

## Welcome to your CDP Climate Change Questionnaire 2020

### C0. Introduction

#### C0.1

##### (C0.1) Give a general description and introduction to your organization.

Ingredion Incorporated is a Fortune 500 global ingredient solutions company with 2019 net sales of \$6.2 billion. We turn corn, tapioca, potatoes, grains, fruits, and vegetables into value-added ingredients and biomaterials for the food, beverage, brewing and other industries. Headquartered in Westchester, IL, in the western suburb of Chicago, Ingredion employs approximately 11,000 people world-wide and operates global manufacturing, R&D and sales offices in four business segments: North America, South America, Asia Pacific and Europe, Middle East, and Africa ("EMEA"). Our people are our strength. In 2019, Ingredion was recognized as one of the World's Most Admired Companies by Fortune magazine for the 11th consecutive year. We are proud to be included in Bloomberg's Gender-Equality Index for the third consecutive year and, Ingredion was named one of the World's Most Ethical Companies by Ethisphere for the seventh consecutive year. Our product lines include starches and sweeteners, animal feed products and edible corn oil. Our products are derived primarily from the processing of corn and other starch-based materials, such as tapioca, potato and rice. We are in the process of expanding our plant-based protein product lines, including pulse-based concentrates, flours and isolates. Our manufacturing process is capital-intensive, two-step process involving the wet-milling and processing of starch-based materials. During the front-end process, corn is steeped in a water-based solution and separated into starch and co-products such as animal feed and corn oil. The starch is then either dried for sale or further processed to make sweeteners, starches and other ingredients that serve the needs of various industries. We believe our approach to production and service, focusing 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, bringing added value to our customers through innovative solutions. At the same time, we believe that our corporate functions allow us to identify synergies and maximize the benefits of our global presence. We have a global network of more than 400 scientists working on research and development in 30 Ingredion Idea Labs® innovation centers. Activities include plant science and physical, chemical and biochemical modification 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 to create solutions to better serve the ingredient needs of our customers. In 2019, we accelerated our focus on ESG issues to communicate how we are driving long-term value and our ability to support customers success both profitably and responsibly.

We celebrated Earth Day 2020 with the publication of our 2019 Sustainability Report, that showcased how we integrated sustainability within our business and our operations to “make ALL LIFE better”. As stated by Larry Fernandes, Senior Vice President, Chief Commercial and Sustainability Officer: “Some highlights you will see in our new All Life program are better alignment with the UN Sustainable Development Goals (SDGs), science-and context-based environmental targets, a commitment to increased transparency across our supply chain and increased commitments that build upon our great foundation in sustainable agriculture. Our All Life plan has been designed to better align us with the increasing expectations of our customers and consumers, and to ensure that Ingredion continues to do our part to deliver on a more sustainable world through 2030 and beyond. As you read through the new goals and milestones that shape our 2030 All Life strategy, I want to signal to you that we have not fully defined how we will get to these targets. We are firmly committed to reaching for higher aspirations and will continue to refine our roadmap as we go forward. We do know that, as with achieving the SDGs, our success will rely heavily on collaboration. We will be looking for our customers, suppliers and other organizations with sustainability expertise to engage with us on this journey. I am extremely excited about the possibilities these collaborations will bring.” We continue to work with our agricultural and non-agricultural suppliers to improve sustainability across our supply chain and deliver on the expectations of our stakeholders. Ingredion is committed to operating with integrity and maintaining high ethical standards everywhere we do business. We recognize the rights of all people to fair and decent work, clean water, and to be treated with dignity and respect. As a signatory to the Global Compact, we are committed to aligning our global operations with universally recognized principles on human rights, labor, anti- corruption, and the environment.

## C0.2

**(C0.2) State the start and end date of the year for which you are reporting data.**

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Reporting year	January 1, 2019	December 31, 2019	No

## C0.3

**(C0.3) Select the countries/areas for which you will be supplying data.**

- Argentina
- Australia
- Brazil
- Canada
- China

Colombia  
Germany  
Mexico  
Pakistan  
Peru  
Republic of Korea  
Thailand  
United Kingdom of Great Britain and Northern Ireland  
United States of America

## C0.4

**(C0.4) Select the currency used for all financial information disclosed throughout your response.**

USD

## C0.5

**(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.**

Operational control

## C-AC0.6/C-FB0.6/C-PF0.6

**(C-AC0.6/C-FB0.6/C-PF0.6) Are emissions from agricultural/forestry, processing/manufacturing, distribution activities or emissions from the consumption of your products – whether in your direct operations or in other parts of your value chain – relevant to your current CDP climate change disclosure?**

	Relevance
Agriculture/Forestry	Elsewhere in the value chain only [Agriculture/Forestry/processing/manufacturing/Distribution only]
Processing/Manufacturing	Direct operations only [Processing/manufacturing/Distribution only]

Distribution	Both direct operations and elsewhere in the value chain [Processing/manufacturing/Distribution only]
Consumption	No

## C-AC0.6b/C-FB0.6b/C-PF0.6b

**(C-AC0.6b/C-FB0.6b/C-PF0.6b) Why are emissions from agricultural/forestry activities undertaken on your own land not relevant to your current CDP climate change disclosure?**

### Row 1

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**Primary reason**

Evaluated but judged to be unimportant

**Please explain**

We have a leased < 25-acre farm used primarily for research and development. Emissions from this small site are insignificant when compared with our manufacturing sites

## C-AC0.6g/C-FB0.6g/C-PF0.6g

**(C-AC0.6g/C-FB0.6g/C-PF0.6g) Why are emissions from the consumption of your products not relevant to your current CDP climate change disclosure?**

### Row 1

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**Primary reason**

Evaluated but judged to be unimportant

**Please explain**

Our products are derived from biologically sequestered renewable agricultural materials. Our product line includes starches and sweeteners, animal feed, products and edible corn oil. Our starch-based products include both food-grade and industrial starches, and biomaterials. Our sweetener products include glucose syrups, high maltose syrups, high fructose corn syrup, caramel color, dextrose, polyols, maltodextrins, and

glucose and syrup solids. We supply a broad range of customers in many diverse industries around the world, including the food, beverage, paper and corrugating, brewing, pharmaceutical, textile, and personal care industries, as well as the global animal feed and corn oil markets. As a business to business supplier, our ingredients are used as a raw material or input into other products which then reach the end customer for consumption.

## C-AC0.7/C-FB0.7/C-PF0.7

**(C-AC0.7/C-FB0.7/C-PF0.7) Which agricultural commodity(ies) that your organization produces and/or sources are the most significant to your business by revenue? Select up to five.**

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**Agricultural commodity**

Other, please specify

Corn

**% of revenue dependent on this agricultural commodity**

More than 80%

**Produced or sourced**

Sourced

**Please explain**

Corn, primarily yellow dent, is the primary basic raw material we use to produce starches and sweeteners. We contract directly with growers for some of our specialty grains such as waxy and high amylose corn. In other cases, we purchase corn as a commodity through brokers and do not have direct contact with growers.

Corn comprises approximately 96% of our crop usage globally, while cassava makes up an additional 3%. The remaining 1% is comprised of multiple crops such as potato, rice, blueberries, etc.

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**Agricultural commodity**

Other, please specify

Cassava

**% of revenue dependent on this agricultural commodity**

Less than 10%

**Produced or sourced**

Sourced

**Please explain**

Cassava root (i.e., tapioca) is sourced from growers and used to produce tapioca starches at our manufacturing locations in the Asia-Pacific region, Brazil and Colombia.

Cassava comprises approximately 3% of our crop usage globally, while corn is the majority at 96%. The remaining 1% is comprised of multiple crops such as potato, rice, blueberries, etc.

## C1. Governance

### C1.1

**(C1.1) Is there board-level oversight of climate-related issues within your organization?**

Yes

### C1.1a

**(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.**

Position of individual(s)	Please explain
Board-level committee	<p>The Board of Directors Governance and Nominating Committee has direct oversight for environmental and sustainability related matters, including climate-related issues. Ingredion's Executive Leadership Team (C-Suite Officers), including the Chief Sustainability Officer, attends Board Meetings and reports progress on initiatives.</p> <p>The SVP, Chief Commercial and Sustainability Officer is the Executive Leadership Team member responsible for Ingredion's sustainability program. The Chief Sustainability Officer reviews sustainability, including climate related issues, at the Board Level. Environmental and sustainability matters are discussed with the Board of Directors at least semi-annually. In addition, climate issues, as applicable, are addressed at meetings of the Ingredion Sustainability Council and Operations Leadership Team.</p>

## C1.1b

### (C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Monitoring implementation and performance of objectives	<p>The Board meets quarterly with scheduled topics covered each meeting. Environmental and sustainability matters, which include climate-related issues, are on the agenda at least semi-annually. The Board of Directors Governance and Nominating Committee reviews and guides the sustainability strategy and risk management plans. The committee reviews the sustainability goals and metrics and status of actions to achieve objectives. Additionally, potential climate change risks may be discussed during meetings on business continuity planning; engineering and capital projects; acquisitions and divestures; and, compliance and risk management. Subject matter experts reporting either to the Chief Sustainability Officer or Chief Supply Chain Officer, brief the Board on these topics. This approach provides the board insight into potential climate change related issues through multiple touch points.</p>

## C1.2

**(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.**

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Sustainability Officer (CSO)	Both assessing and managing climate-related risks and opportunities	Half-yearly

### C1.2a

**(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).**

The Board of Directors Governance and Nominating Committee has direct oversight for environmental and sustainability related matters. The SVP, Chief Commercial and Sustainability Officer (CSO), a member of the executive leadership team reporting to the CEO, is responsible for reviewing sustainability at the Board Level. Environmental and sustainability matters, which include our goals and programs to reduce GHG emissions, are discussed with the Board of Directors at least semi-annually. In addition, climate-related issues, as applicable, are addressed at meetings of the Ingredion Sustainability Council and Operations Leadership Team. Ingredion's Sustainability Council is made up of senior leaders within the organization and is tasked with establishing the sustainability strategy, metrics, and action plans for the company's global operations. The Council is responsible for making certain the sustainability strategy helps mitigate potential long-term risks for the organization, while aligning us with the needs and expectations of external stakeholders. Chaired by the Senior Director of Sustainability, the Council includes members of the executive team, as well as function leads from Innovation, EHS, Supply Chain, Human Resources, Government Affairs, Legal, Investor Relations, and our regional businesses. The Operating Excellence Leadership Team (OLT), chaired by the Sr. VP, Operating Excellence, Information Technology and Chief Supply Chain Officer, continually assesses exposure to operational and reputational hazards (including climate-related issues such as regulation and physical climate changes) through internal management systems, such our ISO 14001/45001/OSHAS 18001-based Environmental, Health and Safety Management System, Crisis Management and Business Continuity Systems, management reviews and quarterly operations reviews. The OLT generally meets monthly and, to ensure cross-functional engagement, includes senior representatives from: Corporate EHS; Continuous Improvement; Sustainability; Regional Operations Management; Global Supply Chain; Global Research and Technology; Corporate Engineering; Finance; and Global Procurement. The Sr. VP, Operating Excellence, Information Technology and Chief Supply Chain Officer in conjunction with the CSO, brings issues or concerns, including those related to climate change, to the Executive Team (i.e., C-Suite) and the Board of Directors, as applicable.

## C1.3

**(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

Provide incentives for the management of climate-related issues		Comment
Row 1	Yes	We provide a number of incentives for attaining targets, including those related to climate issues. These include bonuses and various recognition opportunities

### C1.3a

**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).**

Entitled to incentive	Type of incentive	Activity incentivized	Comment
All employees	Monetary reward	Efficiency target	Ingredion grants monetary awards (bonuses) to eligible employees based on company and employee performance. Performance is evaluated in accordance with company strategy, goals and expectations including its publicly stated sustainability targets.
All employees	Monetary reward	Efficiency target	Ingredion has a CEO Award in the area of Sustainability Excellence that encompasses climate change aspects including efficiency projects, emissions and energy reduction projects and supply chain engagement. This award carries great prestige within the company in addition to monetary awards
All employees	Monetary reward	Energy reduction target	Ingredion has a CEO Award in the area of Sustainability Excellence that encompasses climate change aspects including efficiency projects, emissions and energy reduction projects and supply chain engagement. This award carries great prestige within the company in addition to monetary awards.
All employees	Monetary reward	Supply chain engagement	Ingredion has a CEO Award in the area of Sustainability Excellence that encompasses climate change aspects including efficiency projects, emissions and energy reduction projects and supply chain engagement. This award carries great prestige within the company in addition to monetary awards.

All employees	Non-monetary reward	Emissions reduction target	Ingredion has a CEO Award in the area of Sustainability Excellence that encompasses climate change aspects including efficiency projects, emissions and energy reduction projects and supply chain engagement. This award carries great prestige within the company in addition to monetary awards.
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## C2. Risks and opportunities

### C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?  
Yes

#### C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	5	Our Business Continuity Plan (BCP) risk assessment process considers climate related risks from weather events, floods, and disruption of raw material supply and transportation. This approach and the time horizons are integrated through the BCP with other business risks.
Medium-term	5	25	Our Business Continuity Plan (BCP) risk assessment process considers climate related risks from weather events, floods, and disruption of raw material supply and transportation. This approach and the time horizons are integrated through the BCP with other business risks.
Long-term	25	99	Our Business Continuity Plan (BCP) risk assessment process considers climate related risks from weather events, floods, and disruption of raw material supply and transportation. This approach and the time horizons are integrated through the BCP with other business risks.

## C2.1b

### (C2.1b) How does your organization define substantive financial or strategic impact on your business?

Any facility that meets all the following criteria is considered to represent substantive risk related to climate change:

1. Site with climate-related activities identified in the Business Continuity Plan (BCP) risk assessment as having a "high" risk prioritization number (i.e., likelihood x severity x existing controls); and,
2. Site accounts for >5% of our global production by volume; and
3. Site is considered strategic to the growth strategy of the organization.

At the company level, we seek to be aware of and mitigate potential risks in the different facets of our business, including those related to the environment, climate change and energy. Our annual Business Continuity Plan (BCP) risk assessment process considers short-term risk (0-5 years) medium-term risk (5-25 years) and long-term risk (25–99 years) associated with climate and other potential business impacts. The BCP includes calculation of a risk prioritization number for various activities based on the likelihood and severity of the impact as well as controls currently in-place to mitigate risk. Climate change risks assessed through the BCP include disruptions due to weather events, raw material supply and transportation (i.e., supply chain and commodity impacts), and inability to meet customer demand.

