price; risks affecting the continuation of our dividend policy; and our ability to maintain effective internal control over financial reporting.

Our forward-looking statements speak only as of the date on which they are made, and we do not undertake any obligation to update any forward-looking statement to reflect events or circumstances after the date of the statement as a result of new information or future events or developments. If we do update or correct one or more of these statements, investors and others should not conclude that we will make additional updates or corrections. For a further description of these and other risks, see Item 1A. Risk Factors above and our subsequent reports on Form 10-Q and Form 8-K.

ITEM 7A. Quantitative and Qualitative Disclosures about Market Risk

Hedging

We are exposed to market risk stemming from changes in commodity prices (primarily corn and natural gas), foreign-currency exchange rates and interest rates. In the normal course of business, we actively manage our exposure to these market risks by entering various hedging transactions, authorized under established policies that place controls on these activities. These transactions utilize exchange-traded derivatives or over-the-counter derivatives with investment grade counterparties. Our hedging transactions may include, but are not limited to, a variety of derivative financial instruments such as commodity-related futures, options and swap contracts, forward currency-related contracts and options, interest rate swap agreements and Treasury lock agreements ("T-Locks"). We plan to continue to use derivative instruments to hedge such price risk and, accordingly, we will be required to make cash deposits to or be entitled to receive cash from our margin accounts depending on the movement in the market price of the underlying commodities. See Note 6 of the Notes to the Consolidated Financial Statements for additional information.

Raw material, energy and other commodity exposure

Our principal use of derivative financial instruments is to manage commodity price risk primarily in North America relating to anticipated purchases of corn and natural gas to be used in our manufacturing process. Our finished products are made primarily from corn. In North America, we sell a large portion of finished products at firm prices established in supply contracts typically lasting for periods of up to one year. In order to minimize the effect of volatility in the cost of corn related to these firm-priced supply contracts, we enter into corn futures contracts or take other hedging positions in the corn futures market. These contracts typically mature within one year. At expiration, we settle the derivative contracts at a net amount equal to the difference between the then-current price of corn and the futures contract price. Although these hedging instruments are subject to fluctuations in value, changes in the value of the underlying exposures we are hedging generally offset such fluctuations. While the corn futures contracts or other hedging positions are intended to minimize the volatility of corn costs on operating profits, occasionally the hedging contracts can incur losses, some of which may be material. Outside North America, sales of finished products under long-term, firm-priced supply contracts are not material.

Energy costs represent approximately 7 percent of our cost of sales. The primary use of energy is to create steam in the production process and to dry product. We consume natural gas, electricity, coal, fuel oil, wood and other biomass sources to generate energy. The market prices for these commodities vary depending on supply and demand, world economies and other factors. We purchase these commodities based on our anticipated usage and the future outlook for these costs. We cannot assure that we will be able to purchase these commodities at prices that we can adequately pass through to customers to sustain or increase profitability. We use derivative financial instruments, such as over-the-counter natural gas swaps, to hedge portions of our natural gas costs generally over the following 12 to 24 months, primarily in our North America operations.

At December 31, 2022, we had outstanding futures and option contracts that hedged the forecasted purchase of approximately 120 million bushels of corn, as well as outstanding swap contracts that hedged the forecasted purchase of approximately 31 million mmbtus of natural gas. Based on our overall commodity hedge position at December 31, 2022, a hypothetical 10 percent decline in market prices applied to the fair value of the instruments would result in a charge to other comprehensive loss ("OCL") of approximately $71 million, net of income tax benefit of $22 million. Any change in the fair value of the contracts, real or hypothetical, would be substantially offset by an inverse change in the value of the underlying hedged item.

Unrealized gains and losses associated with marking our commodities-based cash flow hedge derivative instruments to market are recorded as a component of OCL. As of December 31, 2022, our AOCL included $8 million of net gains (net of income tax expense of $3 million) related to these derivative instruments. We anticipate that $10 million of net gains (net of income tax expense of $3 million) will be reclassified into earnings during the following 12 months. We expect the net gains to be offset by changes in the underlying commodities costs.

Interest rate exposure

We are exposed to interest rate risk on our variable rate debt and price risk on our fixed rate debt. As of December 31, 2022, approximately 70 percent, or $1.7 billion principal amount, of our total debt is fixed rate debt and 30 percent, or approximately $750 million principal amount, of our total debt is variable rate debt subject to changes in short-term rates, which could affect our interest costs. We assess market risk based on changes in interest rates utilizing a sensitivity analysis that measures the potential change in earnings, fair values and cash flows based on a hypothetical 1 percentage point change in interest rates at December 31, 2022. A hypothetical increase of 1 percentage point in the weighted average floating interest rate would increase our annual interest expense by approximately $7 million and would change the fair value of our fixed rate debt at December 31, 2022 by approximately $117 million. See Note 8 of the Notes to the Consolidated Financial Statements for further information.

Since we have no current plans to repurchase our outstanding fixed rate instruments before their maturities, the impact of market interest rate fluctuations on our long-term debt is not expected to have a significant effect on our Consolidated Financial Statements.

We occasionally use interest rate swaps and T-Locks to hedge our exposure to interest rate changes, to reduce the volatility of our financing costs, or to achieve a desired proportion of fixed versus floating rate debt, based on current and projected market conditions. The changes in fair value of interest rate swaps designated as hedging instruments that effectively offset the variability in the fair value of outstanding debt obligations are reported in earnings. These amounts offset the gains or losses (the changes in fair value) of the hedged debt instruments that are attributable to changes in interest rates (the hedged risk), which are also recognized in earnings. As of December 31, 2022 and 2021, we did not have any outstanding interest rate swaps.

We did not have any T-Locks outstanding as of December 31, 2022. As of December 31, 2022, our AOCL account included $3 million of net losses (net of $1 million tax benefit) related to settled T-Locks. These deferred losses are being amortized to financing costs over the term of the senior notes with which they are associated. The net losses reclassified into earnings during the next 12 months are not anticipated to be significant.

Foreign currencies

Due to our global operations, we are exposed to fluctuations in foreign currency exchange rates. As a result, we have exposure to translational foreign exchange risk when our foreign operation results are translated to U.S. dollars and to transactional foreign exchange risk when transactions not denominated in the functional currency of the operating unit are revalued.

We selectively use derivative instruments such as forward contracts, currency swaps and options to manage transactional foreign exchange risk. Based on our overall foreign currency transactional exposure at December 31, 2022, we estimate that a hypothetical 10 percent decline in the value of the U.S. dollar would have resulted in a transactional foreign exchange loss of approximately $4 million. At December 31, 2022, our AOCL account included in the equity section of our Consolidated Balance Sheets includes a cumulative translation loss of approximately $1.0 billion. The aggregate net assets of our foreign subsidiaries where the local currency is the functional currency approximated $1.8 billion at December 31, 2022. A hypothetical 10 percent decline in the value of the U.S. dollar relative to foreign currencies would have resulted in a reduction to our cumulative translation loss and a credit to OCL of approximately $200 million.

We primarily use derivative financial instruments such as foreign-currency forward contracts, swaps and options to manage our foreign currency transactional exchange risk. We enter foreign-currency derivative instruments that are designated as both cash flow hedging instruments and instruments not designated as hedging instruments for accounting purposes. As of December 31, 2022, we had foreign currency forward sales contracts with an aggregate notional amount of $405 million and foreign currency forward purchase contracts with an aggregate notional amount of $239 million not designated as hedging instruments for accounting purposes. As of December 31, 2022, we also had foreign currency forward sales contracts with an aggregate notional amount of $668 million and foreign currency forward purchase contracts with an aggregate notional amount of $840 million that are classified as cash flow hedges. The amount included in AOCL relating to these hedges at December 31, 2022 was a $1 million gain (net of an insignificant amount of income tax expense). We expect $4 million

of net gains (net of $2 million of income tax expense) will be reclassified to earnings over the next 12 months.

Some of the countries in which we operate may experience high inflation. We elect hyperinflation accounting for our affiliate in Argentina, which has high cumulative inflation, determined its functional currency to be the U.S. dollar, and measure its income statement and balance sheet in U.S. dollars using both current and historical rates of exchange. The effect of changes in exchange rates on its local currency denominated monetary assets and liabilities is reflected in earnings in financing costs in the Consolidated Statements of Income.

ITEM 8. Financial Statements and Supplementary Data

Report of Independent Registered Public Accounting Firm

TO THE STOCKHOLDERS AND BOARD OF DIRECTORS INGREDION INCORPORATED:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of Ingredion Incorporated and subsidiaries (the Company) as of December 31, 2022 and 2021, the related consolidated statements of income, comprehensive income, equity and redeemable equity, and cash flows for each of the years in the three-year period ended December 31, 2022, and the related notes (collectively, the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the consolidated financial statements referred to above 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 years in the three-year period ended December 31, 2022, in conformity with U.S. generally accepted accounting principles. Also 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 (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

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

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.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements

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

Evaluation of the pension benefit obligations

As discussed in Note 11 to the consolidated financial statements, the Company's pension benefit obligations totaled $488 million as of December 31, 2022. The pension benefit obligations are measured at the actuarial present value of the benefits to which employees are entitled based on employee service rendered and the benefits attributed by the pension benefit formula and the employee's expected date of separation or retirement. The determination of the Company's pension benefit obligations is dependent, in part, on certain estimates and the selection of assumptions, including discount rates.

We identified the evaluation of the pension benefit obligations as a critical audit matter. Subjective auditor judgment was required to evaluate the actuarial models and methodology used by the Company to determine the obligations and to evaluate the discount rates used. Changes in the discount rates could have a significant impact to the measurement of the pension benefit obligations.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's pension benefit obligations process, including controls related to the assessment of the actuarial models and methodology and the development of the discount rates. For certain plans, we involved an actuarial professional with specialized skill and knowledge, who assisted in:

- understanding and assessing the appropriateness of the actuarial models and methodology used by the Company to determine the obligations;
- the evaluation of the Company's discount rates, by assessing changes in the discount rates from the prior year and comparing it to the change in published indices, and by evaluating the discount rates based on the pattern of cash flows; and
- the evaluation of the selected yield curve, the consistency of the yield curve with the prior year, and the spot rates, to further assess the discount rates.

/s/ KPMG LLP

We have served as the Company's auditor since 1997.

Chicago, Illinois
February 21, 2023

CONSOLIDATED STATEMENTS OF INCOME

	YEAR ENDED DECEMBER 31,		
(in millions, except per share amounts)	2022	2021	2020
Net sales	$7,946	$6,894	$5,987
Cost of sales	6,452	5,563	4,715
Gross profit	**1,494**	1,331	1,272
Operating expenses	715	668	628
Other operating expense (income)	13	(34)	(31)
Restructuring/impairment charges and related adjustments	4	387	93
Operating income	**762**	310	582
Financing costs	99	74	81
Other non-operating (income)	(5)	(12)	(5)
Income before income taxes	668	248	506
Provision for income taxes	166	123	152
Net income	**502**	125	354
Less: Net income attributable to non-controlling interests	10	8	6
Net income attributable to Ingredion	**$492**	$117	$348
Weighted average common shares outstanding:			
Basic	66.2	67.1	67.2
Diluted	67.0	67.8	67.6
Earnings per common share of Ingredion:			
Basic	$7.43	$1.74	$5.18
Diluted	7.34	1.73	5.15

See the Notes to the Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(in millions)	**2022**	**2021**	**2020**
Net income	**$502**	$125	$354
Other comprehensive income:			
Gains on cash flow hedges, net of income tax effect of $53, $58 and $2, respectively	157	160	3
(Gains) losses on cash flow hedges reclassified to earnings, net of income tax effect of $69, $55 and $17, respectively	(199)	(154)	48
Actuarial (losses) gains on pension and other postretirement obligations, settlements and plan amendments, net of income tax effect of $1, $9 and $1, respectively	(4)	19	(1)
Currency translation adjustment	(105)	211	(25)
Comprehensive income	**351**	361	379
Less: Comprehensive income attributable to non-controlling interests	—	9	5
Comprehensive income attributable to Ingredion	**$351**	$352	$374

See the Notes to the Consolidated Financial Statements.

CONSOLIDATED BALANCE SHEETS

(in millions, except share and per share amounts)	AS OF DECEMBER 31, 2022	2021
Assets		
Current assets:		
Cash and cash equivalents	$236	$328
Short-term investments	3	4
Accounts receivable, net	1,411	1,130
Inventories	1,597	1,172
Prepaid expenses	62	63
Total current assets	**3,309**	2,697
Property, plant and equipment, net of accumulated depreciation of $3,326 and $3,232, respectively	2,407	2,423
Intangible assets	1,301	1,348
Other assets	544	531
Total assets	**$7,561**	$6,999
Liabilities and equity		
Current liabilities:		
Short-term borrowings	$543	$308
Accounts payable	873	774
Accrued liabilities	466	430
Total current liabilities	**1,882**	1,512
Long-term debt	1,940	1,738
Other non-current liabilities	477	524
Total liabilities	**4,299**	3,774
Share-based payments subject to redemption	48	36
Redeemable non-controlling interests	51	71
Ingredion stockholders' equity:		
Preferred stock—authorized 25,000,000 shares—$0.01 par value, none issued	—	—
Common stock—authorized 200,000,000 shares—$0.01 par value, 77,810,875 issued at December 31, 2022 and December 31, 2021	1	1
Additional paid-in capital	1,132	1,158
Less: Treasury stock (common stock: 12,116,920 and 11,154,203 shares at December 31, 2022 and December 31, 2021, respectively) at cost	(1,148)	(1,061)
Accumulated other comprehensive loss	(1,048)	(897)
Retained earnings	4,210	3,899
Total Ingredion stockholders' equity	**3,147**	3,100
Non-redeemable non-controlling interests	16	18
Total equity	**3,163**	3,118
Total liabilities and equity	**$7,561**	$6,999

See the Notes to the Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF EQUITY AND REDEEMABLE EQUITY

	TOTAL EQUITY								
(in millions)	PREFERRED STOCK	COMMON STOCK	ADDITIONAL PAID-IN CAPITAL	TREASURY STOCK	ACCUMULATED OTHER COMPREHENSIVE LOSS	RETAINED EARNINGS	NON-REDEEMABLE NON-CONTROLLING INTERESTS	SHARE-BASED PAYMENTS SUBJECT TO REDEMPTION	REDEEMABLE NON-CONTROLLING INTERESTS
Balance, December 31, 2019	**$—**	**$1**	**$1,137**	**$(1,040)**	**$(1,158)**	**$3,780**	**$21**	**$31**	**$—**
Net income attributable to Ingredion						348			
Net income (loss) attributable to non-controlling interests							10		(4)
Dividends declared						(171)	(8)		
Acquisition of redeemable non-controlling interests									74
Share-based compensation, net of issuance			13	16				(1)	
Other comprehensive income (loss)					25		(1)		
Other							(1)		
Balance, December 31, 2020	**—**	**1**	**1,150**	**(1,024)**	**(1,133)**	**3,957**	**21**	**30**	**70**
Net income attributable to Ingredion						117			
Net income (loss) attributable to non-controlling interests							11		(3)
Dividends declared						(175)	(11)		
Repurchases of common stock, net				(68)					
Share-based compensation, net of issuance			8	31				6	
Other comprehensive income (loss)					236		(3)		4
Balance, December 31, 2021	**—**	**1**	**1,158**	**(1,061)**	**(897)**	**3,899**	**18**	**36**	**71**
Net income attributable to Ingredion						492			
Net income attributable to non-controlling interests							9		1
Dividends declared						(181)	(5)		
Repurchases of common stock, net				(112)					
Share-based compensation, net of issuance			3	25				12	
Fair market value adjustment to non-controlling interests			(29)						29
Non-controlling interest purchases									(46)
Other comprehensive (loss)					(151)		(6)		(4)
Balance, December 31, 2022	**$—**	**$1**	**$1,132**	**$(1,148)**	**$(1,048)**	**$4,210**	**$16**	**$48**	**$51**

See the Notes to the Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	YEAR ENDED DECEMBER 31,		
(in millions)	**2022**	**2021**	**2020**
Cash provided by operating activities			
Net income	$502	$125	$354
Non-cash charges to net income:			
Depreciation and amortization	215	220	213
Mechanical stores expense	55	55	54
Impairment on disposition of assets	—	340	—
Deferred income taxes	(3)	(61)	(7)
Other non-cash charges	57	8	105
Changes in working capital:			
Accounts receivable and prepaid expenses	(310)	(162)	(3)
Inventories	(468)	(312)	(14)
Accounts payable and accrued liabilities	158	226	124
Margin accounts	(44)	(32)	43
Other	(10)	(15)	(40)
Cash provided by operating activities	**152**	392	829
Cash used for investing activities			
Capital expenditures and mechanical stores purchases	(300)	(300)	(340)
Proceeds from disposal of manufacturing facilities and properties	7	18	7
Payments for acquisitions, net of cash acquired	(29)	(40)	(236)
Other	2	(13)	(2)
Cash used for investing activities	**(320)**	(335)	(571)
Cash provided by (used for) financing activities			
Proceeds from borrowings	825	1,300	1,550
Payments on debt	(532)	(1,690)	(1,224)
Debt issuance cost	—	—	(9)
Commercial paper borrowings, net	140	250	—
(Repurchases) issuances of common stock, net	(103)	(49)	4
Purchases of non-controlling interests	(46)	—	—
Dividends paid, including to non-controlling interests	(181)	(184)	(178)
Cash provided by (used for) financing activities	**103**	(373)	143
Effects of foreign exchange rate changes on cash	(27)	(21)	—
(Decrease) increase in cash and cash equivalents	(92)	(337)	401
Cash and cash equivalents, beginning of period	328	665	264
Cash and cash equivalents, end of period	**$236**	$328	$665

See the Notes to the Consolidated Financial Statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1 – Description of the Business and Summary of Significant Accounting Policies

Description of the business

Ingredion Incorporated was founded in 1906 and became an independent and public company as of December 31, 1997. Unless the context otherwise requires, all references herein to the "Company," "Ingredion," "we," "us," and "our" shall mean Ingredion Incorporated and its consolidated subsidiaries. We primarily manufacture and sell sweeteners, starches, nutrition ingredients and biomaterial solutions derived from wet milling and processing corn and other starch-based materials to a wide range of industries, both domestically and internationally.

Basis of presentation

The Consolidated Financial Statements consist of the accounts of Ingredion, including all subsidiaries. Intercompany accounts and transactions are eliminated in consolidation.

The preparation of the accompanying Consolidated Financial Statements in conformity with U.S. Generally Accepted Accounting Principles ("GAAP") requires management to make estimates and assumptions about future events. These estimates and the underlying assumptions affect the amounts of assets and liabilities reported, disclosures about contingent assets and liabilities, and reported amounts of revenues and expenses. Such estimates and assumptions impact the value of purchase consideration, accounts receivable, inventories, certain investments, goodwill, intangible assets and other long-lived assets, legal contingencies, income taxes, and pension and other postretirement benefits, among others. These estimates and assumptions are based on our best estimates and judgment. We evaluate our estimates and assumptions on an ongoing basis using historical experience and other factors, including the current economic environment, which we believe to be reasonable under the circumstances. We will adjust such estimates and assumptions when facts and circumstances dictate. Corn price volatility, adverse changes in the global economic environment, foreign currency devaluations versus the U.S. dollar, and access to credit markets increase the uncertainty inherent in such estimates and assumptions. As future events and their effects cannot be determined with precision, actual results could differ significantly from these estimates. Changes in these estimates will be reflected in the financial statements in future periods.

Assets and liabilities of foreign subsidiaries, other than those whose functional currency is the U.S. dollar, are translated at current exchange rates with the related translation adjustments reported in equity as a component of accumulated other comprehensive loss ("AOCL"), and income statement accounts are translated at the average exchange rate during the period. The U.S. dollar is the functional currency for our subsidiaries in Mexico and Argentina, and we translate their monetary assets and liabilities at current exchange rates with the related adjustment included in net income and non-monetary assets and liabilities at historical exchange rates with the related translation adjustments included in AOCL.

Net sales

Ingredion recognizes revenue under the core principle to depict our transfer of products to customers in amounts that reflect the consideration we expect to receive. To achieve that core principle, we apply the following five-step approach: (1) identify the contract with a 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 a performance obligation is satisfied.

We identify customer purchase orders, which in some cases are governed by a master sales agreement, as the contracts with our customers. For each contract, we consider the transfer of products, each of which is distinct, to be the identified performance obligation. In determining the transaction price for the performance obligation, we evaluate whether the price is subject to adjustment to determine the consideration to which we expect to be entitled. The pricing model can be fixed or variable within the contract. The variable pricing model is based on historical commodity pricing and is determinable prior to completing the performance obligation. Additionally, we have certain sales adjustments for volume incentive discounts and other discount arrangements that reduce the transaction price. We estimate the reduction of transaction price using the expected value method based on our analysis of historical volume incentives or discounts over a period considered adequate to account for current pricing and business trends. Historically, actual volume incentives and discounts relative to those estimated and included when determining the transaction price have not materially differed. We accrue volume incentives and discounts in Accrued liabilities in the Consolidated Balance Sheets when we satisfy the performance obligation. We consider the product price as specified in the contract, net of any discounts, as the standalone selling price as it is an observable input that represents the price if we sold the product to a similar customer in similar circumstances. We do not recognize any significant financing components since payment is due shortly after we satisfy our performance obligation.

We recognize revenue when we satisfy our performance obligation and control is transferred to the customer, which occurs at a point in time, either upon delivery to an agreed upon location or to the customer. Further, in determining whether control has transferred, we consider if there is a present right to payment and legal title, along with risks and rewards of ownership having transferred to the customer.

Shipping and handling activities related to contracts with customers represent fulfillment costs and are recorded in Cost of sales in the Consolidated Statements of Income. Taxes assessed by governmental authorities and collected from customers are accounted for on a net basis and excluded from net sales. We expense costs to obtain a contract when we incur the costs since most contracts are one year or less. These costs primarily include our internal sales force compensation. Under the terms of these programs, the compensation is generally earned, and the costs are recognized when we recognize the revenue.

From time to time, we may enter into long-term contracts with our customers. Historically, such contracts do not result in significant contract assets or liabilities. Any such arrangements are accounted for in Other assets or Accrued liabilities in the Consolidated Balance Sheets.

Cash and cash equivalents

Cash equivalents consist of all instruments purchased with an original maturity of three months or less and that have virtually no risk of loss in value.

Accounts receivable

Accounts receivable consists of trade and other receivables carried at approximate fair value, net of an allowance for credit losses. The allowance for credit losses is determined using our best estimate of expected credit losses based on historical experience and current forecasts of future economic conditions, and we adjust this estimate over the life of the receivable as needed.

Inventories

Inventories are stated at the lower of cost or net realizable value. Costs are predominantly determined using the weighted average method.

Long-term investments

We may hold marketable securities and equity investments, which we include in Other assets in the Consolidated Balance Sheets. Marketable securities are carried at fair value and we record changes in fair value to Other operating expense (income) in the Consolidated Statements of Income.

Equity investments in companies for which we do not have the ability to exercise significant influence are accounted for at fair value, with changes in fair value recorded in Other non-operating (income) in the Consolidated Statements of Income. Equity securities without readily determinable fair values are carried at cost, less impairments, if any, and adjusted for observable price changes for the identical or a similar investment of the same issuer. We perform a qualitative impairment assessment to determine if such investments are impaired, which considers all available information, including declines in the financial performance of the issuing entity, the issuing entity's operating environment and general market conditions. Impairments of equity securities without readily determinable fair value are recorded in Other non-operating (income) in the Consolidated Statements of Income.

Equity investments in companies for which we have the ability to exercise significant influence, but not control, are accounted for using the equity method of accounting. Our share of the earnings or losses reported by equity method investees is recognized in Other operating expense (income) in the Consolidated Statements of Income. Each reporting period, we evaluate declines in the fair value of equity method investments below carrying value to determine if any are other-than-temporary and if so, we write down the investment to its estimated fair value. Impairments are recognized in Restructuring/impairment charges and related adjustments in the Consolidated Statements of Income.

Leases

We determine if an arrangement contains a lease, as well as its classification as an operating lease or finance lease, at the inception of the agreement. Lease assets represent our right to use an underlying asset for the lease term and lease liabilities represent Ingredion's obligation to make lease payments arising from the lease. Lease assets and liabilities are recognized at the lease commencement date based on the present value of future lease payments over the lease term. As most of our leases do not provide an implicit rate, we use an incremental borrowing rate based on the information available at the commencement date to determine the present value of lease payments. The lease asset value includes in our calculation any prepaid lease payments made and any lease incentives received from the arrangement as a reduction of the asset. Our lease terms may include options to extend or terminate the lease, and the impact of these options are included in the lease liability and lease asset calculations when the exercise of the option is at our sole discretion and it is reasonably certain that we will exercise the option. We do not separate lease and non-lease components for its leases when it is impracticable to separate them, such as leases with variable payment arrangements. Leases with an initial term of twelve months or less are not recorded on the Consolidated Balance Sheets.

We have operating leases for certain rail cars, office space, warehouses and machinery and equipment. The commencement date used for the calculation of the lease obligations recorded is the latter of January 1, 2019 or the lease start date. Certain leases have options to extend the life of the lease, which are included in the liability calculation when the option is at our sole discretion and it is reasonably certain that we will exercise the option. We have certain leases that have variable payments based solely on output or usage of the leased asset, which we do not record in our Consolidated Balance Sheets, but expense as incurred. Lease expense is recognized on a straight-line basis over the lease term.

Property, plant and equipment and definite-lived intangible assets

Property, plant and equipment ("PP&E") is stated at cost less accumulated depreciation and definite-lived intangible assets are stated at cost less accumulated amortization. For PP&E, depreciation is generally computed on the straight-line basis over the estimated useful lives of depreciable assets, which range from 25 to 50 years for buildings and from two to 25 years for all other assets. Costs for mechanical stores represent costs for spare parts used in the production process that are capitalized in PP&E as part of machinery and equipment until they are utilized in the manufacturing process and expensed as a period cost. Where permitted by law, accelerated depreciation methods are used for tax purposes. For definite-lived intangible assets, we recognize the cost of these amortizable assets in operations over their estimated useful life, which range from two to 30 years. We review the recoverability of the net book value of PP&E and definite-lived intangible assets for impairment whenever events or changes in circumstances indicate that the carrying value of an asset group may not be recoverable. If this review indicates that the carrying values of the asset group will not be recovered, we reduce the carrying values to fair value and recognize an impairment loss. The impairment analysis for long-lived assets occurs before the goodwill impairment assessment described below.

Indefinite-lived intangible assets and goodwill

We have certain indefinite-lived intangible assets in the form of tradenames and trademarks. Our methodology for allocating the purchase price of acquisitions is based on established valuation techniques that reflect the consideration of a number of factors, including valuations performed by third-party appraisers when appropriate. Goodwill represents the excess of the cost of an acquired entity over the fair value assigned to identifiable assets acquired and liabilities assumed. We assess indefinite-lived intangible assets and goodwill for impairment annually (or more frequently if impairment indicators arise), which we perform as of July 1 of each year.

In testing indefinite-lived intangible assets for impairment, we first assess qualitative factors to determine whether it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is impaired. After assessing the qualitative factors, if we determine that it is more-likely-than-not that the fair value of an indefinite-lived intangible asset is greater than its carrying amount, then we are not required to compute the fair value of the indefinite-lived intangible asset. If the qualitative assessment leads us to conclude otherwise, then we are required to determine the fair value of the indefinite-lived intangible assets and perform a quantitative impairment test. In performing the quantitative analysis, we consider various factors, including net sales derived from these intangibles and certain market and industry conditions.

In testing goodwill for impairment, we first assess qualitative factors in determining whether it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount. After assessing the qualitative factors, if we determine that it is more-likely-than-not that the fair value of a reporting unit is greater than its carrying amount, then we do not perform an impairment test. If we conclude otherwise, then we perform an impairment test that compares the fair value of the reporting unit to its carrying value. If the fair value of the reporting unit exceeds the carrying value of its net assets, goodwill is not considered impaired, and no further testing is required. If the carrying value of the net assets exceeds the fair value of the reporting unit, then an impairment exists for the difference between the fair value and carrying value of the reporting unit. This difference is not to exceed the goodwill recorded at the reporting unit.

Hedging instruments

We use derivative financial instruments consisting primarily of commodity futures, swaps and option contracts, forward currency contracts and options, interest rate swap agreements and Treasury lock agreements ("T-Locks").

When we enter a derivative contract, we designate the derivative as a hedge of variable cash flows to be paid related to certain forecasted transactions ("a cash flow hedge"), as a hedge of the fair value of certain firm commitments ("a fair value hedge"), or as a non-designated hedging instrument. This process includes linking all derivatives that are designated as cash flow or fair value hedges to specific assets and liabilities on the Consolidated Balance Sheets, or to specific firm commitments or forecasted transactions. For all hedging relationships, we document the hedging relationships and our risk-management objective and strategy for undertaking the hedge transactions, the hedging instrument, the hedged item, the nature of the risk being hedged, how we will assess the hedging instrument's effectiveness in offsetting the hedged risk, and a description of the method to measure ineffectiveness. We also formally assesses, both at the hedge's inception and on an ongoing basis, whether the derivative that is used in a hedging transactions is highly effective in offsetting changes in cash flows or fair values of hedged items. Unrealized gains and losses associated with marking cash flow hedging contracts to market (fair value) are recorded as a component of other comprehensive loss ("OCL").

We discontinue hedge accounting prospectively when it is unlikely that a forecasted transaction will occur or when we determine that the designation of the derivative as a hedging instrument is no longer appropriate, since the derivative is no longer effective in offsetting changes in the cash flows or fair value of the originally intended hedged transaction. When we discontinue hedge accounting, we continue to carry the derivative on the Consolidated Balance Sheets at its fair value, but we recognize in earnings in the same line item affected by the originally intended hedged transaction any accumulated gains and losses that were included in AOCL in the period we determined the hedge to be ineffective, as well as future gains and losses of the derivative.

Pension and other postretirement benefits

All U.S. pension and postretirement benefit plans and most non-U.S. pension and postretirement benefit plans value the vested benefit obligation based on the actuarial present value of the vested benefits to which employees are currently entitled based on their expected date of separation or retirement.

For defined benefit plans, the service cost component of net periodic benefit cost is presented within either Cost of sales or Operating expenses on the Consolidated Statements of Income. The interest cost, expected return on plan assets, amortization of actuarial loss, amortization of prior service credit and settlement loss components of net periodic benefit cost are presented as Other non-operating (income) on the Consolidated Statements of Income.

Actuarial gains and losses in excess of 10 percent of the greater of the projected benefit obligation or the market-related value of plan assets are classified in AOCL, along with the related tax impact, and recognized as a component of net periodic benefit cost over the average remaining service period of a plan's active employees for active defined benefit pension plans and over the average remaining life of a plan's active employees for frozen defined benefit pension plans.

Share-based compensation

We have a stock incentive plan that provides for share-based employee compensation, including the granting of stock options, shares of restricted stock, restricted stock units and performance shares to certain key employees. Compensation expense is generally recognized in the Consolidated Statements of Income on a straight-line basis for all awards over the employee's vesting period or over a one-year required service period for certain retirement-eligible employees. We estimate a forfeiture rate at the time of certain grants, and we update the estimate throughout the vesting of certain awards within the amount of compensation costs recognized in each period.

Earnings per common share

Basic earnings per common share ("EPS") is computed by dividing net income attributable to Ingredion by the weighted average number of shares outstanding. Diluted EPS is calculated using the treasury stock method, computed by dividing net income attributable to Ingredion by the weighted average number of shares outstanding, including the dilutive effect of outstanding stock options and other instruments associated with long-term incentive compensation plans.

Risks and uncertainties

We operate domestically and internationally, and our business and assets in each country are subject to varying degrees of risk and uncertainty. We insure our business and assets in each country against insurable risks in a manner that we deem appropriate. Because of this geographic dispersion, we believe that a loss from a non-insured event in any one country would not have a material

adverse effect on our operations as a whole. Additionally, we believe there is no significant concentration of risk with any single customer or supplier whose failure or non-performance would materially affect our results.

New Accounting Standards

In March 2020, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2020-04, Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting. The amendments in this update provide optional guidance for a limited period of time to ease the potential burden in accounting for (or recognizing the effects of) reference rate reform on financial reporting. The amendments in this update are effective for all entities as of March 12, 2020 through December 31, 2024. We expect the impact to be insignificant to our Consolidated Financial Statements.

In September 2022, the FASB issued ASU No. 2022-04, Liabilities–Supplier Finance Programs (Subtopic 405-50): Disclosure of Supplier Finance Program Obligations. The amendments require buyers to disclose information about supplier finance programs that is sufficient to allow financial statement users to understand their nature, activity during the period, changes from period to period and potential magnitude. The amendments in this update are effective for annual periods beginning after December 15, 2022. We expect the impact of this update will not be material to our Consolidated Financial Statements.

NOTE 2 – Acquisitions

PureCircle Non-Controlling Interests

During 2022, Ingredion purchased shares from minority shareholders in PureCircle Limited ("PureCircle") for $46 million. These purchases increased our ownership percentage in PureCircle from 75 percent as of December 31, 2021, to approximately 87 percent as of December 31, 2022.

Other Acquisitions

On December 1, 2022, we acquired a 65 percent controlling interest in Mannitab Pharma Specialties Private Limited ("Mannitab"), which is an Indian manufacturer of spray dried mannitol and fine grade mannitol, for $22 million. As the purchase accounting is not yet complete, we preliminarily recognized $22 million in Other assets. We will finalize the purchase accounting in 2023 and agreed to acquire the remaining outstanding shares of Mannitab over the next three years. Beginning at the acquisition date, our Consolidated Financial Statements reflect the preliminary effects of the acquisition and Mannitab's financial results, which we report on a one-month lag in our Asia-Pacific reportable business segment.

On August 1, 2022, we acquired Amishi Drugs and Chemicals Private Limited ("Amishi") for $7 million, which added $3 million of goodwill and intangible assets to our Consolidated Financial Statements. Amishi is an Indian manufacturer of chemically modified starch-based pharmaceutical excipients. Beginning at the acquisition date, our Consolidated Financial Statements reflect the preliminary effects of the acquisition and Amishi's financial results, which we report in our Asia-Pacific reportable business segment.

On April 1, 2021, we acquired KaTech, a privately held company headquartered in Germany. KaTech provides advanced texture and stabilization solutions to the food and beverage industry. To complete the closing, Ingredion made a total cash payment of $40 million, net of cash acquired, which we funded from cash on hand. The acquisition added $26 million of goodwill and intangible assets, as well as $14 million of tangible assets. Beginning at the acquisition date, our Consolidated Financial Statements reflect the effects of the acquisition and KaTech's financial results, which we report in our Europe, Middle East and Africa ("EMEA") reportable business segment.

On November 3, 2020, we fully acquired Verdient Foods, Inc. ("Verdient") by purchasing the remaining 80 percent of the outstanding shares. As a part of the acquisition, we also obtained land and buildings Verdient leased from a third party. Verdient is a Canada-based producer of pulse-based protein concentrates and flours from peas, lentils and fava beans for human food applications. To complete the closing, we made a total cash payment of CAD $33 million (USD $26 million), which we funded from cash on hand. Before the acquisition, Ingredion owned 20 percent of Verdient's outstanding shares, which we had reported as an equity method investment until we acquired the remaining shares. The acquisition of Verdient added $15 million of goodwill and $14 million of tangible assets assumed on the acquisition date of November 3, 2020. Beginning on that date, the financial results of Verdient are wholly consolidated into our North America business segment in our Consolidated Financial Statements.

On July 1, 2020, we acquired a 75 percent controlling interest in PureCircle, which is one of the leading producers and innovators of stevia sweeteners for global food and beverage industries. As described above, we own 87 percent of PureCircle as of December 31, 2022. To complete the closing, we made a total cash payment of $208 million, net of $14 million of cash acquired, which we funded from cash on hand. Beginning at the acquisition date, we wholly consolidate PureCircle's financial statements into our Asia-Pacific business segment in our Consolidated Financial Statements, and net income attributable to non-controlling interests that is deducted from our net income includes the portion of net income attributable to the remaining portion of PureCircle owned by non-controlling shareholders.