To supplement the BCP process, we also assess climate-related risks using a comprehensive, multi-faceted approach incorporating site-specific surveys and climate modeling. We conduct water risk assessments annually on a manufacturing facility level using an Ensemble Model comprised of multiple tools (i.e., the Pfister Water Stress Index, Aqueduct Baseline Water Stress, GWT Annual Relative Water Stress Index and GWT Annual Renewable Water Supply per Person Index) to assess varied aspects of water risk, including changes in water stress to 2030. We use the WWF Water Risk Filter to map the key supplier/grower locations to understand water stress in these geographic areas. We assess agricultural supplier water usage through the SAI Platform's Farm Sustainability Assessment to understand where we have water-related risks with growers. We also completed climate modeling focused on the temperature and precipitation projections based on 21 IPCC CMIP5 climate model projections for the years 2020-2059. This combined approach allows us to assess risk both on a macro level as well as "on the ground" observations at the site level.

Corrective actions / risk mitigation plans are required for all "high" level RPNS calculated in the BCP, including for climate-related risks. With our agricultural suppliers, we continue to work with SAI and Field-to-Market to identify areas of vulnerability and drive improvements in farming practices that reduce environmental impacts. For risk reduction opportunities with a substantive impact, projects are evaluated with respect to business

performance, customer initiatives, EHS performance, sustainability (including achieving company goals), and employee development/engagement. Prioritized projects are selected for funding and implementation.

In addition, we monitor proceedings which have the potential to result in the adoption or amendment of regulations, policies, and directives. Changes to government regulations, policies and directives are monitored through subscription services (e.g., Enhesa), trade associations (e.g., Corn Refiners Associations, Starch Europe, etc.) and consultant newsletters/alerts. The Sustainability Council meets at least quarterly to review the sustainability strategy, metrics, and action plans for the company's global operations. Through its monthly meetings, the Operating Excellence Leadership Team (OLT) assesses exposure to operational hazards, including those related to climate change, through internal management systems, including the BCP, and additional processes that are aligned with global standards. The OLT, led by the Sr. VP, Operating Excellence, Information Technology and Chief Supply Chain Officer (a member of the company Executive Leadership Team) and includes senior representatives from Corporate EHS; Continuous Improvement; Sustainability; Regional Operations Management; Global Supply Chain; Global Research and Technology; Corporate Engineering; IT; and Global Procurement.

An example of a substantive impact would be a facility needing to curtail production due to lack of water or agricultural raw material availability due to climate change. In our environmental management system, we define disruption to operations of greater than seven days as high severity. The current probability of this occurring is ranked as unlikely (i.e., has not occurred or may be anticipated to occur less than once/year). This would also result in an impact to our customers if we were to be unable to supply product to them. An example of a substantive opportunity is to work collectively within our supply chain, from farms to customers, to reduce the environmental impact of our agricultural raw materials.

## C2.2

**(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.**

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**Value chain stage(s) covered**

Direct operations

**Risk management process**

Integrated into multi-disciplinary company-wide risk management process

**Frequency of assessment**

Annually

**Time horizon(s) covered**

- Short-term
- Medium-term
- Long-term

**Description of process**

We seek to be aware of and mitigate potential risks (including those related to the environment, climate change and energy) in our direct manufacturing operations, in upstream activities related to raw material supply and government regulations, and in our downstream supply chain potentially impacting our customers.

We utilize a Business Continuity Plan (BCP) risk assessment process with a consistent risk prioritization ranking based on likelihood, severity and existing controls. The BCP considers short-term risk (0-5 years) medium-term risk (5-25 years) and long-term risk (25–99 years). Climate change risks assessed through the BCP include disruptions due to weather events, raw material supply and transportation (i.e., supply chain and commodity impacts), and inability to meet customer demand. In addition, the BCP is supplemented with knowledge attained from various models, including water availability risk assessments at our manufacturing facilities, the WWF Water Risk Filter to understand water stress in our key supplier/grower locations, agricultural supplier water usage through the SAI Platform's Farm Sustainability Assessment, and climate modeling based on 21 IPCC CMIP5 climate model projections for the years 2020-2059. This combined approach allows us to assess risk both on a macro level as well as "on the ground" observations at the site level.

Corrective actions / risk mitigation plans are required for all "high" level RPNS calculated in the BCP, including for climate-related risks. With our agricultural suppliers, we continue to work with SAI and Field-to-Market to identify areas of vulnerability and drive improvements in farming practices that reduce environmental impacts. For risk reduction opportunities with a substantive impact, projects are evaluated with respect to business performance, customer initiatives, EHS performance, sustainability (including achieving company goals), and employee development/engagement. Prioritized projects are selected for funding and implementation.

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**Value chain stage(s) covered**

- Upstream

### Risk management process

Integrated into multi-disciplinary company-wide risk management process

### Frequency of assessment

Annually

### Time horizon(s) covered

Short-term  
Medium-term  
Long-term

### Description of process

We seek to be aware of and mitigate potential risks (including those related to the environment, climate change and energy) in our direct manufacturing operations, in upstream activities related to raw material supply and government regulations, and in our downstream supply chain potentially impacting our customers.

We utilize a Business Continuity Plan (BCP) risk assessment process with a consistent risk prioritization ranking based on likelihood, severity and existing controls. The BCP considers short-term risk (0-5 years) medium-term risk (5-25 years) and long-term risk (25–99 years). Climate change risks assessed through the BCP include disruptions due to weather events, raw material supply and transportation (i.e., supply chain and commodity impacts), and inability to meet customer demand. In addition, the BCP is supplemented with knowledge attained from various models, including water availability risk assessments at our manufacturing facilities, the WWF Water Risk Filter to understand water stress in our key supplier/grower locations, agricultural supplier water usage through the SAI Platform's Farm Sustainability Assessment, and climate modeling based on 21 IPCC CMIP5 climate model projections for the years 2020-2059. This combined approach allows us to assess risk both on a macro level as well as "on the ground" observations at the site level.

Corrective actions / risk mitigation plans are required for all "high" level RPNS calculated in the BCP, including for climate-related risks. With our agricultural suppliers, we continue to work with SAI and Field-to-Market to identify areas of vulnerability and drive improvements in farming practices that reduce environmental impacts. For risk reduction opportunities with a substantive impact, projects are evaluated with respect to business performance, customer initiatives, EHS performance, sustainability (including achieving company goals), and employee development/engagement. Prioritized projects are selected for funding and implementation.

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**Value chain stage(s) covered**

Downstream

**Risk management process**

Integrated into multi-disciplinary company-wide risk management process

**Frequency of assessment**

**Time horizon(s) covered**

Short-term

Medium-term

Long-term

**Description of process**

We seek to be aware of and mitigate potential risks (including those related to the environment, climate change and energy) in our direct manufacturing operations, in upstream activities related to raw material supply and government regulations, and in our downstream supply chain potentially impacting our customers.

We utilize a Business Continuity Plan (BCP) risk assessment process with a consistent risk prioritization ranking based on likelihood, severity and existing controls. The BCP considers short-term risk (0-5 years) medium-term risk (5-25 years) and long-term risk (25–99 years). Climate change risks assessed through the BCP include disruptions due to weather events, raw material supply and transportation (i.e., supply chain and commodity impacts), and inability to meet customer demand. In addition, the BCP is supplemented with knowledge attained from various models, including water availability risk assessments at our manufacturing facilities, the WWF Water Risk Filter to understand water stress in our key supplier/grower locations, agricultural supplier water usage through the SAI Platform's Farm Sustainability Assessment, and climate modeling based on 21 IPCC CMIP5 climate model projections for the years 2020-2059. This combined approach allows us to assess risk both on a macro level as well as "on the ground" observations at the site level.

Corrective actions / risk mitigation plans are required for all "high" level RPNs calculated in the BCP, including for climate-related risks. With our

agricultural suppliers, we continue to work with SAI and Field-to-Market to identify areas of vulnerability and drive improvements in farming practices that reduce environmental impacts. For risk reduction opportunities with a substantive impact, projects are evaluated with respect to business performance, customer initiatives, EHS performance, sustainability (including achieving company goals), and employee development/engagement. Prioritized projects are selected for funding and implementation.

## C2.2a

### (C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	<b>Relevance &amp; inclusion</b>	<b>Please explain</b>
Current regulation	Relevant, always included	Ingredion has procedures for identifying and managing climate change risk and opportunities in our business and operations, both at a corporate and local level. At the company level, we seek to be aware of and mitigate potential risks in the different facets of our business, including those related to environmental, energy, and climate regulations. Through regulatory subscription services (e.g., Enhesa), trade associations and other means, we monitor proceedings which have the potential to result in the adoption or amendment of regulations, policies, and directives. We monitor compliance with existing regulations through our risk-based management systems and in management reviews. Carbon trading programs, carbon tax laws and emissions reduction regulations are all examples of regulatory risks with the potential to impact the business and strategic plans.
Emerging regulation	Relevant, always included	Tracking emerging climate-related regulations is an important aspect of the company's strategy. Changes and proposed changes to government regulations, policies and directives are monitored through subscription services (e.g., Enhesa), trade associations (e.g., Corn Refiners Associations, Starch Europe) and consultant newsletters/alerts (e.g., ClearBlue markets). We then evaluate the risk to the organization due to emerging regulations and implement mitigation plans, as applicable. This helps us build strategies to reduce risk and capitalize on opportunities from emerging regulations such as carbon trading programs, carbon tax laws and emissions reduction regulations.
Technology	Relevant, always included	Depending on the type and scope of risks, our research and technology group is consulted to assist with new technologies to reduce the impacts of climate-related issues. Examples include new dryer technologies that improve efficiency and reduce energy use; electric co-generation units; integrated technologies to recover heat from boilers and other processes; and, new/reformulated products. In addition, our Continuous Improvement Teams also research opportunities to deploy new

		and existing technology to reduce energy, emissions and cost. In addition, the CI teams conduct routine audits of facilities to identify opportunities for improvement and share best energy/efficiency practices from other sites. Key opportunities include verifying that dryer and evaporation systems are at optimum efficiency for current production rates as well as reviewing processes for heat re-use opportunities. The CI teams assess risks and opportunities in energy supply and continuity, cost impacts related to energy supply and emissions reduction opportunities.
Legal	Relevant, always included	Legal risks are always considered in our assessments of risk. From compliance with regulations and customer agreements to facilitating climate risk conversations with Investors, our legal team is involved. Legal is represented on the Sustainability Council and the Operating Excellence Leadership Team (OLT). Legal also chairs the Risk Management Committee for Operations ("RMCO"). The RMCO implements the Company's global compliance program related to social accountability programs; environmental regulatory compliance; and safety, health, and security among others. The RMCO develops and communicates standards and internal risk controls and periodically assesses, on a prioritized basis, the Company's systems and processes. Significant climate related risks, as determined through the Business Continuity risk assessment process, and mitigation programs are addressed, as applicable, in the RMCO, sustainability council, and the OLT meetings. An example of a legal risk that is considered in our assessment is inability to meet customer contract terms due to climate related manufacturing disruptions.
Market	Relevant, always included	Disruption in agricultural supply would impact our ability to produce product and meet customer demand. Shifts in markets, agricultural supply and customer demand for our products are relevant and always considered in Business Continuity Plan risk assessments.
Reputation	Relevant, always included	Protecting our reputation and being a good corporate citizen is always relevant. This is why we have aligned our sustainability efforts with the United Nations Sustainable Development Goals, became a signatory to the Global Compact, and increased transparency about our progress toward our goals through tools such as SEDEX. In addition, we have been recognized by Ethisphere as one of the World's Most Ethical Companies for the sixth consecutive year. Impacts to our reputation, customers and communities in which we operate are assessed in our Business Continuity and EHS risk assessment tools.
Acute physical	Relevant, always included	Acute risks due to flooding and extreme temperatures are always relevant as they pose the potential for curtailing operations, raw material availability, and disruption to transportation routes which affect our ability to obtain raw materials or ship product to customers. We have business continuity risk assessments in place to identify the potential severity of

		impacts, the probability of occurrence and the controls we have in place to mitigate impacts to costs and customers from these types of events.
Chronic physical	Relevant, always included	Changing weather patterns affecting growing seasons and geographies have the potential to impact our raw material agricultural supply and, therefore, are always relevant. Disruption in agricultural supply would impact our ability to produce product and meet customer demand. These risks are assessed in the Business Continuity Plan and are mitigated by our global supply chain and ability to obtain raw materials from a variety of sources.

## C2.3

**(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

No

## C2.3b

**(C2.3b) Why do you not consider your organization to be exposed to climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

	Primary reason	Please explain
Row 1	Risks exist, but none with potential to have a substantive financial or strategic impact on business	<p>Any facility that meets all the following criteria is considered to represent substantive risk related to climate change:</p> <ul style="list-style-type: none"> <li>• Site with climate-related activities identified in the Business Continuity Plan (BCP) risk assessment as having a “high” risk prioritization number (i.e., likelihood x severity x existing controls); and,</li> <li>• Site accounts for &gt;5% of our global production by volume; and</li> <li>• Site is considered strategic to the growth strategy of the organization.</li> </ul> <p>Ingredion uses a multi-faceted process to assess risk including the Business Continuity Risk Assessment process and climate modeling. Climate change risks assessed through the BCP include disruptions due to weather events, raw material supply and transportation (i.e., supply chain and commodity impacts), and inability</p>

	<p>to meet customer demand. In addition, the BCP is supplemented with knowledge attained from various models, including water availability risk assessments at our manufacturing facilities, the WWF Water Risk Filter to understand water stress in our key supplier/grower locations, agricultural supplier water usage through the SAI Platform's Farm Sustainability Assessment, and climate modeling based on 21 IPCC CMIP5 climate model projections for the years 2020-2059. This combined approach allows us to assess risk both on a macro level as well as "on the ground" observations at the site level.</p> <p>Based on our definition and assessment process, none of our sites are currently determined to pose a substantive risk related to climate change.</p>
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## C2.4

**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

### C2.4a

**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**

---

**Identifier**

Opp1

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Resource efficiency

**Primary climate-related opportunity driver**

Reduced water usage and consumption

**Primary potential financial impact**

Reduced indirect (operating) costs

**Company-specific description**

Each 1% reduction in process water use intensity results in savings up to approximately \$1,646,204 annually when considering purchase, pumping, preparation, and subsequent wastewater treatment costs. Between 2010 and 2019, we decreased the company water intensity by 10.8%, representing more than \$17MM cost savings.