We incurred $1 million, $5 million and $11 million of pre-tax acquisition and integration costs in 2022, 2021 and 2020, respectively, associated with our acquisitions. We did not present the pro-forma results of operations for any acquisitions since the effect of each acquisition individually and in the aggregate would not be material to our results of operations for any periods presented.

NOTE 3 – Intangible Assets

Goodwill

The original carrying value of goodwill and accumulated impairment charges by reportable business segment at December 31, 2022, was as follows:

(in millions)	NORTH AMERICA	SOUTH AMERICA	ASIA-PACIFIC	EMEA	TOTAL
Goodwill before impairment charges	$624	$48	$323	$74	$1,069
Accumulated impairment charges	(1)	(33)	(121)	—	(155)
Balance at January 1, 2021	623	15	202	74	914
Acquisitions	—	—	1	4	5
Currency translation	(1)	1	(13)	(6)	(19)
Balance at December 31, 2022	$622	$16	$190	$72	$900

Based on the results of our impairment assessments, we concluded that as of July 1, 2022, there were no impairments to goodwill.

Other Intangible Assets

The following tables summarize our other intangible assets as of December 31, 2022 and 2021:

	2022			
(in millions)	GROSS	ACCUMULATED AMORTIZATION	NET	WEIGHTED AVERAGE USEFUL LIFE (YEARS)
Trademarks/tradenames (indefinite-lived)	$143	$—	$143	—
Patents	32	(7)	25	12
Customer relationships	356	(150)	206	19
Technology	102	(101)	1	9
Other	43	(17)	26	15
Total other intangible assets	$676	$(275)	$401	17

	2021			
(in millions)	GROSS	ACCUMULATED AMORTIZATION	NET	WEIGHTED AVERAGE USEFUL LIFE (YEARS)
Trademarks/tradenames (indefinite-lived)	$143	$—	$143	—
Patents	33	(4)	29	12
Customer relationships	365	(134)	231	19
Technology	103	(101)	2	9
Other	43	(14)	29	15
Total other intangible assets	$687	$(253)	$434	17

Amortization expense related to intangible assets was $26 million, $27 million and $30 million for 2022, 2021 and 2020, respectively. Based on the results of our impairment assessments, we concluded that as of July 1, 2022, there were no impairments to our indefinite-lived other intangible assets. Based on acquisitions completed through 2022, intangible asset amortization expense for the next five years is shown below:

(in millions) YEAR	AMORTIZATION EXPENSE
2023	$26
2024	26
2025	25
2026	25
2027	25

NOTE 4 – Investments

Investments consisted of the following as of December 31, 2022 and 2021:

(in millions)	2022	2021
Equity investments	$23	$16
Equity method investments	113	104
Marketable securities	3	12
Total investments	$139	$132

Amyris Joint Venture

On June 1, 2021, we entered into an agreement with Amyris, Inc. ("Amyris") for certain exclusive commercialization rights to Amyris' rebaudioside M by fermentation product, the exclusive licensing of the product's manufacturing technology, and a 31 percent ownership stake in a joint venture for the products (the "Amyris joint venture"). In exchange, we contributed $28 million of total consideration, which included $10 million of cash, as well as non-exclusive intellectual property licenses and other consideration valued at $18 million. The transaction resulted in an $8 million gain recorded in Other operating expense (income), which included $18 million related to the non-exclusive intellectual property licenses, offset by the $10 million cash payment. Beginning June 1, 2021, we began accounting for the investment under the equity method.

Argentina Joint Venture

On February 12, 2021, we entered into an agreement with an affiliate of Grupo Arcor, an Argentine food company, to establish Ingrear Holding S.A. (the "Argentina joint venture"), a joint venture to operate five manufacturing facilities in Argentina to sell value-added ingredients to customers in the food, beverage, pharmaceutical and other industries in Argentina, Chile and Uruguay. On August 2, 2021, we completed all closing conditions to combine the manufacturing facilities, finalize the transaction and formally establish the Argentina joint venture, which is managed by a jointly appointed team of executives and is accounted for under the equity method.

We exchanged certain assets and liabilities with a fair value of $71 million from our Argentina, Chile and Uruguay operations for 49 percent of the outstanding shares of the Argentina joint venture valued at $64 million, as well as $7 million of other consideration, including cash, from Grupo Arcor as of August 2, 2021. The transaction also resulted in an impairment charge for the transferred assets and liabilities more fully described in Note 5.

Beginning on the dates we entered into the agreements for equity method investees, our share of income from them is included in Other operating expense (income). We incurred $4 million and $6 million of pre-tax acquisition and integration costs to acquire the

Argentina and Amyris joint venture investments in 2022 and 2021, respectively. The 2022 charges were recorded within Financing costs on the Consolidated Statements of Income.

NOTE 5 – Restructuring and Impairment Charges

We recorded net pre-tax restructuring and impairment charges of $4 million, $387 million and $93 million in 2022, 2021 and 2020, respectively.

Restructuring Charges

During 2022, we recorded $4 million of pre-tax restructuring related charges, which included $3 million of costs associated with our Cost Smart selling, general and administrative expense ("SG&A") program and $1 million of costs as part of our Cost Smart Cost of sales program.

During 2021, we recorded a total of $47 million of pre-tax restructuring related charges. We recorded pre-tax net restructuring charges of $27 million as part of our Cost Smart Cost of sales program, which primarily consisted of accelerated depreciation and other costs recorded in our North America segment. We also recorded $17 million of employee-related and other costs associated with our Cost Smart SG&A program, consisting of professional services and employee-related severance costs primarily in our North America and EMEA segments.

During 2020, we recorded a total of $48 million of pre-tax restructuring charges. We recorded pre-tax restructuring charges of $25 million for our Cost Smart SG&A program, which were primarily for employee-related severance costs recorded in our North America and EMEA segments, professional services costs in our North America segment and other costs. We also recorded $23 million of pre-tax restructuring charges for our Cost Smart Cost of sales program, which were primarily for inventory and mechanical stores write-offs and other costs associated with the closure of our Lane Cove, Australia production facility and closures of North America facilities and product lines including our Berwick, Pennsylvania manufacturing facility and the cessation of ethanol production at our Cedar Rapids, Iowa facility.

The Cost Smart Cost of sales and Cost Smart SG&A programs began in 2018. During 2018 and 2019, we recorded a total of $78 million of pre-tax restructuring charges for our Cost Smart Cost of sales program and a total of $39 million for our Cost Smart SG&A program.

Impairment Charges

During 2021, we recorded a $340 million impairment charge for assets and liabilities we contributed to the Argentina joint venture, which consisted of $311 million related to the write-off of the cumulative translation losses associated with the contributed net assets and $29 million related to the final write-down of the contributed net assets to fair value.

During 2020, we recorded a $35 million impairment charge for our indefinite-lived intangible asset associated with the TIC Gums tradename due to our decision to change our marketing strategy related to the brand. Additionally, we recorded a $10 million other-than-temporary impairment of our equity method investment in Verdient when we agreed to acquire the remaining 80 percent interest in Verdient.

A summary of our severance accrual at December 31, 2022, is as follows ($ in millions):

Balance in severance accrual as of December 31, 2021	$3
Payments made to terminated employees	(3)
Balance in severance accrual as of December 31, 2022	$—

NOTE 6 – Derivative Instruments and Hedging Activities

We are exposed to market risk stemming from changes in commodity prices (primarily corn and natural gas), foreign currency exchange rates and interest rates. In the normal course of business, we actively manage our exposure to these market risks by entering various hedging transactions authorized under established policies that place controls on these activities. These transactions utilize exchange-traded derivatives or over-the-counter derivatives with investment grade counterparties. We use derivative financial instruments that consist of commodity-related futures, options and swap contracts, foreign currency-related forward contracts, interest rate swaps and treasury locks ("T-Locks").

Commodity price hedging

Our principal use of derivative financial instruments is to manage commodity price risk relating to anticipated purchases of corn and natural gas that we intend to use in the manufacturing process, generally over the next 12 to 24 months. We maintain a commodity-price risk management strategy that uses derivative instruments to minimize significant, unanticipated earnings fluctuations caused by commodity-price volatility. To manage price risk related to corn purchases primarily in North America, we use corn futures and option contracts that trade on regulated commodity exchanges to lock in corn costs associated with fixed-priced customer sales contracts. We use soybean oil and soybean meal futures contracts in North America that trade on regulated commodity exchanges to hedge sales of our co-products. We also use over-the-counter natural gas swaps primarily in North America to hedge a portion of our natural gas usage. These derivative financial instruments limit the impact that volatility resulting from fluctuations in market prices will have on corn and natural gas purchases, as well as co-product sales. Our natural gas, soybean meal and the majority of our corn and soybean oil derivatives have been designated as cash flow hedging instruments.

For certain corn derivative instruments that are not designated as hedging instruments for accounting purposes, all realized and unrealized gains and losses from these instruments are recognized in Cost of sales during each accounting period. We enter these derivative instruments to further mitigate commodity price risk related to anticipated purchases of corn. During 2022, 2021 and 2020, we recognized a $1 million gain, a $1 million loss and a $1 million gain, respectively, on non-designated commodity contracts.

For commodity hedges designated as cash flow hedges, unrealized gains and losses associated with marking the commodity hedging contracts to market (fair value) are recorded as a component of OCL and included in the equity section of the Consolidated Balance Sheets as part of AOCL. These amounts, as well as their related tax effects, are subsequently reclassified into earnings in the same line item affected by the hedged transaction and in the same period or

periods during which the hedged transaction affects earnings, or in the period a hedge is determined to be ineffective. We assess the effectiveness of a commodity hedge contract based on changes in the contract's fair value. The changes in the market value of such contracts have historically been, and are expected to continue to be, highly effective at offsetting changes in the price of the hedged items. Gains and losses from cash flow hedging instruments reclassified from AOCL to earnings are reported as Cash provided by operating activities on the Consolidated Statements of Cash Flows.

We had outstanding futures and option contracts that hedged the forecasted purchase of approximately 120 million and 135 million bushels of corn as of December 31, 2022 and 2021, respectively. Ingredion also had outstanding swap contracts that hedged the forecasted purchase of approximately 31 million and 35 million mmbtus of natural gas as of December 31, 2022 and 2021, respectively.

Foreign currency hedging

Due to our global operations, including operations in many emerging markets, we are exposed to fluctuations in foreign currency exchange rates. As a result, we have exposure to translational foreign-exchange risk when the results of our foreign operations are translated to U.S. dollars and to transactional foreign-exchange risk when transactions not denominated in the functional currency are revalued. Our foreign-exchange risk management strategy uses derivative financial instruments such as foreign currency forward contracts, swaps and options to manage our transactional foreign exchange risk. We enter into foreign currency derivative instruments that are designated as both cash flow hedging instruments as well as instruments not designated as hedging instruments for accounting purposes in order to mitigate transactional foreign-exchange risk. Gains and losses from derivative financial instruments not designated as hedging instruments for accounting purposes are marked to market in earnings during each period.

We hedge certain assets using foreign currency derivatives not designated as hedging instruments, which had a notional value of $405 million and $360 million as of December 31, 2022 and 2021, respectively. We also hedge certain liabilities using foreign currency derivatives not designated as hedging instruments, which had a notional value of $239 million and $205 million as of December 31, 2022 and 2021, respectively.

We hedge certain assets using foreign currency cash flow hedging instruments, which had a notional value of $668 million and $505 million as of December 31, 2022 and 2021, respectively. We also hedge certain liability positions using foreign currency cash flow hedging instruments, which had a notional value of $840 million and $708 million as of December 31, 2022 and 2021, respectively.

Interest rate hedging

We assess our exposure to variability in interest rates by identifying and monitoring changes in interest rates that may adversely impact future cash flows and the fair value of existing debt instruments and by evaluating hedging opportunities. Our risk management strategy is to monitor interest rate risk attributable to both our outstanding and forecasted debt obligations as well as our offsetting hedge positions. Derivative financial instruments that we have used to manage its interest rate risk consist of interest rate swaps and T-Locks.

We periodically enter into interest rate swaps to hedge our exposure to interest rate changes. The changes in fair value of interest rate swaps designated as hedging instruments that effectively offset the variability in the fair value of outstanding debt obligations are reported in earnings. These amounts offset the gains or losses (the changes in fair value) of the hedged debt instruments that are attributable to changes in interest rates (the hedged risk), which are also recognized in earnings. Ingredion did not have any outstanding interest rate swaps as of December 31, 2022 or December 31, 2021.

We periodically enter into T-Locks to hedge our exposure to interest rate changes. The T-Locks are designated as hedges of the variability in cash flows associated with future interest payments caused by market fluctuations in the benchmark interest rate until the fixed interest rate is established and are accounted for as cash flow hedges. Accordingly, changes in the fair value of the T-Locks are recorded to AOCL until the consummation of the underlying debt offering, at which time any realized gain (loss) is amortized to earnings over the life of the debt. During 2020, we entered into and settled T-Locks associated with the issuance of senior notes due in 2030 and 2050. The realized loss upon settlement of the T-Locks was recorded in AOCL and is amortized into earnings over the term of the senior notes. We did not have outstanding T-Locks as of December 31, 2022 and December 31, 2021.

The derivative instruments designated as cash flow hedges included in AOCL as of December 31, 2022 and 2021, are reflected below:

	GAINS (LOSSES) INCLUDED IN AOCL AS OF DECEMBER 31,	
Derivatives in Cash Flow Hedging Relationships *(in millions)*	**2022**	**2021**
Commodity contracts, net of income tax effect of $3 and $19, respectively	$8	$51
Foreign currency contracts, net of income tax effect of $—	1	—
Interest rate contracts, net of income tax effect of $1	(3)	(3)
Total	$6	$48

The fair value and balance sheet location of our derivative instruments, presented gross in the Consolidated Balance Sheets, are reflected below:

	FAIR VALUE OF HEDGING INSTRUMENTS AS OF DECEMBER 31, 2022					
	DESIGNATED HEDGING INSTRUMENTS (IN MILLIONS)			NON-DESIGNATED HEDGING INSTRUMENTS (IN MILLIONS)		
Balance Sheet Location	**COMMODITY CONTRACTS**	**FOREIGN CURRENCY CONTRACTS**	**TOTAL**	**COMMODITY CONTRACTS**	**FOREIGN CURRENCY CONTRACTS**	**TOTAL**
Accounts receivable, net	$28	$20	$48	$—	$5	$5
Other assets	1	6	7	—	—	—
Assets	29	26	55	—	5	5
Accounts payable and accrued liabilities	22	23	45	1	6	7
Non-current liabilities	3	9	12	—	—	—
Liabilities	25	32	57	1	6	7
Net Assets/ (Liabilities)	$4	$(6)	$(2)	$(1)	$(1)	$(2)

FAIR VALUE OF HEDGING INSTRUMENTS AS OF DECEMBER 31, 2021

Balance Sheet Location	DESIGNATED HEDGING INSTRUMENTS (IN MILLIONS)			NON-DESIGNATED HEDGING INSTRUMENTS (IN MILLIONS)		
	COMMODITY CONTRACTS	FOREIGN CURRENCY CONTRACTS	TOTAL	COMMODITY CONTRACTS	FOREIGN CURRENCY CONTRACTS	TOTAL
Accounts receivable, net	$45	$9	$54	$4	$3	$7
Other assets	7	6	13	—	0	0
Assets	52	15	67	4	3	7
Accounts payable and accrued liabilities	5	12	17	2	4	6
Non-current liabilities	2	6	8	—	1	1
Liabilities	7	18	25	2	5	7
Net Assets/ (Liabilities)	$45	$(3)	$42	$2	$(2)	$—

Additional information relating to Ingredion's derivative instruments is presented below:

Derivatives in Cash Flow Hedging Relationships *(in millions)*	GAINS (LOSSES) RECOGNIZED IN OCL ON DERIVATIVES 2022	2021	2020	INCOME STATEMENT LOCATION	GAINS (LOSSES) RECLASSIFIED FROM AOCL INTO INCOME 2022	2021	2020
Commodity contracts	$202	$218	$17	*Cost of sales*	$261	$211	$(62)
Foreign currency contracts	8	—	(7)	*Net sales/ Cost of sales*	7	(1)	(2)
Interest rate contracts	—	—	(5)	*Financing costs*	—	(1)	(1)
Total	$210	$218	$5		$268	$209	$(65)

Derivatives in Fair Value Hedging Relationships *(in millions)*	INCOME STATEMENT LOCATION OF DERIVATIVES DESIGNATED AS HEDGING INSTRUMENTS	GAINS (LOSSES) RECOGNIZED IN INCOME 2022	2021	2020	INCOME STATEMENT LOCATION OF HEDGED ITEMS	GAINS (LOSSES) RECOGNIZED IN INCOME 2022	2021	2020
Interest rate contracts	Financing costs	$—	$—	$(1)	*Financing costs*	$—	$—	$1

As of December 31, 2022, AOCL included $14 million of net gains (net of income taxes of $5 million) on commodities-related derivative instruments, T-Locks and foreign currency hedges designated as cash flow hedges that are expected to be reclassified into earnings during the next 12 months.

NOTE 7 – Fair Value Measurements

We measure certain assets and liabilities at fair value, which is defined as the price that would be received to sell an asset or paid to transfer a liability (i.e., the "exit price") in an orderly transaction between market participants at the measurement date. In determining fair value, we use various valuation approaches. The hierarchy of those valuation approaches is in three levels based on the reliability of inputs. Assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. Below is a summary of the hierarchy levels:

- Level 1 inputs consist of quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly for substantially the full term of the financial instrument. Level 2 inputs are based on quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, or inputs other than quoted prices that are observable for the asset or liability or can be derived principally from or corroborated by observable market data.
- Level 3 inputs are unobservable inputs for the asset or liability. Unobservable inputs are used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date.