**Time horizon**

Medium-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

17,000,000

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

\$17MM is the approximate cost savings realized from water reduction initiatives between 2010 and 2019. Similar cost reductions can be anticipated in the future

**Cost to realize opportunity**

8,500,000

**Strategy to realize opportunity and explanation of cost calculation**

Cost to realize water savings is estimated as 25 to 50% of the realized savings (\$4.5 to \$8.5MM). Each 1% reduction in process water use intensity results in savings up to approximately \$1,646,204 annually when considering purchase, pumping, preparation, and subsequent wastewater treatment costs. Between 2010 and 2019, we decreased the company water intensity by 10.8%, representing more than \$17MM cost savings.

**Comment**

We recently completed an exercise to determine the best candidate sites for implementation of zero liquid discharge (ZLD) technologies. ZLD would allow us to meet our sustainability goals, reduce the potential impact on communities, and reduce costs. However, there are major hurdles to implementing ZLD, including the availability of cost-effective technologies and the regulatory barriers to recycling wastewater in a food manufacturing plant.

---

**Identifier**

Opp2

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Resource efficiency

**Primary climate-related opportunity driver**

Other, please specify

Reduced energy use and consumption

**Primary potential financial impact**

Reduced indirect (operating) costs

**Company-specific description**

Each 0.5% reduction in process energy use intensity results in savings up to approximately \$1,502,000 annually in energy purchases. Between 2010 and 2019, we decreased energy intensity, representing more than \$12.2MM cost savings.

**Time horizon**

Long-term

**Likelihood**

Likely

**Magnitude of impact**

High

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

12,200,000

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

\$12.2MM is the approximate cost savings realized from energy reduction initiatives between 2010 and 2019. Similar cost reductions can be anticipated in the future

**Cost to realize opportunity**

### **Strategy to realize opportunity and explanation of cost calculation**

The energy team regularly shares best practices for energy use and monitoring. As we improve this with more advanced monitoring software, we should expect similar results.

#### **Comment**

---

#### **Identifier**

Opp3

#### **Where in the value chain does the opportunity occur?**

Upstream

#### **Opportunity type**

Energy source

#### **Primary climate-related opportunity driver**

Use of lower-emission sources of energy

#### **Primary potential financial impact**

Reduced indirect (operating) costs

#### **Company-specific description**

Purchase renewable electricity instead of normal grid purchased electricity.  
Contract for long term renewable electricity from various suppliers.

#### **Time horizon**

Long-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Medium

**Are you able to provide a potential financial impact figure?**

Yes, an estimated range

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

0

**Potential financial impact figure – maximum (currency)**

16,383,000

**Explanation of financial impact figure**

In our four Midwestern US plants, for example, half the cost of electricity is due to the bulk purchase of the power. We can buy fixed price renewable bulk electricity for about 4% less, but need to sign a long term purchasing agreement. Financial impact is the savings or losses for a 10-year period. The minimum impact assumes a 2% decrease in electrical prices. The potential impact assumes a 1% growth in electricity prices.

**Cost to realize opportunity**

0

**Strategy to realize opportunity and explanation of cost calculation**

Employ an energy purchasing firm to review potential costs in the future.

**Comment**

---

**Identifier**

Opp4

**Where in the value chain does the opportunity occur?**

Upstream

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Use of lower-emission sources of energy

**Primary potential financial impact**

Reduced indirect (operating) costs

**Company-specific description**

Replace coal in boilers with natural gas

**Time horizon**

Long-term

**Likelihood**

Likely

**Magnitude of impact**

High

**Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

**Potential financial impact figure (currency)**

6,500,000

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

At current record low natural gas prices, the maximum savings would be achieved.

**Cost to realize opportunity**

2,500,000

**Strategy to realize opportunity and explanation of cost calculation**

Test boiler technology and implement at applicable facilities over several years.

**Comment**

## C3. Business Strategy

### C3.1

**(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?**

Yes

#### C3.1a

**(C3.1a) Does your organization use climate-related scenario analysis to inform its strategy?**

Yes, qualitative and quantitative

## C3.1b

(C3.1b) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios and models applied	Details
RCP 4.5	The Ingredion climate impact study included a first-level analysis focused on temperature and precipitation projections at 31 agricultural sourcing locations across 9 countries. The study was completed using extended models that integrate climate projections. Together with climate projections, a historic baseline of climate data from 1986-2005 was utilized to provide an average from which future projections were compared. This is the standard baseline found in global climate studies and is used to represent a range of existing climate data. For the climate projections, the Ingredion study included 21 IPCC CMIP5 climate model projections for the years 2020-2059, from which specific summaries are included for 2030 and 2050. Each model used in the study incorporates data for each of the global locations to ensure consistency of results. Within each model, two climate scenarios were used; RCP 4.5 which is the stabilization scenario that projects global mean surface temperatures for 2081–2100, relative to 1986–2005 will likely increase by 1.1°C to 2.6°C, and RCP 8.5 which is a “business as usual” scenario that projects temperature increase of 2.6°C to 4.8°C. This provides both a mid-level impact perspective and a higher end impact perspective. In total, this creates 42 future scenarios plus a historic scenario from which to analyze each location.
RCP 8.5	

## C3.1d

(C3.1d) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	As a plant-based ingredients company, we are poised to help our customers with the increasing demand to create sustainable products that provide consumers with an exceptional experience. When Ingredion launched our Company of Choice for a Sustainable Tomorrow plan in 2015, we wanted to incorporate sustainability into our new product development process. To do so, we created a Sustainability Scorecard,

		<p>which measures the sustainability performance of a new product across multiple categories. The tool has been very effective at introducing various aspects of sustainability into discussions around our innovation process. Going forward, we are looking to enhance this process by aligning our new product development with the UN Sustainable Development Goals (SDGs). We believe that this will better align with our customers' needs, and ultimately the needs of society.</p> <p>In 2019, Ingredion announced the launch of a new organic pea protein isolate to its line of plant-based proteins. With studies showing 63 percent of global consumers selecting plant-based food and beverages to promote long-term health, Ingredion is positioning itself with products that help meet the growing plant protein ingredient demand and reduce greenhouse gas emissions, thereby mitigating negative climate impacts, when compared to animal-based protein. For example, peas emit 0.36 kg CO2e per 100 grams of protein* compared to chicken at 4.3 kg CO2e per 100 grams of protein and beef at 25 kg CO2e per 100 grams of protein.</p> <p>*<a href="https://ourworldindata.org/less-meat-or-sustainable-meat">https://ourworldindata.org/less-meat-or-sustainable-meat</a></p>
Supply chain and/or value chain	Yes	<p>Changing temperature and precipitation patterns, as indicated in our climate model scenarios, have the potential to significantly impact water availability and plant-based agriculture, our most significant raw materials. Therefore, we have established goals to increase sustainably sourced agriculture and reduce our water use intensity. In 2019, we were able to sustainably source 2.89 million metric tons of crops across our global agriculture sourcing. Multiple initiatives helped us achieve this performance, including continued interest and support from our growers, enhanced knowledge on SAI Platform implementation within Ingredion's agricultural teams, increased efforts with some of our grain provider partners and continued collaboration with customers, particularly as part of our work with the SAI Platform. In 2019, we also exceeded our 10% water intensity reduction goal (baselined to 2010) at our manufacturing facilities through implementation of efficiency initiatives.</p> <p>As a result of climate related risks, our 2030 goals and milestones are more aggressive in these areas, including: 100% of global waxy corn supply sustainably sourced by the end of 2022; implementing water conservation projects with growers in 100% of extremely high water stressed sourcing geographies by the end of 2025; 100% of our Tier 1 and Tier 2 priority crops sustainably sourced by the end of 2030.</p>

Investment in R&D	Yes	<p>We continue to see a high demand from both consumers and our customers for plant-based protein alternatives in their food preferences. While Ingredion has been providing plant protein solutions to customers for some time now, we are making significant investments in this space. In 2019, we expanded our joint venture with Verdient Foods and increased aggregate investment and R&amp;D in plant-based proteins by \$185 million. This comes in addition to our work to accelerate the transformation of a site in South Sioux City, Nebraska, to produce plant protein products.</p> <p>We have also invested approximately \$4.5MM in technologies to reduce salt levels in products. These technologies reduce chemical use, water consumption, and total dissolved solids levels in wastewater. In addition, energy is reduced by eliminating energy intensive wastewater desalination treatment. This is the most substantial strategic decision informed by our climate strategy as it reduces water consumption, wastewater pollutants and CO<sub>2</sub>e emissions.</p>
Operations	Yes	<p>The greatest potential climate-related risk to operations is lack of water and agricultural raw materials, which have been addressed above. However, we also have goals to reduce water and CO<sub>2</sub>e at our manufacturing locations:</p> <ul style="list-style-type: none"> <li>Achieve a 25% reduction in absolute GHG emissions by the end of 2030;</li> <li>Source 50% of our purchased electricity from renewable sources by the end of 2030;</li> <li>Reduce our water use intensity by 30% in all extremely high-stress geographies where we manufacture products by the end of 2030.</li> </ul> <p>These goals were developed to address the impact our operations may have on climate-related risks, including changes in temperature and precipitation as identified in our climate scenario analysis.</p>

### C3.1e

**(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.**

	<b>Financial planning elements that have been influenced</b>	<b>Description of influence</b>
Row 1	Indirect costs Capital expenditures Acquisitions and divestments	<p>Our continuous improvement teams are highly focused on implementing energy and water efficiency initiatives at our manufacturing facilities through auditing, tracking, trending, and sharing learnings and best practices. These continuous improvement initiatives decrease energy and water inputs resulting in improvement in indirect operating costs. For example, each 1% reduction in process water use intensity results in savings up to approximately \$1,646,204 annually when considering purchase, pumping, preparation, and subsequent wastewater treatment costs. Between 2010 and 2019, we decreased the company water intensity by 10.8%, representing more than \$17MM cost savings.</p> <p>Capital expenditures that reduce our CO2e footprint and climate impact include purchase and installation of more efficient pumps and compressors; installation of VFDs on motors; evaporator improvements, installation of LED lighting), and energy recovery projects (e.g., reuse of steam or heated water in other processes, use of biogas generated from wastewater treatment to replace natural gas in some equipment. In addition, installation of on-line meters to trend and reduce process variability in real-time, results in decrease energy and raw material inputs.</p> <p>In 2018/2019, we began closure at two facilities in (1) Stockton, California, USA and (2) Lane Cove, New South Wales, Australia. In addition to strategic business reasons resulting in the closures, both facilities are located in areas of water stress which leads to increased operating costs and availability to attain sustainable raw materials. Closure of these facilities reduces the environmental impact of these operations and our overall climate-related impact.</p> <p>For several years we have been evaluating climate impacts and water availability in our due diligence assessment process for mergers and acquisitions. Identification of this aspect of risk influenced decisions on whether or not to continue with potential acquisitions. The aspects of climate change that influenced this decision were primarily related to the availability of a reliable power grid, water availability, access to sustainable raw materials, and to ability to discharge wastewater in compliance with applicable regulations.</p> <p>These are short-term initiatives.</p>

### C3.1f

**(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).**

Ingredion's business objectives and strategy on climate-related issues have been influenced through collaboration with our customers, understanding consumer trends, improving our cost and market positions, and in being good corporate citizens, specifically in the communities in which we operate. The 2019 Sustainability Report, published on the 50th anniversary of Earth Day, reflects our continued commitment to finding new ways to operate and innovate aligned with Earth Day's purpose of protecting the environment. During 2019, Ingredion's global Sustainability Council continued its outreach, consulting with customers, suppliers, NGOs and industry experts. As a result, we are working to further align our efforts with the United Nations Sustainable Development Goals (SDGs). To that end, the 2019 Sustainability Report launched our All Life Plan: Planet Life – we are committed to protecting and renewing the planet's resources; Connected Life – we strive to improve the lives of our growers and our communities; Everyday Life – We prioritize the well-being of our employees, customers and suppliers.

We have made significant progress toward realizing our vision across principal areas of social and environmental impact by continuing to focus on reducing our environmental footprint through education, awareness and continuous improvement initiatives. In 2019, we exceeded our environmental reduction targets for both water use and carbon emission intensities. These reductions occurred even as we continue to increase production of our specialty products. The All Life plan is the next step in our journey and includes our new 2030 sustainability strategy. Ingredion's All Life plan was designed to better align us with the increasing expectations of our customers and consumers and ensures that Ingredion continues to do our part to deliver on a more sustainable world through 2030 and beyond. The sustainability report lays out targets and milestones to achieve our strategic goals.

We believe that everyone has the right to access clean water, fresh air and the natural world around them. And we know that the success of our business is closely linked to protection and sustainable use of that natural world. Therefore, we strive to protect the environment and are committed to continually improving our performance. We are committed to using science-based approaches and working with our stakeholders to make a positive impact. To that end, we have set the following goal and milestones: 2030 Goal: Protect and renew the planet's resources by enacting science-based targets and other conservation measures as catalysts to drive continuous innovation. Milestones include: Achieve plastic neutrality across our operations by the end of 2025; Achieve a 25% reduction in absolute GHG emissions by the end of 2030; Source 50% of our purchased electricity from renewable sources by the end of 2030; Reduce our water use intensity by 30% in all extremely high-stress geographies where we manufacture products by the end of 2030; Achieve 100% avoidance of waste to landfill by the end of 2030; and, Reduce Chemical Oxygen Demand (COD) or Biological Oxygen Demand (BOD) by 10% from our waste water discharges by the end of 2030. This strategy was developed with input from the Sustainability Council which is a cross-functional group and includes members of the Executive Leadership Team with participation by Legal, HR, Finance, Customer Excellence, EHS and others. This team ensures that the sustainability strategy is aligned within our business. As stated by Larry Fernandes, Chief Commercial and Sustainability Officer, "we have not fully defined how we will get to these targets. We are firmly committed to reaching for higher aspirations and will continue to refine our roadmap as we go forward. We do know that, as with achieving the SDGs, our success

will rely heavily on collaboration. We will be looking for our customers, suppliers and other organizations with sustainability expertise to engage with us on this journey."

## C4. Targets and performance

### C4.1

**(C4.1) Did you have an emissions target that was active in the reporting year?**

Intensity target

### C4.1b

**(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).**

---

**Target reference number**

Int 1

**Year target was set**

2014

**Target coverage**

Company-wide

**Scope(s) (or Scope 3 category)**

Scope 1+2 (location-based)

**Intensity metric**

Metric tons CO<sub>2</sub>e per unit of production

**Base year**

2010

**Intensity figure in base year (metric tons CO<sub>2</sub>e per unit of activity)**

0.36905916

**% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure**

100

**Target year**

2020

**Targeted reduction from base year (%)**

10

**Intensity figure in target year (metric tons CO<sub>2</sub>e per unit of activity) [auto-calculated]**

0.332153244

**% change anticipated in absolute Scope 1+2 emissions**

-10.9

**% change anticipated in absolute Scope 3 emissions**

0

**Intensity figure in reporting year (metric tons CO<sub>2</sub>e per unit of activity)**

0.3252

**% of target achieved [auto-calculated]**

118.8404590744

**Target status in reporting year**

Achieved

**Is this a science-based target?**

No, but we anticipate setting one in the next 2 years

**Please explain (including target coverage)**

Our normalized base year emissions covered by the target includes biogenic CO2.

## C4.2

**(C4.2) Did you have any other climate-related targets that were active in the reporting year?**

Other climate-related target(s)

## C4.2b

**(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.**

---

**Target reference number**

Oth 1

**Year target was set**

2014

**Target coverage**

Company-wide

**Target type: absolute or intensity**

Intensity

**Target type: category & Metric (target numerator if reporting an intensity target)**

Resource consumption or efficiency

Other, please specify

cubic meters

**Target denominator (intensity targets only)**

unit of production

**Base year**

2010

**Figure or percentage in base year**

0

**Target year**

2020

**Figure or percentage in target year**

10

**Figure or percentage in reporting year**

10.8

**% of target achieved [auto-calculated]**

108

**Target status in reporting year**

Achieved

**Is this target part of an emissions target?**

No

**Is this target part of an overarching initiative?**

Other, please specify

Water intensity reduction

**Please explain (including target coverage)**

Our target is to reduce water use intensity (m<sup>3</sup> water /unit of production) at our manufacturing sites by 10% between the baseline and target year. Our definition of water use includes all water intake except for single pass non-contact cooling water that is withdrawn and returned to the same source.

---

**Target reference number**

Oth 2

**Year target was set**

2015

**Target coverage**

Company-wide

**Target type: absolute or intensity**

Absolute

**Target type: category & Metric (target numerator if reporting an intensity target)**

Engagement with suppliers

Other, please specify  
metric tons

**Target denominator (intensity targets only)**

**Base year**

2015

**Figure or percentage in base year**

0

**Target year**

2018

**Figure or percentage in target year**

2,170,000

**Figure or percentage in reporting year**

2,895,000

**% of target achieved [auto-calculated]**

133.4101382488

**Target status in reporting year**

Achieved

**Is this target part of an emissions target?**

No

**Is this target part of an overarching initiative?**

Other, please specify

Sustainable sourcing

**Please explain (including target coverage)**

Sustainable Sourcing: Our sustainability goals include sustainably sourcing 1 million metric tons of crops by 2018. During calendar year 2018, 2.17 million metric tons of crops were sustainably sourced. In 2019, we increased it to 2.895 million metric tons. A third-party verification assurance letter is attached. We engage with agricultural suppliers on sustainable agriculture practices that help reduce climate change (e.g. no tillage, reduced chemical usage, reduced water irrigation, etc.). Through Field to Market, we track the carbon footprint of farm-level activity and provide farmers with a comparison of their carbon footprint versus other farmers in their areas. We collect carbon emission information annually on our growers through Field to Market.

## C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

### C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO<sub>2</sub>e savings.

	Number of initiatives	Total estimated annual CO <sub>2</sub> e savings in metric tonnes CO <sub>2</sub> e (only for rows marked *)
Under investigation	40	348,450
To be implemented*	57	11,617
Implementation commenced*	80	746,835
Implemented*	30	83,221
Not to be implemented	16	1,928

### C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

---

#### Initiative category & Initiative type

Non-energy industrial process emissions reductions

Process equipment replacement

#### Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)

44,000

**Scope(s)**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

9,500

**Investment required (unit currency – as specified in C0.4)**

50,000

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

6-10 years

**Comment**

The largest boiler at one of our facilities developed cracks in the boiler tubes due to excessive heating in the reversing chamber. Adjustments to the operating temperature reduced the efficiency of the boiler and increased natural gas usage. Replacement of the cracked tubes improved boiler efficiency and reduced natural gas use, resulting in a decrease of CO<sub>2</sub>e emissions

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Process optimization

**Estimated annual CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

1,444

**Scope(s)**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

85,000

**Investment required (unit currency – as specified in C0.4)**

291,500

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

11-15 years

**Comment**

Installation of an online FT-NIR meter to control process variation resulting in reduced steam and water usage

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Reuse of steam

**Estimated annual CO2e savings (metric tonnes CO2e)**

4,329

**Scope(s)**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

191,259

**Investment required (unit currency – as specified in C0.4)**

352,559

**Payback period**

4-10 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

Ingredion sites implemented numerous projects to reduce energy use. Many of these projects included reuse of steam/heat recovery, optimizing evaporation processes, installation of process preheaters and general process optimization.

---

**Initiative category & Initiative type**

Energy efficiency in production processes

Motors and drives

**Estimated annual CO2e savings (metric tonnes CO2e)**

8,548

**Scope(s)**

Scope 2 (location-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

372,310

**Investment required (unit currency – as specified in C0.4)**

509,984

**Payback period**

1-3 years

**Estimated lifetime of the initiative**

16-20 years

**Comment**

Numerous facilities upgraded pumps, motors, fans, presses to include variable frequency drives to reduce electrical demand.

---

**Initiative category & Initiative type**

Non-energy industrial process emissions reductions

Process material efficiency

**Estimated annual CO2e savings (metric tonnes CO2e)**

20,700

**Scope(s)**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

30,293

**Investment required (unit currency – as specified in C0.4)**

96,424

**Payback period**

<1 year

**Estimated lifetime of the initiative**

16-20 years

**Comment**

Project to install a cyclone to increase efficiency of product separation

---

**Initiative category & Initiative type**

Energy efficiency in buildings

Other, please specify

Purchase of more efficient appliances

**Estimated annual CO2e savings (metric tonnes CO2e)**

4,200

**Scope(s)**

Scope 2 (location-based)

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

0

**Investment required (unit currency – as specified in C0.4)**

10,000

**Payback period**

<1 year

**Estimated lifetime of the initiative**

6-10 years

**Comment**

This facility purchased new energy efficient appliances and office equipment. The cost savings are negligible compared to other site energy costs.

## C4.3c

**(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

Method	Comment
Compliance with regulatory requirements/standards	Review of changing regulations, including emissions trading programs and carbon taxes, and how they potentially impact operations are factored into investment decisions.
Other Project Prioritization Score	We use a project prioritization scoring system to define and identify opportunities with a substantive impact. The scoring system includes metrics on business performance, customer initiatives, EHS performance, sustainability (including achieving company goals), and employee development/engagement.
Internal incentives/recognition programs	Our CEO awards program, now in its eighth year, is an example of a global recognition program recognizing the great work of many hundreds of employees. The finalists are drawn from all the company's regions and represent excellence in seven categories: Safety, Sustainability, Process, Quality, Innovation, Leadership and Business.
Financial optimization calculations	Multiple analytics are drawn around all projects to determine how to optimize organizational costs. The calculations most commonly include ROI: Return on Investment and discounted cash flow analysis including net present value with a set internal hurdle rate and an independently calculated internal rate of return.
Lower return on investment (ROI) specification	The capital categorization for Environmental Projects have a standalone category which do require a ROI to be calculated allowing the sustainability investments to be made based on the merits of the sustainability initiative without financial calculations.

## C4.5

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

## C4.5a

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

---

**Level of aggregation**

Group of products

**Description of product/Group of products**

Pregelatinized Starch Products - Biomaterials

**Are these low-carbon product(s) or do they enable avoided emissions?**

Avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify

Allows customers to avoid emissions by eliminating a heating step

**% revenue from low carbon product(s) in the reporting year**

**Comment**

Less than 10% of revenue is from these products.

Biomaterials from our personal care starches product line can be a substitute for petroleum-derived products, and our pregelatinized starches allow the customer to reduce energy by eliminating a process heating step.

## C5. Emissions methodology

### C5.1

**(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).**

#### Scope 1

---

**Base year start**

January 1, 2010

**Base year end**

December 31, 2010

**Base year emissions (metric tons CO<sub>2</sub>e)**

2,870,473

**Comment**

This total excludes the CO<sub>2</sub> fraction from biogenic Scope 1 emissions. It is important to note that our company reduction goal includes biogenic CO<sub>2</sub> emissions. When biogenic emissions are included the base year, Scope 1 is 3,478,032 metric tons CO<sub>2</sub>e which is the scope 1 base year total for our company GHG reduction target.

#### Scope 2 (location-based)

---

**Base year start**

January 1, 2010

**Base year end**

December 31, 2010

**Base year emissions (metric tons CO<sub>2</sub>e)**

1,226,794

**Comment**

In order to maintain the same basis as the current year, purchased electricity emission factors for the base year were adjusted to reflect those published in IEA Emission Factors (2019 edition) as compared to IEA 2018 edition used last year.

**Scope 2 (market-based)**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

Not applicable as our reduction target is Scope 2 location-based

## C5.2

**(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.**

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

## C6. Emissions data

### C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

**Reporting year**

---

**Gross global Scope 1 emissions (metric tons CO2e)**

2,749,023

**Comment**

Scope 1 reported for this question excludes the CO2 fraction from direct biogenic emissions. It is important to note that our company reduction goal includes all direct biogenic GHG emissions. 2019 total direct emissions were 3,176,515 metric tons CO2e (Scope 1 + direct biogenic CO2 emissions).

### C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

**Row 1**

---

**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

We are reporting a Scope 2, market-based figure

**Comment**

## C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO<sub>2</sub>e?

**Reporting year**

---

**Scope 2, location-based**

931,214

**Scope 2, market-based (if applicable)**

893,299

**Comment**

## C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

## C6.4a

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

---

**Source**

Company owned vehicles

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

No emissions from this source

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

No emissions from this source

**Explain why this source is excluded**

Compared with our manufacturing operations, the emissions from our company owned vehicles are not relevant. Company owned vehicles located at our manufacturing sites often fuel onsite and would be included in Scope 1 emissions. We are in the process of collecting more accurate information for this source and expect to include in future submissions. Our conservatively high estimate extrapolated from existing data, indicates that company owned vehicle emissions are less than 0.5% of Global Scope1 CO<sub>2</sub>e emissions.

---

**Source**

A leased <25-acre farm used primarily for research and development

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

**Explain why this source is excluded**

Calculated emissions from this leased property are not relevant when compared with our manufacturing operations. Calculated life cycle emissions from the research farm are less than 0.00005% of our global scope 1 + 2 emissions.

---

**Source**

Leased Vehicles

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

**Explain why this source is excluded**

Calculated emissions from leased vehicles are not relevant when compared with our manufacturing operations. Calculated emissions for leased vehicles are less than 0.05% of Global Scope1 CO<sub>2</sub>e emissions.

## C6.5

**(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.**

**Purchased goods and services**

---

**Evaluation status**

Relevant, calculated

**Metric tonnes CO<sub>2</sub>e**

2,525,820

**Emissions calculation methodology**

Life cycle emissions for Maize + Cassava farming. For Maize: used Greet 1 V1.8d.1 (Life cycle CO<sub>2</sub>e results) with agronomic data from Greet for U.S. corn purchases assumed representative and applied to corn purchases in other parts of the world. For Cassava:

LCA inventory factors were used for Cassava farming and pre-processing by 3rd parties. Other agricultural products, representing approximately 1% of total agricultural products, were not assessed.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

**Capital goods**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

Does not contribute significantly to the company's climate related risk, is not deemed critical by key stakeholders, is not an outsourced activity previously performed in house or typically performed in house by other companies, does not contribute significantly to the company's total scope 3 emissions, and does not provide for significant potential emission reductions.

**Fuel-and-energy-related activities (not included in Scope 1 or 2)**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

Does not contribute significantly to the company's climate related risk, is not deemed critical by key stakeholders, is not an outsourced activity previously performed in house or typically performed in house by other companies, does not contribute significantly to the company's total scope 3 emissions, and does not provide for significant potential emission reductions.

**Upstream transportation and distribution**

---

**Evaluation status**

Relevant, calculated

**Metric tonnes CO<sub>2</sub>e**

1,447,024

**Emissions calculation methodology**

Upstream transportation and distribution includes shipments of raw materials to Ingredion's manufacturing facilities and warehouses, semi-finished goods transfers to affiliates, and outbound products where Ingredion paid for the transportation. Inbound and outbound material transportation data (Rail, Truck, Ocean and Air shipments), which includes cargo weight and average length of haul (shipping distances), was collected from Ingredion's commodity and logistics managers. Once collected, Ingredion used emission factors from the EPA Center for Corporate Climate Leadership and GHG global warming potentials from IPCC AR5 to calculate total CO<sub>2</sub>e.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

88

**Please explain**

**Waste generated in operations**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

Does not contribute significantly to the company's climate related risk, is not deemed critical by key stakeholders, is not an outsourced activity previously performed in house or typically performed in house by other companies, does not contribute significantly to the company's total scope 3 emissions, and does not provide for significant potential emission reductions.

**Business travel**

---

**Evaluation status**

Not relevant, calculated

**Metric tonnes CO<sub>2</sub>e**

4,971

**Emissions calculation methodology**

U.S. EPA Center for Corporate Climate Leadership guidelines and emission factors from the GHG Emission Factors Hub were used to calculate emissions. Air Travel contributes 80% of our total GHG emissions in this category. All employee air travel is included. Some employees book rental cars and hotels outside of our primary travel agency and in-house booking system. Supplier rental car emission estimates were increased by 20% and hotel emissions by 40% to account for those employees.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

95

**Please explain**

**Employee commuting**

---

**Evaluation status**

Not relevant, calculated

**Metric tonnes CO<sub>2</sub>e**

14,359

**Emissions calculation methodology**

U.S. EPA's Center for Corporate Climate Leadership guidelines and emission factors from the GHG emission factors hub were applied to employee commute distances by type of vehicle (car, motorbike, bus/trolley, tram/streetcar, train/metro). Vehicle miles were utilized with Car and Motorbike commuting. Passenger miles were utilized with Bus/Trolleybus and Tram/Streetcar commuting. Employee commute distances were city specific averages from Numbeo traffic commute database. Where city information wasn't available country level average commute distances were used.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

0

**Please explain**

**Upstream leased assets**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

Does not contribute significantly to the company's climate related risk, is not deemed critical by key stakeholders, is not an outsourced activity previously performed in house or typically performed in house by other companies, does not contribute significantly to the company's total scope 3 emissions, and does not provide for significant potential emission reductions. Because Ingredion uses the operational control approach leased vehicles are not included in scope 3.