Assets and liabilities measured at fair value on a recurring basis are presented below:

(in millions)	AS OF DECEMBER 31, 2022 TOTAL	LEVEL 1	LEVEL 2	LEVEL 3	AS OF DECEMBER 31, 2021 TOTAL	LEVEL 1	LEVEL 2	LEVEL 3
Marketable Securities	$3	$3	$—	$—	$12	$12	$—	$—
Derivative assets	60	49	11	—	74	49	25	—
Derivative liabilities	64	51	13	—	32	22	10	—
Long-term debt	1,733	—	1,733	—	1,957	—	1,957	—

The carrying values of cash equivalents, short-term investments, accounts receivable, accounts payable and short-term borrowings approximate fair values. Commodity futures, options and swaps contracts are recognized at fair value. Foreign currency forward contracts, swaps and options are also recognized at fair value. The fair value of our Long-term debt is estimated based on quotations of major securities dealers who are market makers in the securities. See Note 11 for information on the fair value of pension plan assets.

NOTE 8 – Financing Arrangements

We had total debt outstanding of approximately $2.5 billion and $2.0 billion at December 31, 2022 and 2021, respectively. Short-term borrowings at December 31, 2022, consisted primarily of commercial paper borrowings and amounts outstanding under various unsecured local country operating lines of credit.

On December 16, 2022, we entered into a new two-year, senior, unsecured $200 million term loan, which bears interest, payable quarterly in arrears, at a variable annual rate based on an adjusted daily Secured Overnight Financing Rate ("SOFR") plus a margin of 1.10 percent per annum. The term loan will mature and all principal thereunder will be payable on December 16, 2024. The term loan agreement contains customary affirmative and negative covenants that, among other matters, specify customary reporting obligations, and that, subject to exceptions, restrict the incurrence of additional indebtedness by our subsidiaries, the incurrence of liens and the consummation of certain mergers, consolidations and sales of

assets. We are subject to compliance, as of the end of each quarter, with a maximum leverage ratio of 3.5 to 1.0 and a minimum ratio of consolidated EBITDA to consolidated net interest expense of 3.5 to 1.0, with each financial covenant calculated for the most recently completed four-quarter period. We were in compliance with all of our debt covenants as of December 31, 2022.

On November 30, 2022, we amended our existing revolving credit agreement. The amendment changed the applicable interest rate calculation under our revolving credit facility to either a specified SOFR plus an applicable margin, or a base rate (generally determined according to the highest of the prime rate, the federal funds rate or the specified SOFR plus 1.00 percent) plus an applicable margin. The revolving credit agreement previously referenced London Interbank Offering Rate ("LIBOR") instead of SOFR for applicable interest calculations under the facility. As of December 31, 2022 and December 31, 2021, borrowings of $— and $—, respectively, were outstanding under the $1 billion facility.

On July 27, 2021, we established a commercial paper program under which we may issue senior unsecured notes of short maturities up to a maximum aggregate principal amount of $1 billion outstanding at any time. The notes may be sold from time to time on customary terms in the U.S. commercial paper market. We use the note proceeds for general corporate purposes. From the inception of the program until December 31, 2021, the average amount of commercial paper outstanding was $670 million with an average interest rate of 0.27 percent and a weighted average maturity of 48 days. As of December 31, 2021, $250 million of commercial paper was outstanding with an average interest rate of 0.35 percent and a weighted average maturity of 48 days. During 2022, the average amount of commercial paper outstanding was $522 million with an average interest rate of 1.97 percent and a weighted average maturity of 16 days. As of December 31, 2022, $390 million of commercial paper was outstanding with an average interest rate of 4.75 percent and a weighted average maturity of 7 days. The amount of commercial paper outstanding under this program in 2023 is expected to fluctuate.

Presented below are our debt carrying amounts, net of related discounts, premiums and debt issuance costs and fair values as of December 31, 2022 and 2021:

	2022		2021	
(in millions)	CARRYING VALUE	FAIR VALUE	CARRYING VALUE	FAIR VALUE
2.900% senior notes due June 1, 2030	$595	$510	$595	$619
3.200% senior notes due October 1, 2026	498	470	498	531
3.900% senior notes due June 1, 2050	390	293	390	455
6.625% senior notes due April 15, 2037	253	256	253	350
Term loan credit agreement due December 16, 2024	200	200	—	—
Revolving credit agreement	—	—	—	—
Other long-term borrowings	4	4	2	2
Total long-term debt	1,940	1,733	1,738	1,957
Commercial paper	390	390	250	250
Other short-term borrowings	153	153	58	58
Total short-term borrowings	543	543	308	308
Total debt	$2,483	$2,276	$2,046	$2,265

We guarantee certain obligations of our consolidated subsidiaries, which aggregated $63 million and $61 million at December 31, 2022 and 2021, respectively.

NOTE 9 – Leases

The components of lease expense for the indicated periods were as follows:

(in millions)	2022	2021	2020
Operating lease cost	$59	$58	$58
Variable operating lease cost	27	26	29
Short term lease cost	3	4	4
Lease expense	$89	$88	$91

We currently have no finance leases. The following is a reconciliation of future undiscounted cash flows to the operating lease liabilities and the related operating lease assets as presented within Other non-current liabilities and Other assets, respectively, on our Consolidated Balance Sheets as of December 31, 2022 ($ in millions):

2023	$54
2024	44
2025	34
2026	28
2027	17
Thereafter	37
Total future lease payments	214
Less imputed interest	20
Present value of future lease payments	194
Less current lease liabilities	48
Non-current operating lease liabilities	$146
Operating lease assets	$187

Additional information related to our operating leases is listed below.

Other Information	YEAR ENDED DECEMBER 31,	
($ in millions)	2022	2021
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	$60	$58
Right-of-use assets obtained in exchange for lease liabilities:		
Operating leases	$52	$77

	AS OF DECEMBER 31, 2022	AS OF DECEMBER 31, 2021
Weighted average remaining lease term:		
Operating leases	5.9 years	6.5 years
Weighted average discount rate:		
Operating leases	4.4%	4.0%

NOTE 10 — Income Taxes

The components of income before income taxes and the provision for income taxes for the years indicated are shown below:

(in millions)	2022	2021	2020
Income before income taxes:			
U.S.	$111	$39	$(15)
Foreign	557	209	521
Total income before income taxes	668	248	506
Provision for income taxes:			
Current tax expense:			
U.S. federal	8	2	1
State and local	2	2	2
Foreign	159	180	156
Total current tax expense	169	184	159
Deferred tax expense (benefit):			
U.S. federal	5	(57)	(18)
State and local	(1)	(2)	(1)
Foreign	(7)	(2)	12
Total deferred tax (benefit)	(3)	(61)	(7)
Total provision for income taxes	$166	$123	$152

Deferred income taxes are provided for the tax effects of temporary differences between the financial reporting basis and tax basis of assets and liabilities. Significant temporary differences as of December 31, 2022 and 2021, are summarized as follows:

(in millions)	2022	2021
Deferred tax assets attributable to:		
Employee benefit accruals	$30	$28
Pensions and postretirement plans	14	14
Lease liabilities	49	49
Bad debt	6	14
Inventory reserve	22	13
Net operating loss carryforwards	59	64
Tax credit carryforwards	5	18
Other	42	36
Total deferred tax assets	227	236
Valuation allowances	(51)	(67)
Net deferred tax assets	176	169
Deferred tax liabilities attributable to:		
Property, plant and equipment	175	175
Identified intangibles	48	47
Right-of-use lease assets	46	46
Foreign withholding and state taxes on unremitted earnings	1	1
Goodwill	31	27
Brazilian indirect tax credits	4	5
Derivative contracts	3	19
Total deferred tax liabilities	308	320
Net deferred tax liabilities	$132	$151

Of the $59 million of tax-effected net operating loss carryforwards as of December 31, 2022, $4 million and $15 million are for U.S. federal and state loss carryforwards, respectively, and $40 million are for foreign loss carryforwards. U.S. federal and state loss carryforwards have various expiration periods starting in 2025. Of the $40 million of foreign loss carryforwards, $19 million are related to Canada, $7 million to Argentina and $7 million to Australia with carryforward periods of 20 years, 5 years and indefinitely, respectively.

A valuation allowance is established when it is more likely than not that all or a portion of a deferred tax asset will not be realized. Prior to establishing a valuation allowance, we consider historical taxable income, scheduled reversal of deferred tax liabilities, tax planning strategies, tax carryovers and projected future taxable income. As of December 31, 2022, we maintained valuation allowances of $51 million, consisting of $26 million primarily related to foreign loss carryforwards, $15 million for state loss carryforwards, $5 million for state credits and carryforwards, $4 million for U.S. federal loss carryforwards and $1 million for certain foreign tax credits, all of which we have determined will more likely than not expire prior to realization.

Net operating loss carryforwards disclosed in the financial statements differ from the as-filed tax returns due to an unrecognized tax benefit. Foreign net operating loss carryforwards and valuation allowances would increase $10 million, absent the unrecognized tax benefit.

A reconciliation of the U.S. federal statutory tax rate to our effective tax rate follows:

	2022	2021	2020
Provision for tax at U.S. statutory rate	21.0%	21.0%	21.0%
Tax rate difference on foreign income	7.2	13.3	9.1
Foreign currency FX	(0.3)	3.2	1.2
Inflation adjustments	(0.6)	(4.0)	(0.8)
Tax benefit of intercompany financing	(0.4)	(1.6)	(0.8)
U.S. international tax implications	2.2	0.8	0.6
Valuation allowance in Argentina	—	(0.4)	(0.6)
Favorable judgment on the treatment of credits and interest on indirect taxes	(0.3)	(4.8)	(0.6)
Unremitted earnings	—	(12.1)	—
Impairment charge related to Argentina joint venture	—	35.5	—
Foreign-derived intangible income (FDII)	(1.0)	—	—
Brazil exclusion of certain tax incentives	(4.0)	—	—
Other items, net	1.1	(1.3)	0.9
Provision at effective tax rate	24.9%	49.6%	30.0%

We have significant operations in Mexico, Pakistan and Colombia, where the 2022 statutory tax rates are 30 percent, 33 percent (excluding a 4 percent surcharge) and 35 percent, respectively. In addition, our subsidiary in Brazil has a statutory tax rate of 34 percent before the application of local incentives that vary each year.

During 2022, the U.S. Treasury published final foreign tax credit regulations that limit our ability to claim foreign tax credits from certain countries, primarily in South America, and we recorded the resulting tax liability to our Consolidated Balance Sheets.

During 2022, Ingredion Brazil recorded a tax benefit related to the exclusion of certain tax incentives provided by the local government from taxable income for fiscal years 2018 through 2022. This resulted in a tax benefit of $27 million, or 4.0 percentage points on the effective tax rate. This transaction is more fully discussed in Note 14 Commitments and Contingencies.

As of December 31, 2022, we have a $1 million accrual for foreign withholding on certain unremitted earnings from foreign subsidiaries. No foreign withholding taxes, federal and state taxes or foreign currency gains/losses have been provided on distributions of approximately $2.4 billion of unremitted earnings of our foreign subsidiaries, as such amounts are considered permanently reinvested. It is not practicable to estimate the additional income taxes, including applicable foreign withholding taxes that would be due upon the repatriation of these earnings.

A reconciliation of the beginning and ending amounts of unrecognized tax benefits, excluding interest and penalties, for 2022 and 2021 is as follows:

(in millions)	2022	2021
Balance at January 1	$29	$46
Additions for tax positions related to prior years	5	2
Reductions for tax positions related to prior years	(1)	(9)
Additions based on tax positions related to the current year	1	2
Reductions related to a lapse in the statute of limitations	(4)	(12)
Balance at December 31	$30	$29

Of the $30 million of unrecognized tax benefits as of December 31, 2022, $19 million represents the amount that, if recognized, could affect the effective tax rate in future periods. The remaining $11 million includes $10 million of net operating loss carryforwards that would have otherwise had a valuation allowance and $1 million of U.S. federal benefits.

We account for interest and penalties related to income tax matters within the provision for income taxes. We have accrued $5 million of interest expense and penalties related to the unrecognized tax benefits as of December 31, 2022.

We are subject to U.S. federal income tax as well as income tax in multiple states and non-U.S. jurisdictions. The U.S. federal tax returns are subject to audit for the years 2019 through 2022. In general, our foreign subsidiaries remain subject to audit for years 2010 and later.

It is reasonably possible that the total amount of unrecognized tax benefits including interest and penalties will increase or decrease within twelve months of December 31, 2022. We believe it is reasonably possible that none of the unrecognized tax benefits may be recognized within twelve months of December 31, 2022, as a result of a lapse of the statute of limitations. We have classified none of the unrecognized tax benefits as current because they are not expected to be resolved within the next twelve months.

NOTE 11 – Pension and Other Postretirement Benefits

We sponsor noncontributory defined benefit pension plans (qualified and non-qualified) covering a substantial portion of our employees in the U.S. and Canada and certain employees in other foreign countries. Plans for most salaried employees provide pay-related benefits based on years of service. Plans for hourly employees generally provide benefits based on flat dollar amounts and years of service. Our general funding policy is to make contributions to the plans that comply with minimum funding requirements and are within the limits of deductibility under current tax regulations. Certain foreign countries allow income tax deductions without regard to contribution levels and our policy in those countries is to make contributions required by the terms of the applicable plan.

Included in our pension obligation are nonqualified supplemental retirement plans for certain key employees. Benefits provided under these plans are unfunded and we make direct payments to plan participants. We also provide healthcare and/or life insurance benefits for retired employees in the U.S., Canada and Brazil. Healthcare benefits for retirees outside the U.S., Canada and Brazil are generally covered through local government plans.

Pension Plans

Pension obligation and funded status

The changes in pension benefit obligations and plan assets during 2022 and 2021, as well as the funded status and the amounts recognized in our Consolidated Balance Sheets related to our pension plans at December 31, 2022 and 2021, were as follows:

	U.S. PLANS		NON-U.S. PLANS	
(in millions)	2022	2021	2022	2021
Benefit obligation				
At January 1	$383	$409	$254	$275
Service cost	4	4	3	4
Interest cost	9	8	9	9
Benefits paid	(25)	(24)	(13)	(13)
Actuarial (gain) loss	(71)	(14)	(49)	(15)
Curtailment/settlement/amendments	—	—	(2)	(1)
Foreign currency translation	—	—	(14)	(5)
Benefit obligation at December 31	$300	$383	$188	$254
Fair value of plan assets				
At January 1	$420	$439	$244	$249
Actual return on plan assets	(79)	4	(30)	3
Employer contributions	1	1	5	7
Benefits paid	(25)	(24)	(13)	(13)
Plan settlements	—	—	(2)	(1)
Foreign currency translation	—	—	(15)	(1)
Fair value of plan assets at December 31	$317	$420	$189	$244
Funded status	$17	$37	$1	$(10)

As of December 31, 2022, the decrease in the benefit obligation for U.S. and non-U.S. plans was primarily driven by actuarial gains, which mainly resulted from an increase in discount rates compared to the prior year. As of December 31, 2021, the decrease in the benefit obligation for U.S. and non-U.S. plans was primarily driven by actuarial gains, which mainly resulted from an increase in discount rates due to an increase in bond yields compared to the prior year.

Amounts recorded in the Consolidated Balance Sheets as of December 31, 2022 and 2021 were as follows:

	U.S. PLANS		NON-U.S. PLANS	
(in millions)	2022	2021	2022	2021
Non-current asset	$25	$47	$43	$44
Current liabilities	(1)	(1)	(1)	(1)
Non-current liabilities	(7)	(9)	(41)	(53)
Net asset (liability) recognized	$17	$37	$1	$(10)

Amounts recorded in AOCL, excluding tax effects that have not yet been recognized as components of net periodic benefit cost at December 31, 2022 and 2021, were as follows:

	U.S. PLANS		NON-U.S. PLANS	
(in millions)	2022	2021	2022	2021
Net actuarial loss	$36	$11	$24	$38
Transition obligation	—	—	—	—
Prior service (credit) cost	(3)	(4)	—	—
Net amount recognized	$33	$7	$24	$38

The amount recognized in AOCL at December 31, 2022 increased compared to prior year for the U.S. pension plans mainly due to the actual return on assets being less than the expected return on assets, which was partially offset by the increase in discount rates used to measure our obligations under our U.S. pension. The decrease in the net amount recognized in AOCL at December 31, 2022 for the non-U.S. pension plans as compared to December 31, 2021 was primarily due to higher discount rates used to measure our obligations.

The accumulated benefit obligation for all defined benefit pension plans was $469 million and $619 million at December 31, 2022 and 2021, respectively. Information for pension plans with a projected benefit obligation in excess of plan assets and an accumulated benefit obligation in excess of plan assets was as follows:

	U.S. PLANS		NON-U.S. PLANS	
(in millions)	2022	2021	2022	2021
Projected benefit obligation	$(8)	$(10)	$(45)	$(57)
Accumulated benefit obligation	(8)	(9)	(35)	(48)
Fair value of plan assets	—	—	3	3

Components of net periodic benefit cost consist of the following for 2022, 2021 and 2020:

	U.S. PLANS			NON-U.S. PLANS		
(in millions)	2022	2021	2020	2022	2021	2020
Service cost	$4	$4	$5	$3	$4	$4
Interest cost	9	8	11	9	9	10
Expected return on plan assets	(16)	(17)	(21)	(7)	(8)	(8)
Amortization of actuarial loss	—	—	—	1	2	2
Amortization of prior service credit	(1)	(1)	(1)	—	—	—
Net periodic benefit cost	$(4)	$(6)	$(6)	$6	$7	$8

Total amounts recorded in other comprehensive income and net periodic benefit cost were as follows:

	U.S. PLANS			NON-U.S. PLANS		
(in millions, pre-tax)	2022	2021	2020	2022	2021	2020
Net actuarial (gain) loss	$25	$(1)	$(3)	$(11)	$(11)	$1
Prior service cost	—	—	—	—	—	—
Amortization of actuarial loss	—	—	—	(1)	(2)	(2)
Amortization of prior service credit	1	1	1	—	—	—
Foreign currency translation	—	—	—	(2)	(11)	—
Total recorded in other comprehensive income	26	—	(2)	(14)	(24)	(1)
Net periodic benefit cost	(4)	(6)	(6)	6	7	8
Total recorded in other comprehensive income and net periodic benefit cost	$22	$(6)	$(8)	$(8)	$(17)	$7

The following weighted average assumptions were used to determine our obligations for the pension plans for the given years:

	U.S. PLANS		NON-U.S. PLANS	
	2022	2021	2022	2021
Discount rate	5.19%	2.91%	5.66%	3.47%
Rate of compensation increase	3.92	4.18	3.83	3.67
Cash balance interest credit rate	4.21	4.11	—	—

The following weighted average assumptions were used to determine our net periodic benefit cost for the pension plans for the given years:

	U.S. PLANS			NON-U.S. PLANS		
	2022	2021	2020	2022	2021	2020
Discount rate	2.91%	2.58%	3.34%	3.66%	2.84%	3.55%
Expected long-term return on plan assets	4.10	4.10	5.30	3.50	3.37	3.81
Rate of compensation increase	4.18	4.26	4.21	3.77	3.54	3.68
Cash balance interest crediting rate	4.11	3.76	4.16	—	—	—

For 2022, we assumed an expected long-term rate of return on assets of 4.10 percent for U.S. plans and 3.06 percent for Canadian plans. In developing the expected long-term rate of return assumption on plan assets, which consist mainly of U.S. and Canadian debt and equity securities, we evaluated historical rates of return achieved on plan assets and the asset allocation of the plans, input from our independent actuaries and investment consultants, and historical trends in long-term inflation rates. Projected return estimates are based upon broad equity and bond indices.