**Downstream transportation and distribution**

---

**Evaluation status**

Relevant, calculated

**Metric tonnes CO<sub>2</sub>e**

326,295

**Emissions calculation methodology**

Downstream transportation and distribution included shipments of finished goods to Ingredion's customers where the transportation was not paid for by Ingredion. Outbound and finished goods transportation data (Rail, Truck, Ocean and Air), which includes cargo weight and average length of haul (shipping distances), was collected from Ingredion's regional logistics managers. Once collected, Ingredion used emission factors from the U.S. EPA's Center for Corporate Climate Leadership and GHG global warming potentials from IPCC AR5 to calculate total CO<sub>2</sub>e in metric tonnes.

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

90

**Please explain**

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**Processing of sold products**

**Evaluation status**

Not relevant, explanation provided

**Please explain**

As a business-to-business supplier, our ingredients are used as a raw material or input into other products which then reach the end customer for consumption. Does not contribute significantly to the company's climate related risk, is not deemed critical by key stakeholders, is not an outsourced activity previously performed in house or typically performed in house by other companies, does not contribute significantly to the company's total scope 3 emissions, and does not provide for significant potential emission reductions.

---

**Use of sold products**

**Evaluation status**

Not relevant, explanation provided

**Please explain**

As a business-to-business supplier, our ingredients are used as a raw material or input into other products which then reach the end customer for consumption. Does not contribute significantly to the company's climate related risk, is not deemed critical by key stakeholders, is not an outsourced activity previously performed in house or typically performed in house by other companies, does not contribute significantly to the company's total scope 3 emissions, and does not provide for significant potential emission reductions.

---

**End of life treatment of sold products**

**Evaluation status**

Not relevant, explanation provided

**Please explain**

As a business-to-business supplier, our ingredients are used as a raw material or input into other products which then reach the end customer for consumption. Our products are agriculturally based and a part of the active annual carbon cycle, and therefore would be considered as renewable carbon. Does not contribute significantly to the company's climate related risk, is not deemed critical by key stakeholders, is not an outsourced activity previously performed in house or typically performed in house by other companies, does not contribute significantly to the company's total scope 3 emissions, and does not provide for significant potential emission reductions.

**Downstream leased assets**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

Does not contribute significantly to the company's climate related risk, is not deemed critical by key stakeholders, is not an outsourced activity previously performed in house or typically performed in house by other companies, does not contribute significantly to the company's total scope 3 emissions, and does not provide for significant potential emission reductions.

**Franchises**

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**Evaluation status**

Not relevant, explanation provided

**Please explain**

The company does not have franchises.

**Investments**

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**Evaluation status**

Not relevant, explanation provided

**Please explain**

As a manufacturing company we do not significantly engage in investments, other than plant assets.

#### **Other (upstream)**

---

##### **Evaluation status**

Not relevant, explanation provided

##### **Please explain**

We do not know of any other (upstream) scope 3 emissions.

#### **Other (downstream)**

---

##### **Evaluation status**

Not relevant, explanation provided

##### **Please explain**

We do not know of any other (downstream) scope 3 emissions.

## **C-AC6.6/C-FB6.6/C-PF6.6**

**(C-AC6.6/C-FB6.6/C-PF6.6) Can you break down your Scope 3 emissions by relevant business activity area?**

Yes

## **C-AC6.6a/C-FB6.6a/C-PF6.6a**

**(C-AC6.6a/C-FB6.6a/C-PF6.6a) Disclose your Scope 3 emissions for each of your relevant business activity areas.**

---

##### **Activity**

Agriculture/Forestry

##### **Scope 3 category**

Purchased goods and services

**Emissions (metric tons CO<sub>2</sub>e)**

2,525,820

**Please explain**

This total represents 3rd party life cycle farming emissions for Maize + Cassava sourced as a raw material input and some pre-processing of Cassava by others before it is received by us. For Maize: we utilized Greet 1 V1.8d.1 (Life cycle CO<sub>2</sub>e results) with agronomic data from Greet for U.S. corn purchases assumed representative and applied to corn purchases in other parts of the world. 100% of our sourced corn was covered.

For Cassava: LCA inventory factors were used for Cassava farming (that correlate to our geographic areas) and pre-processing by 3rd parties. 100% of our sourced Cassava and tapioca starch was included.

Other agricultural products, representing approximately 1% of total agricultural products, were not assessed.

---

**Activity**

Distribution

**Scope 3 category**

Upstream transportation and distribution

**Emissions (metric tons CO<sub>2</sub>e)**

1,447,024

**Please explain**

This category represents transport of raw materials to our manufacturing plants as well as distribution of finished products to customers where the transportation is purchased by us.

Upstream transportation and distribution includes shipments of raw materials to Ingredion's manufacturing facilities and warehouses, semi-

finished goods transfers to affiliates, and outbound products where Ingredion paid for the transportation. Inbound and outbound material transportation data (Rail, Truck, Ocean and Air shipments), which includes cargo weight and average length of haul (shipping distances), was collected from Ingredion's commodity and logistics managers. Once collected, Ingredion used emission factors from the EPA Center for Corporate Climate Leadership and GHG global warming potentials from IPCC AR5 to calculate total CO<sub>2</sub>e. We believe that the dataset collected accurately represents our Downstream transportation and distribution footprint.

---

**Activity**

Distribution

**Scope 3 category**

Downstream transportation and distribution

**Emissions (metric tons CO<sub>2</sub>e)**

326,295

**Please explain**

This category represents finished products distributed to our customers where transportation is not paid for by us.

Outbound and finished goods transportation data (Rail, Truck, Ocean and Air), which includes cargo weight and average length of haul (shipping distances), was collected from Ingredion's regional logistics managers. Once collected, Ingredion used emission factors from the U.S. EPA's Center for Corporate Climate Leadership and GHG global warming potentials from IPCC AR5 to calculate total CO<sub>2</sub>e in metric tonnes. We believe that the dataset collected accurately represents our Downstream transportation and distribution footprint.

## C-AC6.8/C-FB6.8/C-PF6.8

**(C-AC6.8/C-FB6.8/C-PF6.8) Is biogenic carbon pertaining to your direct operations relevant to your current CDP climate change disclosure?**

Yes

## C-AC6.8a/C-FB6.8a/C-PF6.8a

**(C-AC6.8a/C-FB6.8a/C-PF6.8a) Account for biogenic carbon data pertaining to your direct operations and identify any exclusions.**

### CO2 emissions from biofuel combustion (processing/manufacturing machinery)

---

#### Emissions (metric tons CO2)

218,073

#### Methodology

Default emissions factors

#### Please explain

This total includes wood and agricultural byproducts burned as a fuel for manufacturing processes. CO2 is calculated using the 2006 IPCC default CO2 emission factor Wood and Wood byproducts.

### CO2 emissions from biofuel combustion (other)

---

#### Emissions (metric tons CO2)

209,418

#### Methodology

Other, please specify

Company specific emission factors developed by corporate engineering based on Ingredion operating facilities

#### Please explain

This represents biogenic CO2 emissions from our manufacturing operations that are not disclosed in the first biofuel category above. We are disclosing it in this section because question C6.7 and C6.7a are not available this year in the ORS. It includes biogenic CO2 emissions from manufacturing activities such as onsite aerobic wastewater treatment in agricultural processing plants, CO2 associated with combustion of self-generated biogas from onsite anaerobic wastewater treatment, and CO2 from the production of corn-based ethanol.

## C-AC6.9/C-FB6.9/C-PF6.9

**(C-AC6.9/C-FB6.9/C-PF6.9) Do you collect or calculate greenhouse gas emissions for each commodity reported as significant to your business in C-AC0.7/FB0.7/PF0.7?**

---

### Agricultural commodities

Other

Corn

**Do you collect or calculate GHG emissions for this commodity?**

Yes

### Please explain

We calculate life cycle GHG emissions from the farming of all sourced Corn sourced using a model based on Greet 1 V1.8d.1 (Life cycle CO<sub>2</sub>e results), with U.S agronomic data for growing areas. U.S. corn purchases are assumed representative and applied to corn purchases in other parts of the world. This is a company-wide assessment. We also engage with agricultural suppliers on sustainable agriculture practices that help reduce climate change (e.g. no tillage, reduced chemical usage, reduced water irrigation, etc.). Through Field to Market, we track the carbon footprint of farm-level activity in the United States and provide farmers with a comparison of their carbon footprint versus other farmers in their areas. We collect carbon emission information annually on our specialty corn growers in the United States through Field to Market. In other cases, we purchase corn as a commodity through brokers and do not have direct contact with growers or access to this information.

---

### Agricultural commodities

Other

Cassava

**Do you collect or calculate GHG emissions for this commodity?**

Yes

**Please explain**

We calculate GHG emissions related to sourced farming of Cassava and pre-processing of Tapioca starch delivered to our plants using lifecycle inventory information developed following IPCC 2013 GWP 100a V1.02. Crop yields were derived from 2009-2013 FAO statistics (FAOStat, FAO, 2015). Fertilizer application rates (in terms of N, P and K) were generally derived from Palliere (2011 and Rosas (2011). Energy use was calculated based on data obtained from the farm simulation tool. This assessment is conducted for areas where we source cassava.

## C-AC6.9a/C-FB6.9a/C-PF6.9a

**(C-AC6.9a/C-FB6.9a/C-PF6.9a) Report your greenhouse gas emissions figure(s) for your disclosing commodity(ies), explain your methodology, and include any exclusions.**

**Other**

---

**Reporting emissions by**

Total

**Emissions (metric tons CO<sub>2</sub>e)**

2,525,820

**Change from last reporting year**

Lower

**Please explain**

Life cycle GHG emissions for 3rd party farming of Corn + Cassava were lower by about 3% lower in 2019 as compared to 2018. This was primarily due to lower volumes sourced in 2019.

Life cycle emissions for Corn + Cassava farming: for Corn: used Greet 1 V1.8d.1 (Life cycle CO<sub>2</sub>e results) with agronomic data from Greet for U.S. corn purchases assumed representative and applied to corn purchases in other parts of the world. For Cassava: LCA inventory factors

were used for Cassava farming and pre-processing by 3rd parties. Other agricultural products, representing approximately 1% of total agricultural products, were not assessed.

## C6.10

**(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO<sub>2</sub>e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

---

**Intensity figure**

0.00059273

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO<sub>2</sub>e)**

3,680,237

**Metric denominator**

unit total revenue

**Metric denominator: Unit total**

6,209,000,000

**Scope 2 figure used**

Location-based

**% change from previous year**

5.93

**Direction of change**

Decreased

**Reason for change**

The decrease in CO<sub>2</sub>e emissions is the result of several factors including more efficient operations, favorable product mix, a “greener” energy grid, increased use of biogas generated from wastewater treatment to replace natural gas in some equipment, and continued implementation of energy efficiency projects across our organization.

## C7. Emissions breakdowns

### C7.1

#### (C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

#### C7.1a

#### (C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO <sub>2</sub> e)	GWP Reference
CO <sub>2</sub>	2,620,018	IPCC Fifth Assessment Report (AR5 – 100 year)
CH <sub>4</sub>	1,824	IPCC Fifth Assessment Report (AR5 – 100 year)
N <sub>2</sub> O	122,297	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	2,856	IPCC Fifth Assessment Report (AR5 – 100 year)
PFCs	0	IPCC Fifth Assessment Report (AR5 – 100 year)
SF <sub>6</sub>	0	IPCC Fifth Assessment Report (AR5 – 100 year)
NF <sub>3</sub>	0	IPCC Fifth Assessment Report (AR5 – 100 year)
Other, please specify HCFCs	1,764	IPCC Fifth Assessment Report (AR5 – 100 year)
Other, please specify	0	IPCC Fifth Assessment Report (AR5 – 100 year)

Halons		
Other, please specify HFEs	167	IPCC Fifth Assessment Report (AR5 – 100 year)
Other, please specify Non-Kyoto: CCl4, CH3Br, CH3Cl3, CHCl3, CH2Cl2	97	IPCC Fifth Assessment Report (AR5 – 100 year)

## C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Asia, Australasia	106,641
Europe, Middle East and Africa (EMEA)	298,390
North America	1,759,339
South America	584,653

## C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

### C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
APAC	106,641
EMEA	298,390

NA	1,759,339
SA	584,653

## C-AC7.4/C-FB7.4/C-PF7.4

(C-AC7.4/C-FB7.4/C-PF7.4) Do you include emissions pertaining to your business activity(ies) in your direct operations as part of your global gross Scope 1 figure?

Yes

## C-AC7.4b/C-FB7.4b/C-PF7.4b

(C-AC7.4b/C-FB7.4b/C-PF7.4b) Report the Scope 1 emissions pertaining to your business activity(ies) and explain any exclusions. If applicable, disaggregate your agricultural/forestry by GHG emissions category.

---

### Activity

Processing/Manufacturing

### Emissions (metric tons CO2e)

2,749,023

### Methodology

Default emissions factor

### Please explain

This total includes all of our direct operation manufacturing plant scope 1 emissions. The total excludes biogenic CO2 while including CH4 and N2O from combustion of biogenic materials.