The discount rate reflects a rate of return on high-quality fixed income investments that match the duration of the expected benefit payments. We typically use returns on long-term, high-quality corporate AA bonds as a benchmark in establishing this assumption, and we elect to use a full yield curve approach to estimate these components of benefit cost by applying the specific spot rates along the yield curve used to determine the benefit obligation to the relevant projected cash flows.

Plan assets

Our investment policy for our pension plans is to balance risk and return through diversified portfolios of fixed income securities, equity instruments and short-term investments. Maturities for fixed income securities are managed such that sufficient liquidity exists to meet near-term benefit payment obligations. For U.S. pension plans, the weighted average target range allocation of assets was 9 to 19 percent in equities and 81 to 91 percent in fixed income inclusive of other short-term investments. The asset allocation is reviewed regularly, and portfolio investments are rebalanced to the targeted allocation when considered appropriate.

Our weighted average asset allocations as of December 31, 2022 and 2021, for U.S. and non-U.S. pension plan assets are as follows:

	U.S. PLANS		NON-U.S. PLANS	
Asset Category	**2022**	**2021**	**2022**	**2021**
Equity securities	11%	14%	8%	18%
Debt securities	87	85	77	57
Cash and other	2	1	15	25
Total	100%	100%	100%	100%

With the exception of cash, which is considered Level 1 in the fair value hierarchy, all significant pension plan assets are held in collective trusts by our U.S. and non-U.S. plans. The fair value of shares of collective trusts are based upon the net asset value ("NAV") of the fund reported by the fund managers based on quoted market prices of the underlying securities as of the balance sheet date and are considered to be Level 2 fair value measurements. Investments measured at NAV, as a practical expedient for fair value, are excluded from the fair value hierarchy. This may produce a fair value measurement that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while we believe our valuation methods are appropriate and consistent with those of other market participants, the use of different methodologies could result in different fair value measurements at the reporting date.

The fair values of our plan assets by asset category are as follows:

	FAIR VALUE MEASUREMENTS AT DECEMBER 31, 2022							
	NAV		LEVEL 1		LEVEL 2		TOTAL	
(in millions)	**2022**	**2021**	**2022**	**2021**	**2022**	**2021**	**2022**	**2021**
U.S. Plans:								
Equity index:								
U.S.[a]	$—	$—	$—	$—	$22	$37	$22	$37
International[b]	—	—	—	—	14	22	14	22
Fixed income index:								
Long bond[c]	—	—	—	—	127	179	127	179
Long government bond[d]	—	—	—	—	89	109	89	109
Other fixed income[e]	59	69	—	—	—	—	59	69
Cash & Short-term Investments[f]	—	—	—	—	6	4	6	4
Total U.S. Plans	$59	$69	$—	$—	$258	$351	$317	$420
Non-U.S. Plans:								
Equity index:								
U.S.[a]	$—	$—	$—	$—	$9	$26	$9	$26
International[b]	—	—	—	—	6	17	6	17
Fixed income index:								
Short bond[g]	—	—	—	—	25	34	25	34
Intermediate bond[h]	—	—	—	—	51	45	51	45
Long bond[i]	—	—	—	—	69	93	69	93
Other[j]	—	—	—	—	22	21	22	21
Cash & Short-term Investments[f]	—	—	2	8	5	—	7	8
Total Non-U.S. Plans	$—	$—	$2	$8	$187	$236	$189	$244

[a] This category consists of both passively and actively managed equity index funds that track the return of large capitalization U.S. equities.

[b] This category consists of both passively and actively managed equity index funds that track an index of returns on international developed market equities.

[c] This category consists of an actively managed fixed income index fund that invests in a diversified portfolio of fixed-income corporate securities with maturities generally exceeding 10 years.

[d] This category consists of an actively managed fixed income index fund that invests in a diversified portfolio of fixed-income U.S. treasury securities with maturities generally exceeding 10 years.

[e] This category consists of an actively managed common collective fund that invests in government bonds, collateralized mortgage obligations, investment grade private credit and real estate debt. This fund is priced monthly at the aggregated market value of the underlying investments and can be fully redeemed with 95 days notification.

[f] This category represents cash, cash equivalents, or highly liquid short-term investments.

[g] This category consists of both passively and actively managed fixed income index funds that track the return of short-duration government and investment grade corporate bonds.

[h] This category consists of both passively and actively managed fixed income index funds that track the return of intermediate duration government and investment grade corporate bonds.

[i] This category consists of both passively and actively managed fixed income index funds that track the return of government bonds and investment grade corporate bonds.

[j] This category mainly consists of investment products provided by insurance companies that offer returns that are subject to a minimum guarantee and mutual funds.

During 2022, we made cash contributions of $1 million and $5 million to our U.S. and non-U.S. pension plans, respectively.

Ingredion anticipates that in 2023 we will make cash contributions of $1 million and $3 million to our U.S. and non-U.S. pension plans, respectively. Cash contributions in subsequent years will depend on a number of factors, including the performance of plan assets.

The following benefit payments to beneficiaries, which reflect anticipated future service, as appropriate, are expected to be made in the following years:

(in millions)	U.S. PLANS	NON-U.S. PLANS
2023	26	14
2024	25	13
2025	25	13
2026	25	13
2027	26	14
Years 2028–2032	115	78

We also maintain defined contribution plans. We make matching contributions to these plans that are subject to certain vesting requirements and are based on a percentage of employee contributions. Amounts charged to expense for defined contribution plans totaled $22 million for each of 2022, 2021 and 2020.

Postretirement Benefit Plans

Our postretirement benefit plans currently are not funded. The information presented below includes plans in the U.S., Brazil and Canada. The changes in the benefit obligations of the plans during 2022 and 2021, as well as the amounts recognized in our Consolidated Balance Sheets at December 31, 2022 and 2021, are as follows:

(in millions)	2022	2021
Accumulated postretirement benefit obligation		
At January 1	$65	$68
Service cost	1	1
Interest cost	3	2
Amendments	—	4
Actuarial (gain) loss	(7)	(5)
Benefits paid	(4)	(4)
Foreign currency translation	—	(1)
At December 31	58	65
Fair value of plan assets	—	—
Funded status	$(58)	$(65)

As of December 31, 2022, the decrease in the postretirement benefit obligation was mainly driven by higher discount rates. As of December 31, 2021, the decrease in the postretirement benefit obligation was mainly driven by higher actuarial gains, partially offset by a $4 million amendment and favorable foreign currency translation related to Ingredion's Canada and Brazil postretirement plans. The North Kansas City retiree medical group shifted from a multi-employer plan to the Ingredion Post Retirement Medical Health and Life Plan at the end of 2021, causing an increase to the postretirement obligation of $4 million in 2021.

Amounts recorded in the Consolidated Balance Sheets at December 31, 2022 and 2021 consist of:

(in millions)	2022	2021
Current liabilities	$(5)	$(4)
Non-current liabilities	(53)	(61)
Net liability recognized	$(58)	$(65)

Amounts recorded in AOCL, excluding tax effects that have not yet been recognized as components of net periodic benefit cost at December 31, 2022 and 2021 were as follows:

(in millions)	2022	2021
Net actuarial loss	$1	$8
Prior service cost	5	5
Net amount recognized	$6	$13

Components of net periodic benefit cost consisted of the following for 2022, 2021 and 2020:

(in millions)	2022	2021	2020
Service cost	$1	$1	$—
Interest cost	3	2	3
Amortization of actuarial loss	—	1	1
Amortization of prior service credit	—	(2)	(2)
Net periodic benefit cost	$4	$2	$2

Total amounts recorded in other comprehensive income and net periodic benefit cost for 2022, 2021 and 2020 was as follows:

(in millions, pre-tax)	2022	2021	2020
Net actuarial loss (gain)	$(7)	$(5)	$4
Prior service cost	—	4	—
Amortization of prior service credit	—	2	2
Amortization of actuarial loss	—	(1)	(1)
Foreign currency translation	—	(4)	—
Total recorded in other comprehensive income	(7)	(4)	5
Net periodic benefit cost	4	2	2
Total recorded in other comprehensive income and net periodic benefit cost	$(3)	$(2)	$7

The following weighted average assumptions were used to determine our obligations under the postretirement plans for 2022 and 2021:

	2022	2021
Discount rate	7.30%	4.22%

The following weighted average assumptions were used to determine our net postretirement benefit cost:

	2022	2021	2020
Discount rate	4.22%	3.69%	4.42%

The discount rate reflects a rate of return on high-quality fixed-income investments that match the duration of expected benefit payments. We typically use returns on long-term, high-quality corporate AA bonds as a benchmark in establishing this assumption.

The healthcare cost trend rates used in valuing our postretirement benefit obligations are established based upon actual healthcare trends and consultation with actuaries and benefit providers. The following assumptions were used as of December 31, 2022:

	U.S.	CANADA	BRAZIL
2022 increase in per capita cost	6.82%	4.82%	8.68%
Ultimate trend	4.50%	4.05%	8.68%
Year ultimate trend reached	2032	2040	2022

The following benefit payments to beneficiaries, which reflect anticipated future service, as appropriate, are expected to be made under Ingredion's postretirement benefit plans:

(in millions)	
2023	$5
2024	4
2025	4
2026	4
2027	4
Years 2028–2032	21

Multi-employer Plan

Ingredion participates in and contributes to one multi-employer benefit plan under the terms of collective bargaining agreements that cover certain union-represented employees and retirees in the U.S. The plan covers medical and dental benefits for active hourly employees and retirees represented by the United Steelworkers Union for certain U.S. locations. The risks of participating in this multi-employer plan are different from single-employer plans. This plan receives contributions from two or more unrelated employers pursuant to one or more collective bargaining agreements, and the assets contributed by one employer may be used to fund the benefits of all employees covered within the plan.

We are required to make contributions to this multi-employer plan as determined by the terms and conditions of the collective bargaining agreements and plan terms, but we do not provide more than five percent of the total contributions to the plan. For 2022, 2021 and 2020, we made regular contributions of $10 million, $14 million and $14 million, respectively, to the plan. We cannot currently estimate the amount of multi-employer plan contributions that will be required in 2023 and future years, but these contributions could increase due to healthcare cost trends. As described above, the North Kansas City retiree medical group shifted from a multi-employer plan to the U.S. postretirement benefit plan at the end of 2021. The remaining collective bargaining agreements associated with the multi-employer plan expire during 2023 through 2025.

NOTE 12 – Equity

Preferred stock

We have authorized 25 million shares of $0.01 par value preferred stock, none of which were issued or outstanding at December 31, 2022 and 2021.

Treasury stock

On September 26, 2022, the Board of Directors terminated the stock repurchase program it had previously authorized on October 22, 2018, which permitted us to purchase up to 8 million of our outstanding shares of common stock from November 5, 2018 through December 31, 2023. As of the date of termination, the 2018 repurchase program had approximately 3.8 million shares of common stock remaining for repurchase.

On September 26, 2022, the Board of Directors contemporaneously approved a new stock repurchase program to authorize us to purchase up to 6 million shares of our outstanding common stock from September 26, 2022 through December 31, 2025. We may repurchase shares from time to time in the open market, in privately negotiated transactions, or otherwise, at prices we deem appropriate. We are not obligated to repurchase any shares under the authorization, and the new repurchase program may be suspended, discontinued or modified at any time, for any reason and without notice. The parameters of our stock repurchase program are not established solely with reference to the dilutive impact of shares issued under our stock incentive plan. However, we expect that, over time, share repurchases will offset the dilutive impact of shares issued under the stock incentive plan.

During 2022, we repurchased 1,283 thousand shares of common stock in open market transactions at a net cost of $112 million. During 2021, we repurchased 765 thousand shares of common stock in open market transactions at a net cost of $68 million.

Set forth below is a reconciliation of common stock share activity for 2022, 2021 and 2020:

(Shares of common stock, in thousands)	ISSUED	HELD IN TREASURY	OUTSTANDING
Balance at December 31, 2019	77,811	10,993	66,818
Issuance of restricted stock units as compensation	—	(69)	69
Performance shares and other share-based awards	—	(5)	5
Stock options exercised	—	(124)	124
Purchase/acquisition of treasury stock	—	—	—
Balance at December 31, 2020	77,811	10,795	67,016
Issuance of restricted stock units as compensation	—	(69)	69
Performance shares and other share-based awards	—	(6)	6
Stock options exercised	—	(331)	331
Purchase/acquisition of treasury stock	—	765	(765)
Balance at December 31, 2021	77,811	11,154	66,657
Issuance of restricted stock units as compensation	—	(95)	95
Performance shares and other share-based awards	—	(43)	43
Stock options exercised	—	(182)	182
Purchase/acquisition of treasury stock	—	1,283	(1,283)
Balance at December 31, 2022	77,811	12,117	65,694

Share-based payments

The following table summarizes the components of our share-based compensation expense for 2022, 2021 and 2020:

(in millions)	2022	2021	2020
Stock options:			
Pre-tax compensation expense	$4	$3	$4
Income tax benefit	—	—	—
Stock option expense, net of income taxes	4	3	4
Restricted stock units ("RSUs"):			
Pre-tax compensation expense	13	12	12
Income tax benefit	(1)	(1)	(1)
RSUs, net of income taxes	12	11	11
Performance shares and other share-based awards:			
Pre-tax compensation expense	12	8	7
Income tax benefit	(1)	(1)	(1)
Performance shares and other share-based compensation expense, net of income taxes	11	7	6
Total share-based compensation:			
Pre-tax compensation expense	29	23	23
Income tax benefit	(2)	(2)	(2)
Total share-based compensation expense, net of income taxes	$27	$21	$21

We have a stock incentive plan ("SIP") administered by the People, Culture and Compensation Committee ("Compensation Committee") of our Board of Directors that provides for the granting of stock options, restricted stock, restricted stock units and other share-based awards to certain key employees. A maximum of 8 million shares were originally authorized for awards under the SIP. On May 19, 2021, our stockholders approved an increase in the number of shares then available under the SIP by 2.5 million shares. As of December 31, 2022, 3.1 million shares were available for future grants under the SIP. Shares covered by awards that expire, terminate or lapse will again be available for the grant of awards under the SIP.

Stock options

Under the SIP, stock options are granted at exercise prices that equal the market value of the underlying common stock on the date of grant. The options have a 10-year term and are exercisable upon vesting, which occurs over a three-year period at the anniversary dates of the date of grant.

We granted non-qualified options to purchase 281 thousand, 358 thousand and 336 thousand shares for 2022, 2021 and 2020, respectively. The fair value of each option grant was estimated using the Black-Scholes option-pricing model with the following assumptions:

	FOR THE YEAR ENDED DECEMBER 31,		
	2022	2021	2020
Expected life (in years)	5.5	5.5	5.5
Risk-free interest rate	2.0%	0.6%	1.4%
Expected volatility	23.8%	23.2%	19.8%
Expected dividend yield	2.9%	2.9%	2.9%

The expected life of options represents the weighted average period that we expect options granted to be outstanding giving consideration to vesting schedules and our historical exercise patterns. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the grant date for the period corresponding to the expected life of the options. Expected volatility is based on historical volatilities of our common stock, and dividend yields are based on our dividend yield at the date of issuance.

A summary of stock option transactions in 2022 is as follows:

	NUMBER OF OPTIONS (in thousands)	WEIGHTED AVERAGE EXERCISE PRICE PER SHARE	AVERAGE REMAINING CONTRACTUAL TERM (YEARS)	AGGREGATE INTRINSIC VALUE (in millions)
Outstanding as of December 31, 2021	2,154	$90.39	5.26	$26
Granted	281	88.66		
Exercised	(182)	61.90		
Cancelled	(31)	103.55		
Outstanding as of December 31, 2022	2,222	$92.32	5.16	$24
Exercisable as of December 31, 2022	1,651	$93.79	4.03	$18

For 2022, 2021 and 2020, cash received from the exercise of stock options was $11 million, $21 million and $6 million, respectively. As of December 31, 2022, the unrecognized compensation cost related to non-vested stock options totaled $3 million, which is expected to be amortized over the weighted-average period of approximately 1.7 years.

Additional information pertaining to stock option activity is as follows:

	YEAR ENDED DECEMBER 31,		
(dollars in millions, except per share)	2022	2021	2020
Weighted average grant date fair value of stock options granted (per share)	$15.04	$12.31	$11.48
Total intrinsic value of stock options exercised	6	10	5

Restricted stock units

We have granted restricted stock units ("RSUs") to certain key employees. The RSUs are primarily subject to cliff vesting, generally after three years, provided the employee remains in our service. The fair value of the RSUs is determined based upon the number of shares granted and the quoted market price of our common stock at the grant date.

The following table summarizes RSU activity in 2022:

(shares in thousands)	NUMBER OF RESTRICTED SHARES	WEIGHTED AVERAGE FAIR VALUE PER SHARE
Non-vested at December 31, 2021	486	$88.34
Granted	213	88.80
Vested	(132)	90.74
Cancelled	(50)	87.14
Non-vested at December 31, 2022	517	$88.04

The total fair value of RSUs that vested in 2022, 2021 and 2020 was $12 million, $12 million and $17 million, respectively.

At December 31, 2022, the total remaining unrecognized compensation cost related to RSUs was $17 million, which will be amortized on a weighted-average basis over approximately 1.7 years. Recognized compensation cost related to unvested RSUs is included in Share-based payments subject to redemption in the Consolidated Balance Sheets and totaled $28 million and $25 million at December 31, 2022 and 2021, respectively.

Performance shares

We have a long-term incentive plan for senior management in the form of performance shares. The vesting of the performance shares is generally based on two performance metrics. Fifty percent of the performance shares awarded vest based on our total shareholder return as compared to the total shareholder return of our peer group and the remaining fifty percent vest based on the calculation of our three-year average Adjusted Return on Invested Capital ("ROIC") against an established ROIC target. The 2021 performance shares were granted in two tranches. Vesting for the first tranche was split evenly between our total shareholder return and Adjusted ROIC against the applicable target. The second tranche of performance share awards vest 100 percent based on the calculation of Adjusted ROIC against the applicable target.

For the 2022 performance shares awarded based on our total shareholder return, the number of shares that ultimately vest can range from zero to 200 percent of the grant depending on our total shareholder return as compared to the total shareholder return of our peer group. The share award vesting will be calculated at the end of the three-year period and is subject to approval by management and the Compensation Committee of the Board of Directors. Compensation expense is based on the fair value of the performance shares at the grant date, established using a Monte Carlo simulation model. The total compensation expense for these awards is amortized over a three-year graded vesting schedule.

For the 2022 performance shares awarded based on Adjusted ROIC, the number of shares that ultimately vest can range from zero to 200 percent of the grant depending on our Adjusted ROIC performance against the target. The share award vesting will be calculated at the end of the three-year period and is subject to approval by management and the Compensation Committee. Compensation expense is based on the market price of our common stock on the grant date and the final number of shares that ultimately vest. We estimate the potential share vesting at least annually to adjust the compensation expense for these awards over the vesting period to reflect our estimated Adjusted ROIC performance against the target. The total compensation expense for these awards is amortized over a three-year graded vesting schedule.

We awarded 86 thousand, 108 thousand and 81 thousand performance shares in 2022, 2021 and 2020, respectively. The weighted average fair value of the shares granted during 2022, 2021 and 2020 was $138.85, $100.29 and $94.48, respectively.

The 2019 performance share awards that vested during 2022 achieved a zero percent payout of the granted performance shares. As of December 31, 2022, the 2020 performance share awards are estimated to pay out at 75 percent. Additionally, there were two thousand shares cancelled during 2022.

As of December 31, 2022, the unrecognized compensation cost relating to these plans was $8 million, which will be amortized over the remaining requisite service periods of 1.7 years. Recognized compensation cost related to these unvested awards is included in Share-based payments subject to redemption in the Consolidated Balance Sheets and totaled $20 million and $11 million at December 31, 2022 and 2021, respectively.

Other share-based awards under the SIP

Under the compensation agreement with the Board of Directors, $150,000 of a non-employee director's annual retainer and 50 percent of the additional retainers paid to the lead director and the chairs of committees of the Board of Directors are awarded in shares of common stock or, if a director elects to defer all or a portion of the director's common stock or cash compensation, in shares of restricted stock units. These restricted units may not be transferred until a date not less than six months after the director's termination of service from the Board of Directors, at which time the restricted units will be settled by delivering shares of common stock with fractional shares to be paid in cash. The compensation expense relating to this plan included in the Consolidated Statements of Income was approximately $2 million in each of 2022, 2021, and 2020. At December 31, 2022, there were approximately 230 thousand restricted stock units outstanding under this plan at a carrying value of approximately $15 million.

Accumulated other comprehensive loss

A summary of accumulated other comprehensive income (loss) for 2022, 2021 and 2020, is presented below:

(in millions)	CUMULATIVE TRANSLATION ADJUSTMENT	HEDGING ACTIVITIES	PENSION AND POSTRETIREMENT ADJUSTMENT	AOCL
Balance, December 31, 2019	$(1,089)	$(9)	$(60)	$(1,158)
Other comprehensive (loss) income before reclassification adjustments	(25)	5	(2)	(22)
Loss reclassified from accumulated other comprehensive loss	—	65	—	65
Tax (provision) benefit	—	(19)	1	(18)
Net other comprehensive (loss) income	(25)	51	(1)	25
Balance, December 31, 2020	(1,114)	42	(61)	(1,133)
Other comprehensive (loss) income before reclassification adjustments	(100)	218	28	146
Loss (gain) reclassified from accumulated other comprehensive loss	311	(209)	—	102
Tax (provision)	—	(3)	(9)	(12)
Net other comprehensive income	211	6	19	236
Balance, December 31, 2021	(903)	48	(42)	(897)
Other comprehensive (loss) gain before reclassification adjustments	(105)	210	(5)	100
(Gain) loss reclassified from accumulated other comprehensive loss	—	(268)	—	(268)
Tax benefit	—	16	1	17
Net other comprehensive income	(105)	(42)	(4)	(151)
Balance, December 31, 2022	$(1,008)	$6	$(46)	$(1,048)

Supplemental information

The following table provides the computation of basic and diluted earnings per common share ("EPS") for the periods presented.

	2022			2021			2020		
(in millions)	NET INCOME AVAILABLE TO INGREDION	WEIGHTED AVERAGE SHARES	PER SHARE AMOUNT	NET INCOME AVAILABLE TO INGREDION	WEIGHTED AVERAGE SHARES	PER SHARE AMOUNT	NET INCOME AVAILABLE TO INGREDION	WEIGHTED AVERAGE SHARES	PER SHARE AMOUNT
Basic EPS	$492	66.2	$7.43	$117	67.1	$1.74	$348	67.2	$5.18
Effect of Dilutive Securities:									
Incremental shares from assumed exercise of dilutive stock options and vesting of dilutive RSUs and other awards		0.8			0.7			0.4	
Diluted EPS	$492	67.0	$7.34	$117	67.8	$1.73	$348	67.6	$5.15

Approximately 1.4 million, 0.9 million and 1.7 million share-based awards of common stock were excluded for 2022, 2021 and 2020, respectively, from the calculation of the weighted average number of shares outstanding for diluted EPS because their effects were anti-dilutive.

NOTE 13 – Information by Segment and Geographic Region

We are principally engaged in the production and sale of starches and sweeteners for a wide range of industries and we are managed geographically on a regional basis. The nature, amount, timing and uncertainty of our Net sales are managed by us primarily based on our geographic segments, which we classify and report as North America, South America, Asia-Pacific and EMEA. Our North America segment includes businesses in the U.S., Mexico and Canada. Our South America segment includes businesses and our share of earnings from investments in joint ventures in Brazil, Argentina, Chile, Colombia, Ecuador, Peru and Uruguay. Our Asia-Pacific segment includes businesses in South Korea, Thailand, China, Australia, Japan, New Zealand, Indonesia, Singapore, the Philippines, Malaysia, India and Vietnam. Our EMEA segment includes businesses in Pakistan, Germany, Poland, the United Kingdom and South Africa. Net sales by product are not presented because to do so would be impracticable.

Presented below are Ingredion's net sales to unaffiliated customers by reportable segment for the years indicated:

(in millions)	2022	2021	2020
Net sales to unaffiliated customers:			
North America	$4,934	$4,137	$3,662
South America	1,124	1,057	919
Asia-Pacific	1,107	997	813
EMEA	781	703	593
Total net sales	$7,946	$6,894	$5,987

Presented below is our operating income by reportable segment for the years indicated:

(in millions)	2022	2021	2020
Operating income:			
North America	$565	$487	$487
South America	169	138	112
Asia-Pacific	93	87	80
EMEA	110	106	102
Corporate	(150)	(133)	(122)
Subtotal	787	685	659
Acquisition/integration costs	(1)	(3)	(11)
Restructuring/impairment charges	(4)	(47)	(93)
Impairment on disposition of assets	—	(340)	—
Other matters	(20)	15	27
Total operating income	$762	$310	$582

Presented below are our total assets by reportable segment as of December 31, 2022 and 2021:

	AS OF DECEMBER 31,	
(in millions)	2022	2021
Assets:		
North America[a]	$4,499	$4,203
South America	949	799
Asia-Pacific	1,467	1,403
EMEA	646	594
Total assets	$7,561	$6,999

[a] For purposes of presentation, North America includes Corporate assets.

Presented below are our depreciation and amortization, mechanical stores expense and capital expenditures and mechanical stores purchases by reportable segment:

(in millions)	2022	2021	2020
Depreciation and amortization:			
North America[a]	$145	$146	$147
South America	18	18	19
Asia-Pacific	37	40	32
EMEA	15	16	15
Total	$215	$220	$213
Mechanical stores expense[b]:			
North America[a]	$43	$43	$39
South America	4	6	7
Asia-Pacific	4	3	4
EMEA	4	3	4
Total	$55	$55	$54
Capital expenditures and mechanical stores purchases:			
North America[a]	$178	$166	$243
South America	31	38	39
Asia-Pacific	72	81	46
EMEA	19	15	12
Total	$300	$300	$340

[a] North America includes Corporate activities.
[b] Represents costs for spare parts used in the production process that are recorded in PP&E as part of machinery and equipment until they are utilized in the manufacturing process and expensed as a period cost.

The following table presents net sales to unaffiliated customers by country of origin for the years indicated:

	NET SALES		
(in millions)	2022	2021	2020
U.S.	$2,978	$2,509	$2,284
Mexico	1,444	1,170	984
Brazil	720	586	447
Canada	512	459	393
Korea	356	323	268
Others	1,936	1,847	1,611
Total	$7,946	$6,894	$5,987

The following table presents long-lived assets (excluding intangible assets and deferred income taxes) by country as of December 31, 2022 and 2021:

	LONG-LIVED ASSETS	
(in millions)	2022	2021
U.S.	$1,289	$1,317
Mexico	309	320
Canada	273	272
Brazil	209	189
Thailand	153	156
China	144	128
Germany	126	135
Others	435	423
Total	$2,938	$2,940

NOTE 14 – Commitments and Contingencies

In October 2022, the Brazilian Superior Court of Justice issued a motion of clarification that certain tax incentives provided by local governments can be excluded from taxable income. In the fourth quarter of 2022, we filed an action for a right to recover previously taxable, local government tax incentives granted during fiscal years 2018 to 2022. As our recovery is probable, we recorded a $27 million income tax benefit, which we expect to recover within five years.

In 2020, our Brazilian subsidiary received a favorable decision from the Federal Court of Appeals ("Lower Court") in Sao Paulo, Brazil, related to certain indirect taxes collected in prior years (referred as "Brazil indirect tax matters" in these financial statements). The Lower Court clarified the calculation of our benefit, allowing us to claim gross treatment within the indirect tax claim calculation and a larger indirect tax claim against the government. As a result of the decision, we recorded a $35 million pre-tax benefit in the Consolidated Income Statements in Other operating expense (income) in 2020 related to the open period of 2005 to 2014.

In May 2021, the Brazilian Supreme Court ("Court") issued its ruling related to the calculation of certain indirect taxes, which affirmed the Lower Court rulings that we had received in previous years and affirmed that we are entitled to the previously recorded tax credits. The Court ruling ensures that we will be entitled to $15 million of additional credits from the period of 2015 to 2018 that was previously unrecorded pending a final Court ruling. We recorded the $15 million of additional credits in 2021 within Other operating expense (income) in the Consolidated Statements of Income. As of December 31, 2022 and December 31, 2021, we had $17 million and $41 million, respectively, of remaining indirect tax credits recorded in Other assets and Prepaid expenses on our Consolidated Balance Sheets. These credits resulted in $— and $5 million of a deferred tax liability as of December 31, 2022 and December 31, 2021, respectively. We will use the income tax offsets to eliminate our Brazilian federal tax payments in 2023 and future years, including the income tax payable for the indirect taxes recovered.

We are currently subject to claims and suits arising in the ordinary course of business, including labor matters, certain environmental proceedings and other commercial claims. We also routinely receive inquiries from regulators and other government authorities relating to various aspects of our business, including with respect to compliance with laws and regulations relating to the environment, and at any given time, we have matters at various stages of resolution with the applicable governmental authorities. The outcomes of these matters are not within our complete control and may not be known for prolonged periods of time. We do not believe that the results of currently known legal proceedings and inquires will be material to us. There can be no assurance, however, that such proceedings, matters, claims, suits or investigations or those arising in the future, whether taken individually or in the aggregate, will not have a material adverse effect on our financial condition or results of operations.

NOTE 15 – Supplementary Information

Accounts Receivable, Net

Accounts receivable, net as of December 31, 2022 and 2021, consist of:

(in millions)	2022	2021
Accounts receivable—trade	$1,200	$950
Accounts receivable—other	228	193
Allowance for credit losses	(17)	(13)
Total accounts receivable	$1,411	$1,130

Write-offs of accounts receivable were immaterial in 2022 and 2021. There were no significant contract assets associated with customers as of December 31, 2022 or 2021.

Inventories

Inventories as of December 31, 2022 and 2021, consist of:

(in millions)	2022	2021
Finished and in process	$962	$688
Raw materials	539	380
Manufacturing supplies	96	104
Total inventories	$1,597	$1,172

PP&E

PP&E as of December 31, 2022 and 2021, consists of:

(in millions)	2022	2021
Land	$199	$206
Buildings	854	812
Machinery and equipment	4,680	4,637
Property, plant and equipment, at cost	5,733	5,655
Accumulated depreciation	(3,326)	(3,232)
Property, plant and equipment, net	$2,407	$2,423

We recorded capitalized interest to PP&E of $4 million, $4 million and $7 million for 2022, 2021 and 2020, respectively. We recognized depreciation expense of $189 million, $194 million and $183 million in 2022, 2021 and 2020, respectively.

Accrued Liabilities

Accrued liabilities as of December 31, 2022 and 2021, consist of:

(in millions)	2022	2021
Compensation-related costs	$112	$105
Current lease liabilities	48	47
Dividends payable	47	44
Taxes payable other than income taxes	45	44
Other accrued liabilities	214	190
Total accrued liabilities	$466	$430

There were no significant contract liabilities associated with our customers as of December 31, 2022 and 2021. Liabilities for volume discounts and incentives were also not significant as of December 31, 2022 and 2021.

Other Non-Current Liabilities

Other non-current liabilities as of December 31, 2022 and 2021, consist of:

(in millions)	2022	2021
Deferred tax liabilities	$145	$165
Non-current operating lease liabilities	146	154
Pension and postretirement liabilities	101	123
Other	85	82
Total other non-current liabilities	$477	$524

Supplemental Income Statements Information

Research and Development ("R&D") expense was approximately $52 million in fiscal year 2022 and $43 million in fiscal years 2021 and 2020. Our R&D expense represents investments in new product development and innovation. R&D expense is recorded within Operating expenses in the Consolidated Statements of Income.

Supplemental Cash Flow Information

The following represents additional cash flow information for 2022, 2021 and 2020:

(in millions)	2022	2021	2020
Interest paid	$82	$72	$78
Income taxes paid	187	168	120

Quarterly Financial Data (Unaudited)

Earnings per share for each quarter and the year are calculated individually and may not sum to the total for the respective year. Summarized quarterly financial data is as follows:

(in millions, except per share amounts)	1st QTR(b)	2nd QTR(c)	3rd QTR(d)	4th QTR(e)
2022				
Net sales	$1,892	$2,044	$2,023	$1,987
Gross profit	379	390	374	351
Net income attributable to Ingredion	130	142	106	114
Basic earnings per common share of Ingredion	1.94	2.14	1.61	1.73
Diluted earnings per common share of Ingredion	1.92	2.12	1.59	1.71
Per share dividends declared	$0.65	$0.65	$0.71	$0.71

(in millions, except per share amounts)	1st QTR(f)	2nd QTR(g)	3rd QTR(h)	4th QTR(i)
2021				
Net sales	$1,614	$1,762	$1,763	$1,755
Gross profit	351	367	323	290
Net income attributable to Ingredion	(246)	178	118	67
Basic earnings per common share of Ingredion	(3.66)	2.65	1.76	1.00
Diluted earnings per common share of Ingredion	(3.66)	2.62	1.75	0.99
Per share dividends declared	$0.64	$0.64	$0.65	$0.65

[a] All items in the footnotes below are presented after-tax unless otherwise noted.

[b] In the first quarter of 2022, Ingredion recorded $2 million in net restructuring costs, $1 million in acquisition/integration costs and $1 million benefit for tax matters.

[c] In the second quarter of 2022, Ingredion recorded $1 million in net restructuring costs and $1 million benefit for tax matters.

[d] In the third quarter of 2022, Ingredion recorded $7 million in charges for other matters and $2 million in charges for tax matters.

[e] In the fourth quarter of 2022, Ingredion recorded $16 million in benefit for tax matters, $8 million in charges for other matters and $4 million in net acquisition/integration costs.

[f] In the first quarter of 2021, Ingredion recorded $360 million in held for sale impairment charges related to the Argentina joint venture with no income tax benefit, $8 million in net restructuring costs, $3 million in charges for tax matters and $1 million in acquisition/integration costs.

[g] In the second quarter of 2021, Ingredion recorded $32 million in benefit for tax matters, $10 million in other matters income, $4 million in acquisition/integration costs, $3 million in equity method acquisition benefits and $2 million in net restructuring costs.

[h] In the third quarter of 2021, Ingredion recorded a $20 million favorable adjustment to the impairment charges related to the Argentina joint venture with no income tax expense, $7 million in net restructuring costs, $4 million in acquisition/integration costs and $4 million in charges for tax matters.