## C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO <sub>2</sub> e)	Scope 2, market-based (metric tons CO <sub>2</sub> e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
Asia, Australasia	165,547	165,547	321,017	0
Europe, Middle East and Africa (EMEA)	66,034	53,393	152,310	0
North America	633,576	608,302	1,518,656	0
South America	66,057	66,057	256,855	0

## C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

### C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO <sub>2</sub> e)	Scope 2, market-based (metric tons CO <sub>2</sub> e)
APAC	165,547	165,547
EMEA	66,034	53,393
NA	633,576	608,302
SA	66,057	66,057

## C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

## C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO <sub>2</sub> e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	27,369	Decreased	0.7	<p>1. Company locations are continuing to replace natural gas use with self-generated biogas. For 2019 this resulted in 45570 additional GJ LHV biogas use with energy recovery x 56.1545 kg CO<sub>2</sub>/GJ (for natural gas) = 2559 Metric tonnes CO<sub>2</sub>e displaced by biogas.</p> <p>2. A new wood boiler was started in October to replace a natural gas boiler. Wood use = 122617 GJ x 56.1545 kg CO<sub>2</sub>/GJ = 2559 Metric tonnes CO<sub>2</sub>e (for natural gas) displaced by wood.</p> <p>3. Renewable percentage in purchased electricity increased by 2.4% compared to 2018: 730,086 MT CO<sub>2</sub>e from 2019 purchased electricity / (1-0.24) = 748,011 MT CO<sub>2</sub>e if no change in renewables. 748011-730086 = 19925 MT CO<sub>2</sub>e reduction due to higher renewable percentage.</p> <p>These changes culminated in a decrease of 27,369 tons CO<sub>2</sub>e, therefore we arrived</p>

				at -0.7% through (-27,369 / 3,946,108 scope 1+2 in 2018) * 100 = -0.7% (i.e. an 0.7% decrease in emissions) in 2019 as compared to 2018.
Other emissions reduction activities	83,221	Decreased	2.1	Represents the total for various emission reduction projects completed in 2019. 83,221 metric tons of CO2e were reduced by our emissions reduction projects, and our Scope 1 and Scope 2 emissions in the previous year were 3,946,108 metric tons CO2e. Therefore, we arrived at a -2.1% decrease through (-83,221 / 3,946,108) * 100 = -2.1%. (i.e., a 2.1% decrease in emissions).
Divestment	0	No change	0	No change in the current year
Acquisitions	0	No change	0	No change in the current year
Mergers	0	No change	0	No change in the current year
Change in output	159,544	Decreased	4	Output was lower by 4.2% in 2019 compared to 2018. Associated CO2e emission reduction was estimated by multiplying the year over year change in tons of finished product by the 2019 company average Scope 1+2 metric ton CO2e/ metric ton finished product intensity, resulting in 159,544 MT CO2e reduction in 2019 as compared to 2018. The percentage change in emissions due to decreased output: (159,544 / 3,946,108 scope 1+2 in 2018) * 100 = -4.0%. This represents a 4.0% year over year decrease in emissions.
Change in methodology	0	No change	0	No change in the current year
Change in boundary	0	No change	0	No change in the current year
Change in physical operating conditions	0	No change	0	No change in the current year due to change in physical operating conditions
Unidentified	4,262	Increased	0.1	The percentage change in emissions is: (4262 / 3,946,108) * 100 = + 0.1%. This represents a 0.1% increase in emissions year over year due to unidentified causes.

Other	0	No change	0	
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## C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

## C8. Energy

### C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 5% but less than or equal to 10%

### C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

## C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	698,584.3	11,473,509.2	12,172,093.5
Consumption of purchased or acquired electricity		324,563.6	1,261,430.2	1,585,993.8
Consumption of purchased or acquired steam		90,373.6	572,470.9	662,844.5
Consumption of self-generated non-fuel renewable energy		0		0
Total energy consumption		1,113,521.5	13,307,410.3	14,420,931.8

## C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

## C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

---

**Fuels (excluding feedstocks)**

Fuel Oil Number 2

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

1,064.3

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

1,064.3

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

0

**Emission factor**

74.343

**Unit**

kg CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O: "Gas/Diesel Oil", Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories

**Comment**

Please note that AR5 100-year global warming potentials were applied to CH<sub>4</sub> and N<sub>2</sub>O emission factors.

---

**Fuels (excluding feedstocks)**

Residual Fuel Oil

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

115,214.6

**MWh fuel consumed for self-generation of electricity**

1,863.2

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

113,351.4

**MWh fuel consumed for self-cogeneration or self-trigeneration**

0

**Emission factor**

77.5635

**Unit**

metric tons CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>: "Residual Fuel Oil", Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories. CH<sub>4</sub> and N<sub>2</sub>O: "Residual Fuel Oil Boilers", Table 2.7 2006 IPCC Guidelines for National Greenhouse Gas Inventories

**Comment**

Please note that AR5 100-year global warming potentials were applied to CH<sub>4</sub> and N<sub>2</sub>O emission factors

---

**Fuels (excluding feedstocks)**

Diesel

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

29,342.5

**MWh fuel consumed for self-generation of electricity**

367.8

**MWh fuel consumed for self-generation of heat**

28,832.6

**MWh fuel consumed for self-generation of steam**

142.1

**MWh fuel consumed for self-cogeneration or self-trigeneration**

0

**Emission factor**

74.343

**Unit**

kg CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O: "Gas/Diesel Oil", Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories

**Comment**

Please note that AR5 100-year global warming potentials were applied to CH<sub>4</sub> and N<sub>2</sub>O emission factors

---

**Fuels (excluding feedstocks)**

Motor Gasoline

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

4,454.5

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

4,454.5

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

0

**Emission factor**

69.543

**Unit**

kg CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O: "Motor Gasoline", Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories

**Comment**

Please note that AR5 100-year global warming potentials were applied to CH<sub>4</sub> and N<sub>2</sub>O emission factors

---

**Fuels (excluding feedstocks)**

Kerosene

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

1,582.1

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

1,582.1

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

0

**Emission factor**

72.143

**Unit**

kg CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O: "Other Kerosene", Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories

**Comment**

Please note that AR5 100-year global warming potentials were applied to CH<sub>4</sub> and N<sub>2</sub>O emission factors

---

**Fuels (excluding feedstocks)**

Liquefied Petroleum Gas (LPG)

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

131,711.6

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

82,298.6

**MWh fuel consumed for self-generation of steam**

49,413

**MWh fuel consumed for self-cogeneration or self-trigeneration**

0

**Emission factor**

63.1545

**Unit**

kg CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O: "Liquefied Petroleum Gases (LPG)", Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories

**Comment**

Please note that AR5 100-year global warming potentials were applied to CH<sub>4</sub> and N<sub>2</sub>O emission factors

---

**Fuels (excluding feedstocks)**

Natural Gas

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

9,123,022.2

**MWh fuel consumed for self-generation of electricity**

17.9

**MWh fuel consumed for self-generation of heat**

2,017,747.1

**MWh fuel consumed for self-generation of steam**

2,784,516.5

**MWh fuel consumed for self-cogeneration or self-trigeneration**

4,320,740.7

**Emission factor**

56.1545

**Unit**

kg CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O: "Natural Gas", Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories

**Comment**

Please note that AR5 100-year global warming potentials were applied to CH<sub>4</sub> and N<sub>2</sub>O emission factors

---

**Fuels (excluding feedstocks)**

Propane Liquid

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

581

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

581

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

0

**Emission factor**

63.1545

**Unit**

kg CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O: "Liquefied Petroleum Gases (LPG)", Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories

**Comment**

Please note that AR5 100-year global warming potentials were applied to CH<sub>4</sub> and N<sub>2</sub>O emission factors

---

**Fuels (excluding feedstocks)**

Wood

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

535,908

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

535,908

**Emission factor**

114.163

**Unit**

kg CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>: "Wood / Wood Waste", Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories. CH<sub>4</sub> and N<sub>2</sub>O: "Wood / Wood Waste Boilers", Table 2.7 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

**Comment**

Please note that AR5 100-year global warming potentials were applied to CH<sub>4</sub> and N<sub>2</sub>O emission factors.

---

**Fuels (excluding feedstocks)**

Coal

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

2,066,536.3

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

2,066,536.3

**Emission factor**

110.793

**Unit**

kg CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>: Bituminous coal: Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories

CH<sub>4</sub>: Bituminous coal - Fluidized bed, circulating bed and Overfeed Spreader Stoker: Table 2.7 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

N<sub>2</sub>O: Bituminous coal - Fluidized bed, circulating bed. Table 2.7 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

N<sub>2</sub>O Bituminous Coal - Overfeed Spreader Stoker Table 2.7 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

**Comment**

Please note that CDP does not appear to allow listing two emission factors for the same fuel in two different types of combustion units. We also employ a second CO<sub>2</sub>e emission factor of 94.814 kg/GJ for Bituminous coal spreader stoker boiler. The emission factor source is Table 2.3 and Table 2.7 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Please note that AR5 100-year global warming potentials were applied to CH<sub>4</sub> and N<sub>2</sub>O emission factors.

---

**Fuels (excluding feedstocks)**

Agricultural Waste

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

4,948.5

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

0

**MWh fuel consumed for self-generation of steam**

0

**MWh fuel consumed for self-cogeneration or self-trigeneration**

4,948.5

**Emission factor**

113.9

**Unit**

kg CO<sub>2</sub>e per GJ

**Emissions factor source**

CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O: Table 2.3, Wood and Wood Waste, 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

**Comment**

This category represents a small quantity of corn derived materials that are burned for energy recovery. We feel that the emission factor for wood and wood wastes best represents this material. Please note that AR5 100-year global warming potentials were applied to CH4 and N2O emission factors.

---

**Fuels (excluding feedstocks)**

Sludge Gas

**Heating value**

LHV (lower heating value)

**Total fuel MWh consumed by the organization**

157,727.9

**MWh fuel consumed for self-generation of electricity**

0

**MWh fuel consumed for self-generation of heat**

6,118.3

**MWh fuel consumed for self-generation of steam**

151,609.6

**MWh fuel consumed for self-cogeneration or self-trigeneration**

0

**Emission factor**

82.0225

**Unit**

kg CO<sub>2</sub>e per GJ

### Emissions factor source

CO2: In-house, calculated based on our typical biogas composition by the Company Corporate Engineering Department. CH4 and N2O: "Sludge gas", Table 2.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

### Comment

This emission factor represents our typical composition of raw biogas generated onsite during wastewater treatment. The raw biogas has not been scrubbed to remove CO2. Please note that AR5 100-year global warming potentials were applied to CH4 and N2O emission factors.

## C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	1,087,449	1,087,449	39,160	39,160
Heat	2,874,516	2,874,516	6,118	6,118
Steam	4,101,547	4,101,547	542,768	542,768
Cooling	0	0	0	0

## C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero emission factor in the market-based Scope 2 figure reported in C6.3.

---

### Sourcing method

None (no purchases of low-carbon electricity, heat, steam or cooling)

**Low-carbon technology type**

**Country/region of consumption of low-carbon electricity, heat, steam or cooling**

**MWh consumed accounted for at a zero emission factor**

**Comment**

## C9. Additional metrics

### C9.1

**(C9.1) Provide any additional climate-related metrics relevant to your business.**

---

**Description**

Other, please specify  
water use intensity

**Metric value**

4.6

**Metric numerator**

cubic meters

**Metric denominator (intensity metric only)**

Metric tons finished product

**% change from previous year**

0.7

**Direction of change**

Decreased

**Please explain**

Our target is to reduce water use intensity (m<sup>3</sup> water /unit of production) at our manufacturing sites by 10% between the baseline and target year. Our definition of water use includes all water intake except for single pass non-contact cooling water that is withdrawn and returned to the same source.

Water intensity decreased through raised awareness, implementation of operational efficiency projects, and implementation of some recycling projects.

---

**Description**

Other, please specify

Sustainable sourcing

**Metric value**

2,895,000

**Metric numerator**

Metric tons

**Metric denominator (intensity metric only)**

**% change from previous year**

33

**Direction of change**

Increased

**Please explain**

Sustainable Sourcing: Our sustainability goals include sustainably sourcing 1 million metric tons of crops by 2018. During calendar year 2018, 2.17 million metric tons of crops were sustainably sourced. In 2019, we increased it to 2.895 million metric tons. Through Field to Market, we track the carbon footprint of farm-level activity and provide farmers with a comparison of their carbon footprint versus other farmers in their areas. We collect carbon emission information annually on our growers through Field to Market.

## C10. Verification

### C10.1

**(C10.1) Indicate the verification/assurance status that applies to your reported emissions.**

	<b>Verification/assurance status</b>
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

### C10.1a

**(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.**

---

**Verification or assurance cycle in place**

Biennial process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 Ingredion Incorporated 2018 Scope 1 2 3 GHG Verification Statement.pdf

**Page/ section reference**

Page 1

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

## C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

---

**Scope 2 approach**

Scope 2 location-based

**Verification or assurance cycle in place**

Biennial process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 Ingredion Incorporated 2018 Scope 1 2 3 GHG Verification Statement.pdf

**Page/ section reference**

Page 1

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

## C10.1c

**(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.**

---

**Scope 3 category**

Scope 3: Purchased goods and services

**Verification or assurance cycle in place**

Biennial process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 Ingredion Incorporated 2018 Scope 1 2 3 GHG Verification Statement.pdf

**Page/section reference**

Page 1

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Upstream transportation and distribution

**Verification or assurance cycle in place**

Biennial process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 Ingredion Incorporated 2018 Scope 1 2 3 GHG Verification Statement.pdf

**Page/section reference**

Page 1

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Business travel

**Verification or assurance cycle in place**

Biennial process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 Ingredion Incorporated 2018 Scope 1 2 3 GHG Verification Statement.pdf

**Page/section reference**

Page 1

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Employee commuting

**Verification or assurance cycle in place**

Biennial process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 Ingredion Incorporated 2018 Scope 1 2 3 GHG Verification Statement.pdf

**Page/section reference**

Page 1

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

---

**Scope 3 category**

Scope 3: Downstream transportation and distribution

**Verification or assurance cycle in place**

Biennial process

**Status in the current reporting year**

Underway but not complete for reporting year – previous statement of process attached

**Type of verification or assurance**

Limited assurance

**Attach the statement**

 Ingredion Incorporated 2018 Scope 1 2 3 GHG Verification Statement.pdf

**Page/section reference**

Page 1

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

## C10.2

**(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

Yes

### C10.2a

**(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Other, please specify  Sustainable sourcing	International Standard on Assurance Engagements (ISAE) 3000 Revised, Assurance Engagements Other than Audits or Reviews of Historical Financial Information (effective for assurance reports dated on or after Dec. 15, 2015)	We have a company sustainability goal to sustainable source greater than 1,000,000 metric tons of crops. The certification letter verified field production as: SAI. Bronze Level or Higher Supplier Production: 2,170,000 metric tons, exceeding our goal.  In 2019, we increased our sustainable sourcing to 2.895 million metric tons.  ①
C2. Risks and opportunities	Other, please specify  Water related metrics for facility in Mexico	International Standard on Assurance Engagements (ISAE) 3000 Revised, Assurance Engagements Other than Audits or Reviews of Historical Financial Information (effective for assurance reports dated on or after Dec. 15, 2015)	Ingredion has identified one facility with the potential to have a substantial financial or strategic impact on the business in accordance with our definition: We define substantive site-level water risks as any facility (direct operation) meeting all of the following criteria:  1. Site is identified as being High or Extremely High risk