[i] In the fourth quarter of 2021, Ingredion recorded $19 million in net restructuring and impairment costs, $12 million in benefits for other matters, $5 million in benefits for fair value adjustments to equity investments, $4 million in charges for tax matters and $1 million in net acquisition/integration costs.

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

None.

ITEM 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, including our Chief Executive Officer and our Chief Financial Officer, performed an evaluation of the effectiveness of our disclosure controls and procedures as of December 31, 2022. Based on that evaluation, our Chief Executive Officer and our Chief Financial Officer concluded that, as of December 31, 2022, our disclosure controls and procedures (a) are effective in providing reasonable assurance that all information required to be disclosed in the reports that we file or submit under the Securities Exchange Act of 1934, as amended, has been recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms and (b) are designed to ensure that information required to be disclosed in the reports we file or submit under the Securities Exchange Act of 1934, as amended, is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. This system of internal control is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our Consolidated Financial Statements for external purposes in accordance with GAAP.

Internal control over financial reporting includes those policies and processes that:

1. Pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets.
2. Provide reasonable assurance that transactions are recorded as necessary to permit preparation of the financial statements in accordance with generally accepted accounting principles accepted in the U.S., and that our receipts and expenditures are being made only with proper authorizations of our management and directors.
3. Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our 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.

Management, under the supervision and with the participation of our Chief Executive Officer and our Chief Financial Officer and the oversight of the Board of Directors, conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2022 based upon the framework issued by the Committee of Sponsoring Organizations of the Treadway Commission in Internal Control-Integrated Framework (2013). The scope of the assessment included all of the subsidiaries of Ingredion. Based on the evaluation, management concluded that

our internal control over financial reporting was effective as of December 31, 2022. The effectiveness of our internal control over financial reporting has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report included in the Consolidated Financial Statements filed with this report.

Under guidelines established by the U.S. Securities and Exchange Commission, companies are allowed to exclude acquisitions from their first assessment of internal control over financial reporting following the date of the acquisition. Management's evaluation of internal control over financial reporting excluded the internal controls of Amishi and Mannitab. Total assets and total net sales recorded since the respective acquisition dates were each less than 1 percent of Ingredion's net sales and total assets, included in our Consolidated Financial Statements as of and for the year ended December 31, 2022.

Changes in Internal Control Over Financial Reporting

There were no changes to our internal control over financial reporting that occurred during the quarter ended December 31, 2022 that have materially affected, or are 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

Information required by this Item 10 is incorporated herein by reference to Ingredion's definitive proxy statement for Ingredion's 2023 Annual Meeting of Stockholders (the "Proxy Statement"), including the information in the Proxy Statement appearing under the headings "Proposal 1. Election of Directors," "The Board and Committees," and "Delinquent Section 16(a) Reports." The information regarding executive officers required by Item 401 of Regulation S-K is included in Part 1 of this report under the heading "Information about our Executive Officers."

Ingredion has adopted a code of ethics that applies to its principal executive officer, principal financial officer and controller. The code of ethics is posted on Ingredion's Internet website, which is found at www.ingredion.com. Ingredion intends to disclose on its website, within any period that may be required under SEC rules, any amendments to, or waivers under, a provision of its code of ethics that applies to Ingredion's principal executive officer, principal financial officer or controller that relates to any element of the code of ethics definition enumerated in Item 406(b) of Regulation S-K.

ITEM 11. Executive Compensation

Information required by this Item 11 is incorporated herein by reference to the Proxy Statement, including the information in the Proxy Statement appearing under the headings "Executive Compensation," "Compensation Committee Report," "Director Compensation" and "Compensation Committee Interlocks and Insider Participation."

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

Information required by this Item 12 is incorporated herein by reference to the Proxy Statement, including the information in the Proxy Statement appearing under the headings "Equity Compensation Plan Information as of December 31, 2022" and "Security Ownership of Certain Beneficial Owners and Management."

ITEM 13. Certain Relationships and Related Transactions and Director Independence

Information required by this Item 13 is incorporated herein by reference to the Proxy Statement, including the information in the Proxy Statement appearing under the headings "Review and Approval of Transactions with Related Persons," "Certain Relationships and Related Transactions" and "Independence of Board Members."

ITEM 14. Principal Accountant Fees and Services

Information required by this Item 14 is incorporated herein by reference to the Proxy Statement, including the information in the Proxy Statement appearing under the heading "2022 and 2021 Audit Firm Fee Summary."

ITEM 15. Exhibits and Financial Statement Schedules

Item 15(a)(1) Consolidated Financial Statements

Financial Statements (see the Index to the Consolidated Financial Statements on page 26 of this report).

Item 15(a)(2) Financial Statement Schedules

All financial statement schedules have been omitted because the information either is not required or is otherwise included in the Consolidated Financial Statements and notes thereto.

Item 15(a)(3) Exhibits

The following list of exhibits includes both exhibits submitted with this Form 10-K as filed with the SEC and those incorporated by reference from other filings.

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation of Ingredion Incorporated ("Ingredion"), as amended (incorporated by reference to Exhibit 3.1 to Ingredion's Annual Report on Form 10-K for the year ended December 31, 2019, filed on February 19, 2020) (File No. 1-13397).
3.2	Amended and Restated By-Laws of Ingredion.
4.1	Description of Ingredion's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934 (incorporated by reference to Exhibit 4.1 to Ingredion's Annual Report on Form 10-K for the year ended December 31, 2019, filed on February 19, 2020) (File No. 1-13397).
4.2	Indenture dated as of August 18, 1999, between Ingredion and The Bank of New York, as Trustee (incorporated by reference to Exhibit 4.1 to Ingredion's Registration Statement on Form S-3, filed on September 19, 2019) (File No. 333-233854).
4.3	Fourth Supplemental Indenture dated as of April 10, 2007, between Corn Products International, Inc. and The Bank of New York Trust Company, N.A., as Trustee (incorporated by reference to Exhibit 4.4 to Ingredion's Current Report on Form 8 K dated April 10, 2007, filed on April 10, 2007) (File No. 1-13397).
4.4	Seventh Supplemental Indenture, dated as of September 17, 2010, between Corn Products International, Inc. and The Bank of New York Mellon Trust Company, N.A. (as successor trustee to The Bank of New York), as Trustee (incorporated by reference to Exhibit 4.3 to Ingredion's Current Report on Form 8-K dated September 14, 2010, filed on September 20, 2010) (File No. 1-13397).
4.5	Ninth Supplemental Indenture, dated as of September 22, 2016, between Ingredion and The Bank of New York Mellon Trust Company, N.A. (as successor trustee to The Bank of New York), as Trustee (incorporated by reference to Exhibit 4.1 to Ingredion's Current Report on Form 8-K dated September 22, 2016, filed on September 22, 2016) (File No. 1-13397).
4.6	Tenth Supplemental Indenture, dated as of May 13, 2020, between Ingredion and The Bank of New York Mellon Trust Company, N.A. (as successor trustee to The Bank of New York), as Trustee (incorporated by reference to Exhibit 4.1 to Ingredion's Quarterly Report on Form 10-Q for the quarter ended June 30, 2020, filed on August 5, 2020) (File No. 1-13397).
4.7	Eleventh Supplemental Indenture, dated as of May 13, 2020, between Ingredion and The Bank of New York Mellon Trust Company, N.A. (as successor trustee to The Bank of New York), as Trustee (incorporated by reference to Exhibit 4.2 to Ingredion's Quarterly Report on Form 10-Q for the quarter ended June 30, 2020, filed on August 5, 2020) (File No. 1-13397).
10.1*	Stock Incentive Plan as amended and restated as of May 19, 2021 (the "Stock Incentive Plan") (incorporated by reference to Exhibit 10.1 to Ingredion's Current Report on Form 8-K dated May 20, 2021, filed on May 20, 2021) (File No. 1-13397).
10.2*	Form of Indemnification Agreement entered into by each of the members of Ingredion's Board of Directors and Ingredion's executive officers (incorporated by reference to Exhibit 10.14 to Ingredion's Annual Report on Form 10-K for the year ended December 31, 1997, filed on March 31, 1998) (File No. 1-13397).
10.3*	Supplemental Executive Retirement Plan as effective July 18, 2012 (incorporated by reference to Exhibit 10.7 to Ingredion's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012, filed on November 2, 2012) (File No. 1-13397).
10.4*	Annual Incentive Plan as effective January 1, 2022
10.5*	Form of 2023 Performance Share Award Agreement for use in connection with awards under the Stock Incentive Plan.
10.6*	Form of 2022 Performance Share Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.5 to Ingredion's Annual Report on Form 10-K for the year ended December 31, 2021, filed on February 22, 2022) (File No. 1-13397).

10.7*	Form of March 2021 Performance Share Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.2 to Ingredion's Quarterly Report on Form 10-Q for the quarter ended March 31, 2021, filed on May 7, 2021) (File No. 1-13397).
10.8*	Form of February 2021 Performance Share Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.5 to Ingredion's Annual Report on Form 10-K for the year ended December 31, 2020, filed on February 24, 2021) (File No. 1-13397).
10.9*	Form of Amendment to 2022, March 2021, and February 2021 Performance Share Award Agreements, dated as of February 15, 2023 for use in connection with awards under the Stock Incentive Plan.
10.10*	Form of 2023 Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan.
10.11*	Form of 2022 Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.7 to Ingredion's Annual Report on Form 10-K for the year ended December 31, 2021, filed on February 22, 2022) (File No. 1-13397).
10.12*	Form of 2021 Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.6 to Ingredion's Annual Report on Form 10-K for the year ended December 31, 2020, filed on February 24, 2021) (File No. 1-13397).
10.13*	Form of 2020 Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.2 to Ingredion's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, filed on May 6, 2020) (File No. 1-13397).
10.14*	Form of 2019 Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.12 to Ingredion's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019, filed on May 3, 2019) (File No. 1-13397).
10.15*	Form of 2018 Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.2 to Ingredion's Current Report on Form 8-K for the year ended December 31, 2017, filed on February 12, 2018) (File No. 1-13397).
10.16*	Form of 2017 Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.3 to Ingredion's Current Report on Form 8-K dated February 7, 2017, Filed on February 14, 2017) (File No. 1-13397).
10.17*	Form of 2016 Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.13 to Ingredion's Annual Report on Form 10-K for the year ended December 31, 2015, filed on February 19, 2016) (File No. 1-13397).
10.18*	Form of 2015 Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.2 to Ingredion's Current Report on Form 8-K dated February 3, 2015, filed on February 9, 2015) (File No. 1-13397).
10.19*	Form of 2014 Stock Option Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.2 to Ingredion's Current Report on Form 8-K dated February 3, 2014, filed on February 7, 2014) (File No. 1-13397).
10.20*	Form of 2023 Restricted Stock Units Award Agreement for use in connection with awards under the Stock Incentive Plan.
10.21*	Form of 2022 Restricted Stock Units Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.8 to Ingredion's Annual Report on Form 10-K for the year ended December 31, 2021, filed on February 22, 2022) (File No. 1-13397).
10.22*	Form of March 2021 Restricted Stock Units Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.3 to Ingredion's Quarterly Report on Form 10-Q for the quarter ended March 31, 2021, filed on May 7, 2021) (File No. 1-13397).
10.23*	Form of February 2021 Restricted Stock Units Award Agreement for use in connection with awards under the Stock Incentive Plan (incorporated by reference to Exhibit 10.7 to Ingredion's Annual Report on Form 10-K for the year ended December 31, 2020, filed on February 24, 2021) (File No. 1,13397).
10.24*	Form of Executive Severance Agreement entered into by certain executive officers of Ingredion (incorporated by reference to Exhibit 10.17 to Ingredion's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018, filed on August 3, 2018) (File No. 1-13397).

10.25*	Form of Executive Severance Agreement entered into by certain executive officers of Ingredion (incorporated by reference to Exhibit 10.18 to Ingredion's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018, filed on August 3, 2018) (File No. 1-13397).
10.26*	Letter of Agreement, dated as of June 30, 2020, between Ingredion and Jorgen Kokke (incorporated by reference to Exhibit 10.1 to Ingredion's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, filed on November 6, 2020) (File No, 1-13397).
10.27*	Letter of Agreement, dated as of November 23, 2020, between Ingredion and Eric Seip.
10.28*	Letter of Agreement, dated as of April 15, 2020, between Ingredion and Jeremy Xu.
10.29	Revolving Credit Agreement, dated as of June 30, 2021, by and among Ingredion Incorporated, as Borrower, the Subsidiary Borrowers from time-to-time party thereto, the Lenders from time to time party thereto and JPMorgan Chase Bank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated July 1, 2021, filed on July 1, 2021) (File No. 1-13397).
10.30	Amendment No. 1 to Revolving Credit Agreement, dated as of November 30, 2022, by and among Ingredion Incorporated, as Borrower, the Subsidiary Borrowers from time-to-time party thereto, the Lenders from time-to-time party thereto and JP Morgan Chase Bank, N.A., as Administrative Agent.
10.31	Credit Agreement, dated as of December 16, 2022, between Ingredion Incorporated, as Borrower, and PNC Bank, National Association, as Lender (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated December 16, 2022, filed on December 16, 2022) (File No. 1-13397).
10.32*	Summary of Non-Employee Director Compensation.
21.1	Subsidiaries of the Registrant.
23.1	Consent of Independent Registered Public Accounting Firm.
24.1	Power of Attorney.
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(b) or Rule 15d-14(b) under the Securities Exchange Act of 1934 and Section 1350 of Chapter 63 of Title 18 of the United States Code, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(b) or Rule 15d-14(b) under the Securities Exchange Act of 1934 and Section 1350 of Chapter 63 of Title 18 of the United States Code, as adopted pursuant to Section 906 of the Sarbanes Oxley Act of 2002.
101.INS	XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document).
101.SCH	Inline XBRL Taxonomy Extension Schema Document.
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104	Cover Page Interactive Data File (the cover page XBRL tags are embedded within the Inline XBRL document, which is contained in Exhibit 101).

* Management contract or compensatory plan or arrangement required to be filed as an exhibit to this form pursuant to Item 15(b) of this report.

ITEM 16. Form 10-K Summary

None.

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.

INGREDION INCORPORATED

Date: February 21, 2023

By: /s/ James P. Zallie
James P. Zallie
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, in the capacities indicated and on the dates indicated.

Signature	Title	Date
/s/ James P. Zallie James P. Zallie	President, Chief Executive Officer and Director (Principal executive officer)	February 21, 2023
/s/ James D. Gray James D. Gray	Chief Financial Officer (Principal financial officer)	February 21, 2023
/s/ Davida M. Gable Davida M. Gable	Controller (Principal accounting officer)	February 21, 2023
*David B. Fischer David B. Fischer	Director	February 21, 2023
*Paul Hanrahan Paul Hanrahan	Director	February 21, 2023
*Rhonda L. Jordan Rhonda L. Jordan	Director	February 21, 2023
*Gregory B. Kenny Gregory B. Kenny	Director	February 21, 2023
*Charles Magro Charles Magro	Director	February 21, 2023
*Victoria J. Reich Victoria J. Reich	Director	February 21, 2023
*Catherine A. Suever Catherine A. Suever	Director	February 21, 2023
*Stephan B. Tanda Stephan B. Tanda	Director	February 21, 2023
* Jorge A. Uribe Jorge A. Uribe	Director	February 21, 2023
*Dwayne A. Wilson Dwayne A. Wilson	Director	February 21, 2023

*By: /s/ Tanya Jaeger de Foras
Tanya Jaeger de Foras
Attorney-in-fact
Date: February 21, 2023

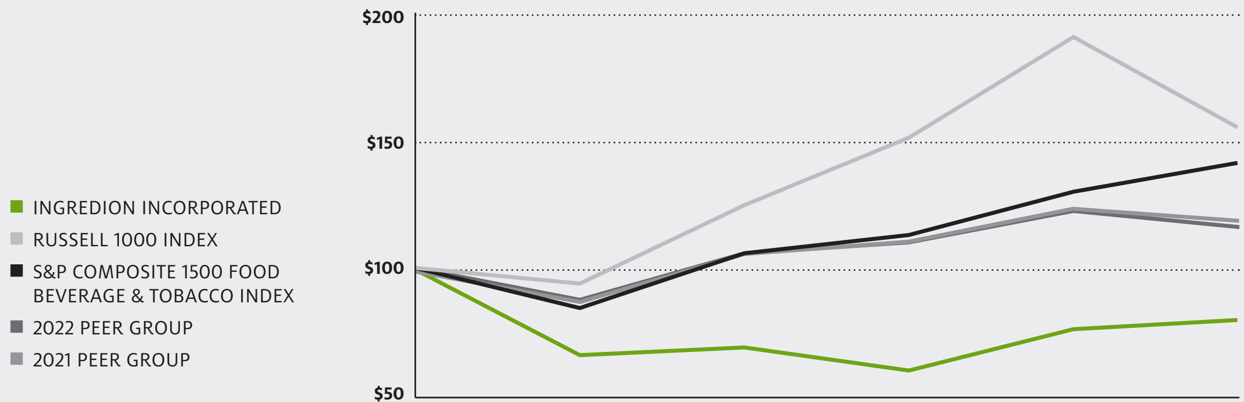
The performance graph below shows the cumulative total return to shareholders (stock price appreciation or depreciation plus reinvested dividends) during the 5-year period from December 31, 2017 to December 31, 2022, for our common stock compared to the cumulative total return during the same period for the Russell 1000 Index, the S&P Composite 1500 Food Beverage & Tobacco Index, and our peer group. The Russell 1000 Index is a comprehensive stock market index representing equity investments in the 1,000 largest U.S. companies ranked by total market capitalization. The Russell 1000 Index only includes publicly traded common stocks belonging to U.S. companies, as determined in accordance with the selection criteria published by FTSE Russell, the creator of the index.