		<p>utilizing our ensemble risk tool methodology;</p> <p>2. Site accounts for &gt;5% of our global production by volume; and</p> <p>3. Site is considered strategic to the growth strategy of the organization.</p> <p>The third-party assurance letter is related to water metrics for this facility.</p> <p>①<sup>2</sup></p>
--	--	--

①<sup>1</sup>Ingredion SAI Assurance Statement 2019 Final.pdf

②<sup>2</sup>Ingredion Incorporated W5.1 Facility 1 2019 CDP Verification Statement Water.pdf

## C11. Carbon pricing

### C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

#### C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

California CaT - ETS

Canada federal Output Based Pricing System (OBPS) - ETS

EU ETS

Korea ETS

## C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

### California CaT

---

**% of Scope 1 emissions covered by the ETS**

0.1

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1, 2019

**Period end date**

December 31, 2019

**Allowances allocated**

0

**Allowances purchased**

1,617

**Verified Scope 1 emissions in metric tons CO2e**

1,617

**Verified Scope 2 emissions in metric tons CO2e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

---

**Canada federal OBPS - ETS**

**% of Scope 1 emissions covered by the ETS**

7.9

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1, 2019

**Period end date**

December 31, 2019

**Allowances allocated**

175,188

**Allowances purchased**

42,547

**Verified Scope 1 emissions in metric tons CO2e**

217,735

**Verified Scope 2 emissions in metric tons CO2e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

## EU ETS

---

**% of Scope 1 emissions covered by the ETS**

0.7

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1, 2019

**Period end date**

December 31, 2019

**Allowances allocated**

19,984

**Allowances purchased**

0

**Verified Scope 1 emissions in metric tons CO2e**

19,984

**Verified Scope 2 emissions in metric tons CO2e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

## Korea ETS

---

**% of Scope 1 emissions covered by the ETS**

4.8

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1, 2019

**Period end date**

December 31, 2019

**Allowances allocated**

130,370

**Allowances purchased**

1,000

**Verified Scope 1 emissions in metric tons CO2e**

131,334

**Verified Scope 2 emissions in metric tons CO2e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

## C11.1d

### (C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Our strategy is to utilize existing residual or banked allowances, reduce CO<sub>2</sub>e through energy efficiency and other projects, and purchase allowances as necessary. In California we have stopped manufacturing at the location subject to the ETS and will exit the program at the end of the current compliance cycle.

## C11.2

### (C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

## C11.3

### (C11.3) Does your organization use an internal price on carbon?

No, but we anticipate doing so in the next two years

## C12. Engagement

### C12.1

#### (C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, our customers

Yes, other partners in the value chain

### C12.1a

#### (C12.1a) Provide details of your climate-related supplier engagement strategy.

---

**Type of engagement**

Information collection (understanding supplier behavior)

**Details of engagement**

Collect climate change and carbon information at least annually from suppliers

**% of suppliers by number**

30

**% total procurement spend (direct and indirect)**

40

**% of supplier-related Scope 3 emissions as reported in C6.5**

10

**Rationale for the coverage of your engagement**

Historically Ingredion's sustainable sourcing efforts have focused primarily on our corn and tapioca suppliers, which comprise about 99% of our agricultural sourcing worldwide. In recent years we've furthered our efforts to also assess our lower volume agricultural raw materials, such as potato, berries, and pulses. We engage with agricultural suppliers on sustainable agriculture practices that help reduce climate change (e.g. no tillage, reduced chemical usage, reduced water irrigation, etc.). Through Field to Market, we track the carbon footprint of farm-level activity and provide farmers with a comparison of their carbon footprint versus other farmers in their areas. We collect carbon emission information annually on our growers through Field to Market, as well as through our "Sell Your Corn" web platform. The environmental data collected through this platform will allow us to determine the positive environmental impacts (e.g. lower carbon emissions, lower water use) of our sustainable agriculture efforts. For example, from 2017 to 2018 we saw a nearly 50% reduction in carbon emissions. We will need to track these trends over years to show average benefits, as growing conditions can vary greatly from year to year. From 2018 to 2019 CO<sub>2</sub> emissions were flat.

In 2019, we piloted the Cool Farm Tool in Brazil which will provide field level emissions data that was not previously available in Brazil. We are expanding that program in 2020 and will use the data to drive lower emissions.

**Impact of engagement, including measures of success**

Through our sustainable sourcing program, we collect grower information on climate related issues and use this information to evaluate which suppliers we will source from and where to deploy resources to help drive improvements. This in turn helps incentivize suppliers to participate in the program. We measure success by the number of growers we engage with. We engaged ~15,350 growers globally in 2019, up from 6,000 in 2018. Through Field to Market, we track the carbon footprint of farm-level activity and provide farmers with a comparison of their carbon footprint to other area farmers. We collect carbon emission information annually on our growers through Field to Market, as well as through our "Sell Your Corn" web platform. The US saw a 44% increase in growers put into these platforms and overall North America saw a 134% increase. The environmental data collected through this platform will allow us to determine the positive environmental impacts (e.g. lower carbon emissions, lower water use) of our sustainable agriculture efforts. For example, from 2017 to 2018 we saw a nearly 50% reduction in carbon emissions. From 2018 to 2019 CO<sub>2</sub> emissions were flat. We will continue to track trends over time, as growing conditions vary greatly year to year. These programs help farmers implement practices to increase efficiency and reduce environmental impacts by comparing inputs and yields against local, regional, and national averages. We also engage with agricultural suppliers on sustainable agriculture practices including no tillage, reduced chemical usage (including fertilizers and pesticides), reduced water irrigation, etc. For example, we worked with growers to improve farming techniques including installing drip-fed irrigation systems in Pakistan. In Thailand, we worked to co-develop the Model Farmer Program to train growers in on-farm efficiencies. Ingredion has adopted the SAI Platform's Farm Sustainability Assessment (FSA) as our global benchmark for sustainable agriculture. We work to encourage growers to meet a minimum level of FSA Bronze across our supply chains. In some cases, and geographies, we need to work with growers to get to the FSA Silver level to meet customer expectations. Ingredion has sustainable sourcing efforts active in Argentina, Brazil, Canada, China, Colombia, France, Hungary, Mexico, Pakistan, Thailand, and the United States.

### **Comment**

---

#### **Type of engagement**

Innovation & collaboration (changing markets)

#### **Details of engagement**

Run a campaign to encourage innovation to reduce climate impacts on products and services

#### **% of suppliers by number**

30

**% total procurement spend (direct and indirect)**

40

**% of supplier-related Scope 3 emissions as reported in C6.5**

10

**Rationale for the coverage of your engagement**

Historically Ingredion's sustainable sourcing efforts have focused primarily on our corn and tapioca suppliers, which comprise about 99% of our agricultural sourcing worldwide. In 2017 we furthered our efforts to also assess our lower volume agricultural raw materials, such as potato, berries, and pulses. We engage with agricultural suppliers on sustainable agriculture practices that help reduce climate change (e.g. no tillage, reduced chemical usage, reduced water irrigation, etc.). Through Field to Market, we track the carbon footprint of farm-level activity and provide farmers with a comparison of their carbon footprint versus other farmers in their areas. We collect carbon emission information annually on our growers through Field to Market, as well as through our "Sell Your Corn" web platform. The environmental data collected through this platform will allow us to determine the positive environmental impacts (e.g. lower carbon emissions, lower water use) of our sustainable agriculture efforts. For example, from 2017 to 2018 we saw a nearly 50% reduction in carbon emissions. We will need to track these trends over years to show average benefits, as growing conditions can vary greatly from year to year. From 2018 to 2019 CO<sub>2</sub> emissions were flat.

In 2019, we piloted the Cool Farm Tool in Brazil which will provide field level emissions data that was not previously available in Brazil. We are expanding that program in 2020 and will use the data to drive lower emissions.

**Impact of engagement, including measures of success**

Through our sustainable sourcing program, we collect grower information on climate related issues and use this information to evaluate which suppliers we will source from and where to deploy resources to help drive improvements. This in turn helps incentivize suppliers to participate in the program. We measure success by the number of growers we engage with. We engaged ~15,350 growers globally in 2019, up from 6,000 in 2018. Through Field to Market, we track the carbon footprint of farm-level activity and provide farmers with a comparison of their carbon footprint to other area farmers. We collect carbon emission information annually on our growers through Field to Market, as well as through our "Sell Your Corn" web platform. The US saw a 44% increase in growers put into these platforms and overall North America saw a 134% increase. The environmental data collected through this platform will allow us to determine the positive environmental impacts (e.g. lower carbon emissions, lower water use) of our sustainable agriculture efforts. For example, from 2017 to 2018 we saw a nearly 50% reduction in

carbon emissions. From 2018 to 2019 CO<sub>2</sub> emissions were flat. We will continue to track trends over time, as growing conditions vary greatly year to year. These programs help farmers implement practices to increase efficiency and reduce environmental impacts by comparing inputs and yields against local, regional, and national averages. We also engage with agricultural suppliers on sustainable agriculture practices including no tillage, reduced chemical usage (including fertilizers and pesticides), reduced water irrigation, etc. For example, we worked with growers to improve farming techniques including installing drip-fed irrigation systems in Pakistan. In Thailand, we worked to co-develop the Model Farmer Program to train growers in on-farm efficiencies. Ingredion has adopted the SAI Platform's Farm Sustainability Assessment (FSA) as our global benchmark for sustainable agriculture. We work to encourage growers to meet a minimum level of FSA Bronze across our supply chains. In some cases, and geographies, we need to work with growers to get to the FSA Silver level to meet customer expectations. Ingredion has sustainable sourcing efforts active in Argentina, Brazil, Canada, China, Colombia, France, Hungary, Mexico, Pakistan, Thailand, and the United States.

**Comment**

## C12.1b

**(C12.1b) Give details of your climate-related engagement strategy with your customers.**

---

**Type of engagement**

Education/information sharing

**Details of engagement**

Share information about your products and relevant certification schemes (i.e. Energy STAR)

**% of customers by number**

1

**% of customer - related Scope 3 emissions as reported in C6.5**

0

**Please explain the rationale for selecting this group of customers and scope of engagement**

We engage with customers through CDP Supply Chain and with customers who wanted to better understand the carbon footprint of our operations associated with the manufacturing of their products. The size of engagement, while a relatively low percentage, represents some of our larger customers

**Impact of engagement, including measures of success**

Most of the impact between Ingredion and our customers has been to share information and raise awareness on our mutual goals toward mitigating climate risk. Many of our customers are just asking for data. In other cases, customers are interested in identifying opportunities to reduce that carbon footprint. For example, Ingredion has mapped our agricultural supply chain relative to sourcing for various customers and we continue to work and share information with respect to improvement projects at the farm level. We measure success through positive feedback from our customers

---

**Type of engagement**

Collaboration & innovation

**Details of engagement**

Run a campaign to encourage innovation to reduce climate change impacts

**% of customers by number**

2

**% of customer - related Scope 3 emissions as reported in C6.5**

0

**Please explain the rationale for selecting this group of customers and scope of engagement**

Customer engagement is primarily based upon customers reaching out to discuss support in meeting their specific sustainability goals or targets. In some instances, Ingredion may reach out to customers where we feel we have innovation that meets their particular needs and may also help with specific sustainability goals, such as climate change reductions. This is especially true as Ingredion engages customers looking to diversify animal proteins with plant-based protein solutions to meet business needs to mitigate climate change risks. In 2019, Ingredion announced the launch of a new organic pea protein isolate to its line of plant-based proteins. With studies showing 63 percent of global

consumers selecting plant-based food and beverages to promote long-term health, Ingredion is positioning itself with products that help meet the growing plant protein ingredient demand and reduce greenhouse gas emissions, thereby mitigating negative climate impacts, when compared to animal-based protein. The size of engagement, while a relatively low percentage, represents some of our larger customers.

### **Impact of engagement, including measures of success**

Most of the impact between Ingredion and our customers has been to share information and raise awareness on our mutual goals toward mitigating climate risk. Many of our customers are just asking for data. In other cases, customers are interested in identifying opportunities to reduce that carbon footprint. We have collaborated with customers on sustainable sourcing targets and we continue to utilize the SAI Platform Farm Sustainability Assessment (FSA) to assess opportunities with growers to improve on-farm efficiencies. This has taken the shape of projects like precision agriculture in the US which limit the impacts to climate. We measure success through positive feedback from our customers

## **C12.1d**

### **(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.**

We engage with investors through CDP, as well as direct dialogue around climate change and our strategies associated with it. We engage with SAI Platform and Field to Market, NGOs, for sustainable agriculture, both of which look at the climate change impacts of agriculture and strategies to mitigate. We are also collaborating with a few universities around climate modeling possibilities related to agriculture.

Ingredion engages with certain customers on climate-related considerations through customer surveys and dialogue and through online data sharing tools such as CDP and EcoVadis. We also actively engage in dialogue with certain investors. Many of our facilities engage our neighbors and communities through Community Advisory Committees where many topics are covered, including environmental sustainability. Different parts of the organization are engaging with NGOs. For example, our operations in Colombia are completing a water footprint study with the National Association of Entrepreneurs of Colombia and the National Cleaner Production Center, with the support of the Switzerland Embassy, to identify water supply risks, which are impacted by climate change. Our Thailand operations work closely with the Thai Tapioca Starch Association and our Brazil sites engage with the Nature Conservancy. In addition, we are working closely with the Sustainable Agricultural Initiative and Field to Market on continual improvement opportunities. Through our sustainable sourcing initiatives, we are beginning to establish dialogue with our main raw material suppliers. To date, Ingredion's sustainable sourcing efforts have focused primarily on corn and tapioca, which make up the vast majority of our agricultural inputs. We are expanding our efforts to other crops (~1% of our agricultural raw materials).

The functional responsibility for sustainability within Ingredion is under the commercial team. As such, we are working on sustainability engagements with our key customers regionally and globally. These engagements will include discussions around climate change, determination of customer needs in this space, and establishing actions plans moving forward.

## C-AC12.2/C-FB12.2/C-PF12.2

**(C-AC12.2/C-FB12.2/C-PF12.2) Do you encourage your suppliers to undertake any agricultural or forest management practices with climate change mitigation and/or adaptation benefits?**

Yes

## C-AC12.2a/C-FB12.2a/C-PF12.2a

**(C-AC12.2a/C-FB12.2a/C-PF12.2a) Specify which agricultural or forest management practices with climate change mitigation and/or adaptation benefits you encourage your suppliers to undertake and describe your role in the implementation of each practice.**

---

**Management practice reference number**

MP1

**Management practice**

Crop diversity

**Description of management practice**

Diversification of crops grown in fields increases agronomic value of farming and disrupts insect and weed cycles.