As of December 31, 2022, our total shareholder return peer group consisted of the following 20 companies:

AAK AB (publ.)
Archer-Daniels-Midland Company
Associated British Foods plc
Celanese Corporation
Danone S.A.
Ecolab Inc.
General Mills, Inc.
Huntsman Corporation
Kellogg Company
Kerry Group plc
Koninklijke DSM N.V.
McCormick & Company, Incorporated
Mondelez International, Inc.
Novozymes A/S
Sealed Air Corporation
Sensient Technologies Corporation
Tate & Lyle plc
The Kraft Heinz Company
Tyson Foods, Inc.
Unilever PLC

W.R. Grace & Co. was removed due to its acquisition by Standard Industries in September 2021.

Comparison of Cumulative Five Year Total Return



COMPANY NAME/INDEX	BASE PERIOD DEC. 31, 2017	DEC. 31, 2018	DEC. 31, 2019	DEC. 31, 2020	DEC. 31, 2021	DEC. 31, 2022
Ingredion Incorporated	100	66.90	70.04	61.25	77.40	80.86
Russell 1000 Index	100	95.22	125.14	151.37	191.42	154.80
S&P Composite 1500 Food Beverage & Tobacco Index	100	85.48	106.59	113.14	131.06	142.03
2022 Peer Group	100	88.08	107.65	111.00	123.40	117.98
2021 Peer Group	100	88.12	107.61	110.79	123.09	117.68

Comparison of Cumulative Total Return among our Company, the Russell 1000 Index, the S&P Composite 1500 Food Beverage & Tobacco Index, and our Peer Group (For the period from December 31, 2017 to December 31, 2022. Source: Standard & Poor's)

The graph assumes that:

- as of the market close on December 31, 2017, you made one-time $100 investments in our common stock and in market capital base-weighted amounts which were apportioned among all the companies whose equity securities constitute each of the other four named indices, and
- all dividends were automatically reinvested in additional shares of the same class of equity securities constituting such investments at the frequency with which dividends were paid on such securities during the applicable time frame.

Financial Performance Metrics

Reconciliation of Diluted Earnings Per Share ("EPS") to Non-GAAP Adjusted Diluted EPS

	YEAR ENDED DECEMBER 31, 2022	YEAR ENDED DECEMBER 31, 2021	YEAR ENDED DECEMBER 31, 2020
Net Income Attributable to Ingredion	$7.34	$1.73	$5.15
Add back (deduct):			
Acquisition/integration costs, net of income tax(i)	0.08	0.10	0.13
Restructuring/impairment charges, net of income tax(ii)	0.05	0.53	1.11
Impairment on disposition of assets(iii)	—	5.01	—
Other matters, net of income tax(iv)	0.22	(0.32)	(0.24)
Fair value adjustments to equity investments, net of income tax expense(v)	—	(0.07)	—
Tax (benefit) provision–Mexico(vi)	(0.06)	0.09	0.04
Other tax matters(vii)	(0.18)	(0.40)	0.04
Non-GAAP adjusted net income	$7.45	$6.67	$6.23

(i) During 2022 and 2021, we recorded acquisition and integration charges for our acquisitions of the PureCircle, KaTech and Verdient Foods businesses, as well as our investments with the Amyris and Argentina joint ventures. The 2020 period primarily includes costs related to the acquisition and integration of business acquired from PureCircle Limited.

(ii) During 2022, we recorded $4 million of remaining pre-tax restructuring-related charges for the Cost Smart programs. During 2021, we recorded $47 million of net pre-tax restructuring-related charges primarily for our Cost Smart programs. During 2020, we recorded $93 million of pre-tax restructuring and impairment charges, which included $48 million of pre-tax restructuring charges for our Cost Smart programs and a $35 million impairment charge in the fourth quarter of 2020 for a TIC Gum intangible asset.

(iii) During 2021, we recorded a $340 million net asset impairment charge related to the contribution of our Argentina operations to the Argentina joint venture, which primarily consisted of $311 million for cumulative translation losses related to the contributed net assets.

(iv) During 2022, we recorded pre-tax charges of $20 million primarily related to the impacts of a U.S.-based work stoppage. In 2021, we recorded $15 million of pre-tax benefits for Brazil indirect tax matters. In 2020, we recorded $35 million of pre-tax benefits for Brazil indirect tax matters, partially offset by other adjusted costs totaling $13 million.

(v) During 2021, we recorded a net pre-tax fair value adjustment of $6 million to our equity investments.

(vi) We recorded a tax benefit of $4 million for 2022, and tax provisions of $6 million and $3 million for 2021 and 2020, respectively, as a result of the movement of the Mexican peso against the U.S. dollar and its impact on the remeasurement of our Mexico financial statements during the periods.

(vii) In 2022, we recognized an income tax benefit of $20 million for certain Brazilian state grants we received between 2018 and 2021, which were previously taxable. Other adjustments relate to the impacts of prior year tax liabilities and contingencies, the reversal of tax liabilities related to certain unremitted earnings from foreign subsidiaries, tax adjustments for an intercompany reorganization, and tax effects of the above non-GAAP addbacks.

Return on Invested Capital

(DOLLARS IN MILLIONS)	DECEMBER 31, 2022	DECEMBER 31, 2021	DECEMBER 31, 2020
Net income (a)	$502	$125	$354
Adjusted for:			
Provision for income taxes	166	123	152
Other, non-operating (income)	(5)	(12)	(5)
Financing costs	99	74	81
Restructuring/impairment charges(i)	4	47	93
Acquisition/integration costs(ii)	1	3	11
Impairment on disposition of assets	—	340	—
Other matters(iii)	20	(15)	(27)
Income taxes(iv)	(212)	(175)	(177)
Adjusted operating income, net of tax (b)	575	510	482
Short term debt	543	308	438
Long term debt	1,940	1,738	1,748
Less: Cash and cash equivalents	(236)	(328)	(665)
Short-term investments	(3)	(4)	—
Total net debt	2,244	1,714	1,521
Share-based payments subject to redemption	48	36	30
Total redeemable non-controlling interests	51	71	70
Total equity	3,163	3,118	2,972
Total net debt and equity	$5,506	$4,939	$4,593
Average current and prior year Total net debt and equity (c)	$5,223	$4,766	$4,473
Return on Invested Capital (a/c)	9.6%	2.6%	7.9%
Adjusted Return on Invested Capital (b/c)	11.0%	10.7%	10.8%

(i) During 2022, we recorded $4 million of remaining pre-tax restructuring-related charges for the Cost Smart programs. In 2021, we recorded $47 million of pre-tax restructuring charges primarily related to our Cost Smart programs. During 2020, we recorded $93 million of pre-tax restructuring and impairment charges, which included $48 million of pre-tax restructuring charges as part of our Cost Smart programs and a $35 million impairment charge in the fourth quarter of 2020 for a TIC Gum intangible asset.

(ii) 2022 acquisition/integration costs are reduced by $4 million to exclude acquisition/integration costs already included within financing costs above.

(iii) During 2022, we recorded pre-tax charges of $20 million primarily related to the impacts of a U.S.-based work stoppage. In 2021, we recorded $15 million of pre-tax benefits for Brazil indirect tax matters. In 2020, we recorded $35 million of pre-tax benefits for Brazil indirect tax matters, partially offset by other adjusted costs totaling $8 million.

(iv) The effective income tax rate for 2022, 2021, and 2020 was 27.0 percent, 25.6 percent and 26.9 percent, respectively. For purposes of this calculation we exclude the provision for income taxes from the calculation and subsequently add back income taxes for adjusted operating income using the adjusted effective income tax rate. The adjusted effective income tax rate is calculated by removing the tax impact for the identified adjusted items below.

	YEAR ENDED DECEMBER 31, 2022			YEAR ENDED DECEMBER 31, 2021			YEAR ENDED DECEMBER 31, 2020		
(DOLLARS IN MILLIONS)	INCOME BEFORE INCOME TAXES	PROVISION FOR INCOME TAXES	EFFECTIVE INCOME TAX RATE	INCOME BEFORE INCOME TAXES	PROVISION FOR INCOME TAXES	EFFECTIVE INCOME TAX RATE	INCOME BEFORE INCOME TAXES	PROVISION FOR INCOME TAXES	EFFECTIVE INCOME TAX RATE
As reported	$668	$166	24.9%	$248	$123	49.6%	$506	$152	30.0%
Add back (deduct):									
Acquisition/integration costs	5	—		3	(3)		11	2	
Restructuring/impairment charges	4	1		47	11		93	18	
Impairment on disposition of assets	—	—		340	—		—	—	
Fair value adjustments to equity investments	—	—		(6)	(1)		—	—	
Other matters	20	5		(15)	7		(22)	(8)	
Tax item–Mexico	—	4		—	(6)		—	(3)	
Other tax matters	—	12		—	27		—	(3)	
Adjusted non-GAAP	$697	$188	27.0%	$617	$158	25.6%	$588	$158	26.9%

Net Debt to Adjusted EBITDA ratio

(DOLLARS IN MILLIONS)	2022	2021	2020
Short-term debt	$543	$308	$438
Long-term debt	1,940	1,738	1,748
Less: Cash and cash equivalents	(236)	(328)	(665)
Short-term investments	(3)	(4)	—
Total net debt (a)	$2,244	$1,714	$1,521
Income before income taxes (b)	668	248	506
Adjusted for:			
Depreciation and amortization	215	220	213
Financing costs, net	99	74	81
Other non-operating (income)	(5)	(12)	(5)
Restructuring/impairment(i)	4	38	85
Acquisition/integration costs(ii)	1	3	11
Impairment on disposition of assets	—	340	—
Other matters(iii)	20	(15)	(22)
Adjusted EBITDA (c)	$1,002	$896	$869
Net debt to Income before income tax ratio (a/b)	3.4	6.9	3.0
Net debt to adjusted EBITDA ratio (a/c)	2.2	1.9	1.8

(i) 2021 Restructuring/impairment charges are reduced by $9 million to exclude the accelerated depreciation primarily related to the exit of coal burning from the Argo facility. 2020 Restructuring/impairment charges are reduced by $8 million to exclude the accelerated depreciation primarily related to the Berwick facility closure, as well as the cessation of ethanol production at the Cedar Rapids facility. The accelerated depreciation is included in Depreciation and amortization above, and to include in restructuring/impairment charge would include the charge twice.

(ii) 2022 acquisition/integration costs are reduced by $4 million to exclude acquisition/integration costs already included in the financing costs above.

(iii) During 2022, we recorded pre-tax charges of $20 million primarily related to the impacts of a U.S.-based work stoppage. In 2021, we recorded $15 million of pre-tax benefits for Brazil indirect tax matters. In 2020, we recorded $35 million of pre-tax benefits for Brazil indirect tax matters, partially offset by other adjusted costs totaling $13 million.

Reconciliation of GAAP Operating Income to Non-GAAP Adjusted Operating Income (Unaudited)

	YEAR ENDED DECEMBER 31,		
(in millions, pre-tax)	2022	2021	2020
Operating income	$762	$ 310	$582
Add back:			
Acquisition/integration costs[(i)]	1	3	11
Restructuring/impairment charges[(ii)]	4	47	93
Impairment on disposition of assets[(iii)]	—	340	—
Other matters[(iv)]	20	(15)	(27)
Non-GAAP adjusted operating income	$787	$685	$659

(i) During 2022 and 2021, we recorded acquisition and integration charges for our acquisitions of the PureCircle, KaTech and Verdient Foods businesses, as well as our investments with the Amyris and Argentina joint ventures. The 2020 period primarily includes costs related to the acquisition and integration of business acquired from PureCircle Limited.

(ii) During 2022, we recorded $4 million of remaining pre-tax restructuring-related charges for the Cost Smart programs. During 2021, we recorded $47 million of net pre-tax restructuring-related charges primarily for our Cost Smart programs. During 2020, we recorded $93 million of pre-tax restructuring and impairment charges, which included $48 million of pre-tax restructuring charges for our Cost Smart programs and a $35 million impairment charge for a TIC Gum intangible asset.

(iii) During 2021, we recorded a $340 million net asset impairment charge related to the contribution of our Argentina operations to the Argentina joint venture.

(iv) During 2022, we recorded pre-tax charges of $20 million primarily related to the impacts of a U.S.-based work stoppage. In 2021, we recorded $15 million of pre-tax benefits for Brazil indirect tax matters. In 2020, we recorded $35 million of pre-tax benefits for Brazil indirect tax matters, partially offset by other non-recurring charges totaling $8 million.

Board of Directors

as of April 5, 2023

David B. Fischer[2]
Former President and Chief Executive Officer
Greif, Inc.
Age 60; Director since 2013

Paul Hanrahan[1]
Former Chief Executive Officer and Director
Hygo Energy Transitions Ltd.
Age 65; Director since 2006

Rhonda L. Jordan[2]
Former President, Global Health & Wellness,
and Sustainability
Kraft Foods Inc.
Age 65; Director since 2013

Gregory B. Kenny[*3]
Former President and Chief Executive Officer
General Cable Corporation
Age 70; Director since 2005

Charles V. Magro[2]
Chief Executive Officer of Corteva Agriscience
Age 53; Director since 2022

Victoria J. Reich[1]
Former Senior Vice President and Chief Financial Officer
Essendant Inc.
Age 65; Director since 2013

Catherine Suever[1]
Former Executive Vice President
Finance and Administration and Chief Financial Officer
Parker-Hannifin Corporation
Age 64; Director since 2021

Stephan B. Tanda[3]
President and Chief Executive Officer
AptarGroup, Inc.
Age 57; Director since 2019

Jorge A. Uribe[3]
Former Global Productivity and Organization
Transformation Officer
The Procter & Gamble Company
Age 66; Director since 2015

Dwayne A. Wilson[1]
Former Senior Vice President
Fluor Corporation
Age 64; Director since 2010

James P. Zallie
President and Chief Executive Officer
Ingredion Incorporated
Age 61; Director since 2017

*Chairman of the Board
Committees of the Board
[1] Audit Committee, Ms. Reich is Chairman.
[2] People, Culture and Compensation Committee, Ms. Jordan is Chairman.
[3] Corporate Governance and Nominating Committee, Mr. Kenny is Chairman.

Corporate Officers

as of April 5, 2023

James P. Zallie
President and Chief Executive Officer
Age 61; joined Company in 2010

Lori Arnold
Vice President, Tax
Age 57; joined Company in 2011

Valdirene Evans
Senior Vice President and President, APAC
and Global Head of Pharma, Home and Beauty
Age 55; joined Company in 2018

Larry Fernandes
Senior Vice President and
Chief Commercial and Sustainability Officer
Age 58; joined Company in 1990

James D. Gray
Executive Vice President and Chief Financial Officer
Age 56; joined Company in 2014

Tanya Jaeger de Foras
Senior Vice President, Chief Legal Officer,
Corporate Secretary and Chief Compliance Officer
Age 52; joined Company in 2021

Jorgen Kokke
Executive Vice President and President, Americas
Age 54; joined Company in 2010

Pierre Perez y Landazuri
Senior Vice President, Corporate Strategy,
Specialties and President, EMEA
Age 54; joined Company in 2016

Eric Seip
Senior Vice President, Global Operations
and Chief Supply Chain Officer
Age 55; joined Company in 2021

C. Kevin Wilson
Vice President and Corporate Treasurer
Age 61; joined Company in 2014

Nancy Wolfe
Senior Vice President and Chief Human Resources Officer
Age 54; joined Company in 2022

Jeremy Xu
Senior Vice President and Chief Innovation Officer
Age 55; joined Company in 2020

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Corporate Headquarters

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Westchester, IL 60154
708.551.2600
708.551.2700 fax
www.ingredion.com

Stock Exchange

The common shares of Ingredion Incorporated trade on the New York Stock Exchange under the ticker symbol INGR. Our Company is a member of the Russell 1000 Index and the S&P MidCap 400 Index.

Transfer Agent, Dividend Disbursing Agent And Registrar

Computershare 866.517.4574 or 201.680.6685 (outside the U.S. and Canada) or 888.269.5221 (hearing impaired – TTY phone)

Shareholder Assistance

Ingredion Incorporated c/o Computershare
P.O. Box 30170
College Station, TX 77842-3170

Send overnight correspondence to:
Ingredion Incorporated c/o Computershare
211 Quality Circle, Suite 210
College Station, TX 77845

Shareholder website:
www.computershare.com/investor

Shareholder online inquiries:
https://www-us.computershare.com/investor/contact

Investor And Shareholder Contact

Investor Relations Department 708.551.2592
investor.relations@ingredion.com

Company Information

Copies of the Annual Report, the Annual Report on Form 10-K and quarterly reports on Form 10-Q may be obtained, without charge, by writing to Investor Relations at the corporate headquarters address, by calling 708.551.2603, by emailing investor.relations@ingredion.com or by visiting our website at ir.ingredionincorporated.com.

Annual Meeting Of Shareholders

The 2023 Annual Meeting of Shareholders will be held on Friday, May 19, 2023, at 9:00 a.m. Central Daylight Time. The Annual Meeting will be held in person at the Conference Center (L004), which is located on the ground floor between Towers 2 and 5 of the Westbrook Corporate Center, Westchester, Illinois 60154. A formal notice of that meeting, proxy statement and proxy voting card are being made available to shareholders in accordance with U.S. Securities and Exchange Commission ("SEC") regulations.

Independent Auditors

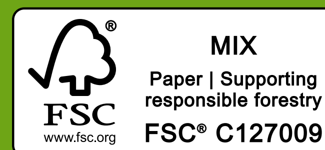
KPMG LLP
200 East Randolph Street
Chicago, IL 60601
312.665.1000

Board Communication

Interested parties may communicate directly with any member of our Board of Directors, including the Chairman of the Board, or the independent directors, as a group, by writing in care of Corporate Secretary, Ingredion Incorporated, 5 Westbrook Corporate Center, Westchester, IL 60154.

Safe Harbor

Certain statements in this Annual Report that are neither reported financial results nor other historical information are forward-looking statements. Such forward-looking statements are not guarantees of future performance and are subject to risks and uncertainties that could cause actual results and Company plans and objectives to differ materially from those expressed in the forward-looking statements. A description of some of these risks and uncertainties is contained in our reports on Forms 10-K, 10-Q and 8-K filed with the SEC.



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2022 ANNUAL REPORT

A Resilient Business with Proven Agility for Growth

Ingredion Incorporated
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Westchester, Il 60154
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