**Your role in the implementation**

Knowledge sharing

**Explanation of how you encourage implementation**

Communication with growers on crop diversity benefits.

**Climate change related benefit**

- Increasing resilience to climate change (adaptation)
- Reduced demand for fertilizers (adaptation)
- Reduced demand for pesticides (adaptation)

**Comment**

---

**Management practice reference number**

MP2

**Management practice**

Crop rotation

**Description of management practice**

Rotate between crops grown in a field rather than the same crop in a continuous fashion. Breaks insect and weed cycles.

**Your role in the implementation**

Knowledge sharing

**Explanation of how you encourage implementation**

Review benefits of crop rotation when communicating with growers.

**Climate change related benefit**

- Increasing resilience to climate change (adaptation)
- Reduced demand for fertilizers (adaptation)
- Reduced demand for pesticides (adaptation)

**Comment**

---

**Management practice reference number**

MP3

**Management practice**

Equipment maintenance and calibration

**Description of management practice**

Reduces GHG emissions and carbon footprint of farming activities.

Allows for more accurate precision agriculture data collection.

**Your role in the implementation**

Knowledge sharing

**Explanation of how you encourage implementation**

Communicate with growers on the importance of equipment maintenance.

Poll growers on whether maintenance practices are being employed (via SAI FSA).

**Climate change related benefit**

Increasing resilience to climate change (adaptation)

Reduced demand for fertilizers (adaptation)

Reduced demand for pesticides (adaptation)

**Comment**

---

**Management practice reference number**

MP4

**Management practice**

Fertilizer management

**Description of management practice**

Ensure proper amounts and timing of fertilizer applications to ensure efficiency and decrease run off and waste.

**Your role in the implementation**

Knowledge sharing

**Explanation of how you encourage implementation**

Discuss with growers at meetings.

Highlight environmental and economic benefits of proper fertilizer management.

**Climate change related benefit**

Increasing resilience to climate change (adaptation)

Reduced demand for fertilizers (adaptation)

Reduced demand for pesticides (adaptation)

**Comment**

---

**Management practice reference number**

MP5

**Management practice**

Integrated pest management

**Description of management practice**

Utilize scouting for pests to identify chemical and physical solutions to pest issues targeted at a farm level.

**Your role in the implementation**

Knowledge sharing

**Explanation of how you encourage implementation**

Review IPM strategies with growers in direct communications.

Specific example is a predator wasp release to reduce mealy bug issue in Thailand.

**Climate change related benefit**

Increasing resilience to climate change (adaptation)

Reduced demand for fertilizers (adaptation)

Reduced demand for pesticides (adaptation)

**Comment**

---

**Management practice reference number**

MP6

**Management practice**

Knowledge sharing

**Description of management practice**

Proactively communicate with growers on new strategies, seeds, technologies, etc. that may improve agronomic, economic, or other conditions at the farm level

**Your role in the implementation**

Knowledge sharing

**Explanation of how you encourage implementation**

Local grower meetings to facilitate best practice sharing between growers. (Model farmer program in Thailand; development of hybridized seed in Pakistan) and to bring in experts to discuss agriculture with growers.

### **Climate change related benefit**

- Increasing resilience to climate change (adaptation)
- Reduced demand for fertilizers (adaptation)
- Reduced demand for pesticides (adaptation)

### **Comment**

Local grower meetings to facilitate best practice sharing between growers. (Model farmer program in Thailand; development of hybridized seed in Pakistan) and to bring in experts to discuss Ag with growers (example the NA grower meetings).

---

### **Management practice reference number**

MP7

### **Management practice**

Low tillage and residue management

### **Description of management practice**

Rely less on annual deep tillage and more on low/no till options.  
Recognize the benefits of residue on fields year-round for increased organic matter, decreased run off, and improved water holding capacity.

### **Your role in the implementation**

Knowledge sharing

### **Explanation of how you encourage implementation**

Communication with growers on this topic at meetings.  
Collect information on practices through Sustainable Sourcing platforms.

### **Climate change related benefit**

- Increasing resilience to climate change (adaptation)
- Reduced demand for fossil fuel (adaptation)
- Reduced demand for fertilizers (adaptation)

**Comment**

---

**Management practice reference number**

MP8

**Management practice**

Nitrogen-fixing plants as cover crop

**Description of management practice**

Where applicable and able to be managed, plant cover crops to fix available N to the soil for use with later crops.

**Your role in the implementation**

Knowledge sharing

**Explanation of how you encourage implementation**

Discuss cover cropping in communications with growers.  
Highlight possible benefits of cover cropping.

**Climate change related benefit**

Increasing resilience to climate change (adaptation)  
Reduced demand for fertilizers (adaptation)  
Reduced demand for pesticides (adaptation)

**Comment**

---

**Management practice reference number**

MP9

**Management practice**

Pest, disease and weed management practices

**Description of management practice**

Utilize crop scouting, integrated pest management strategies, and appropriate chemical controls to increase agronomic viability of a farm in a responsible fashion.

**Your role in the implementation**

Knowledge sharing

**Explanation of how you encourage implementation**

Communication with growers.

Examples include herbicide tolerance studies on specialty corn in the US and the model farmer program in Thailand.

We are seeing continued success from a program in previous year where we worked with farmers and local officials to mitigate mealy bug infestation in the Thailand Cassava crop.

**Climate change related benefit**

Increasing resilience to climate change (adaptation)

Reduced demand for fertilizers (adaptation)

Reduced demand for pesticides (adaptation)

**Comment**

**C-AC12.2b/C-FB12.2b/C-PF12.2b**

**(C-AC12.2b/C-FB12.2b/C-PF12.2b) Do you collect information from your suppliers about the outcomes of any implemented agricultural/forest management practices you have encouraged?**

Yes

## C12.3

**(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

Trade associations

## C12.3b

**(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

## C12.3c

**(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

---

### Trade association

Corn Refiners Association (CRA)

### Is your position on climate change consistent with theirs?

Consistent

### Please explain the trade association's position

CRA is committed to helping its member companies strive for sustainability in all aspects of their operations. Whether that involves reducing environmental impact, promoting responsible supply chains, or actively engaging member employees and their communities, CRA stands with its member companies to solve some of the most complex challenges of the 21st century.

### How have you influenced, or are you attempting to influence their position?

Participation through our membership, contributing to position papers and dialogue with other CRA members

---

**Trade association**

Starch Europe

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

Starch Europe's mission is to promote and protect the reputation of starch products and the interests of EU starch producers to EU and international institutions and stakeholders, in order to assure a reliable and sustainable supply of safe starch-based ingredients in a fair competitive environment.

**How have you influenced, or are you attempting to influence their position?**

Participation through our membership, contributing to position papers and dialogue with other members

## C12.3f

**(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

Any such activities, should they occur, are coordinated through our Corporate Sustainability Council, Operations Leadership Team (OLT), Executive Leadership Team, and/or our Board of Directors, which ensures they are consistent with our overall water and climate change strategy. Select members of these teams participate in the trade association meetings and would bring forward any matters of inconsistency for discussion with teams referenced above. The internal teams (Sustainability Council, OLT, etc.) are led by an ELT member and are cross-functional with shared members to provide knowledge and collaboration on such issues.

## C12.4

**(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

---

**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

📎 Ingredion 2019 Annual Report.pdf

**Page/Section reference**

Section 1A Risk Factors, Page 10, Climate change and future costs of environmental compliance may be material

**Content elements**

Governance

Strategy

Risks & opportunities

**Comment**

---

**Publication**

In voluntary sustainability report

**Status**

Complete

**Attach the document**

📎 INGR 2019 Sustainability Report.pdf

**Page/Section reference**

Planet Life, Pages 16-18

**Content elements**

- Governance
- Strategy
- Risks & opportunities
- Emissions figures
- Emission targets
- Other metrics

**Comment**

## C13. Other land management impacts

### C-AC13.2/C-FB13.2/C-PF13.2

(C-AC13.2/C-FB13.2/C-PF13.2) Do you know if any of the management practices mentioned in C-AC12.2a/C-FB12.2a/C-PF12.2a that were implemented by your suppliers have other impacts besides climate change mitigation/adaptation?

Yes

### C-AC13.2a/C-FB13.2a/C-PF13.2a

(C-AC13.2a/C-FB13.2a/C-PF13.2a) Provide details of those management practices implemented by your suppliers that have other impacts besides climate change mitigation/adaptation.

---

**Management practice reference number**

MP1

**Overall effect**

Positive

**Which of the following has been impacted?**

Soil

**Description of impacts**

Diversification of crops grown in fields increases the agronomic value of farming and disrupts insect and weed cycles

**Have any response to these impacts been implemented?**

Yes

**Description of the response(s)**

Growers are beginning to practice crop diversity as well as crop rotation

---

**Management practice reference number**

MP7

**Overall effect**

Positive

**Which of the following has been impacted?**

Water

**Description of impacts**

Rely less on annual deep tillage and more on low/no-till options. This increases organic matter in the soil, decreases runoff and loss of top soil and improves the water holding capacity of soils

**Have any response to these impacts been implemented?**

Yes

**Description of the response(s)**

Growers are implementing low/no-till practices

---

**Management practice reference number**

MP2

**Overall effect**

Positive

**Which of the following has been impacted?**

Soil

**Description of impacts**

Rotating crops breaks insect and weed cycles and reduces the potential for soil nutrient depletion

**Have any response to these impacts been implemented?**

Yes

**Description of the response(s)**

Growers are implementing crop rotation practices

---

**Management practice reference number**

MP4

**Overall effect**

Positive

**Which of the following has been impacted?**

Water

**Description of impacts**

Ensuring proper amounts and timing of fertilizer applications decrease run off and impacts to surface water.

**Have any response to these impacts been implemented?**

Yes

**Description of the response(s)**

Fertilizer management practices reduce the amount of fertilizer applied in the field and ensure the proper availability to maximize plant growth.

## C15. Signoff

### C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

### C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	President and Chief Executive Officer	Chief Executive Officer (CEO)

## SC. Supply chain module

### SC0.0

#### (SC0.0) If you would like to do so, please provide a separate introduction to this module.

Ingredion Incorporated is a Fortune 500 global ingredient solutions company with 2019 net sales of \$6.2 billion. We turn corn, tapioca, potatoes, grains, fruits, and vegetables into value-added ingredients and biomaterials for the food, beverage, brewing and other industries. Headquartered in Westchester, IL, in the western suburb of Chicago, Ingredion employs approximately 11,000 people world-wide and operates global manufacturing, R&D and sales offices in four business segments: North America, South America, Asia Pacific and Europe, Middle East, and Africa ("EMEA"). Our people are our strength. In 2019, Ingredion was recognized as one of the World's Most Admired Companies by Fortune magazine for the 11th consecutive year. We are proud to be included in Bloomberg's Gender-Equality Index for the third consecutive year and, Ingredion was named one of the World's Most Ethical Companies by Ethisphere for the seventh consecutive year. Our product lines include starches and sweeteners, animal feed products and edible corn oil.

Our products are derived primarily from the processing of corn and other starch-based materials, such as tapioca, potato and rice. We are in the process of expanding our plant-based protein product lines, including pulse-based concentrates, flours and isolates. Our manufacturing process is capital-intensive, two-step process involving the wet-milling and processing of starch-based materials. During the front-end process, corn is steeped in a water-based solution and separated into starch and co-products such as animal feed and corn oil. The starch is then either dried for sale or further processed to make sweeteners, starches and other ingredients that serve the needs of various industries.

We believe our approach to production and service, focusing 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, bringing added value to our customers through innovative solutions. At the same time, we believe that our corporate functions allow us to identify synergies and maximize the benefits of our global presence.

We have a global network of more than 400 scientists working on research and development in 30 Ingredion Idea Labs® innovation centers. Activities include plant science and physical, chemical and biochemical modification 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 to create solutions to better serve the ingredient needs of our customers.

In 2019, we accelerated our focus on ESG issues to communicate how we are driving long-term value and our ability to support customers success both profitably and responsibly. We celebrated Earth Day 2020 with the publication of our 2019 Sustainability Report, that showcased how we integrated sustainability within our business and our operations to “make ALL LIFE better”. As stated by Larry Fernandes, Senior Vice President, Chief Commercial and Sustainability Officer: “Some highlights you will see in our new All Life program are better alignment with the UN Sustainable Development Goals (SDGs), science- and context-based environmental targets, a commitment to increased transparency across our supply chain and increased commitments that build upon our great foundation in sustainable agriculture. Our All Life plan has been designed to better align us with the increasing expectations of our customers and consumers, and to ensure that Ingredion continues to do our part to deliver on a more sustainable world through 2030 and beyond. As you read through the new goals and milestones that shape our 2030 All Life strategy, I want to signal to you that we have not fully defined how we will get to these targets. We are firmly committed to reaching for higher aspirations and will continue to refine our roadmap as we go forward. We do know that, as with achieving the SDGs, our success will rely heavily on collaboration. We will be looking for our customers, suppliers and other organizations with sustainability expertise to engage with us on this journey. I am extremely excited about the possibilities these collaborations will bring.”

We continue to work with our agricultural and non-agricultural suppliers to improve sustainability across our supply chain and deliver on the expectations of our stakeholders. Ingredion is committed to operating with integrity and maintaining high ethical standards everywhere we do business. We recognize the rights of all people to fair and decent work, clean water, and to be treated with dignity and respect. As a signatory to the Global Compact, we are committed to aligning our global operations with universally recognized principles on human rights, labor, anti- corruption, and the environment.

## SC0.1

**(SC0.1) What is your company's annual revenue for the stated reporting period?**

	Annual Revenue
Row 1	6,209,000,000

## SC0.2

**(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?**

Yes

## SC0.2a

(SC0.2a) Please use the table below to share your ISIN.

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	US	4571871023

## SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

---

**Requesting member**

Ajinomoto Co.Inc.

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

6,529

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO2e

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO2e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program. Resulting CO2e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO2e emissions at the product line level. Note that Scope 1 CO2e totals reported include CH4 and N2O from combustion of biogenic materials, while excluding CO2 from biologically sequestered carbon.

---

**Requesting member**

Ajinomoto Co.Inc.

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

1,473

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO<sub>2</sub>e emissions.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level.

---

**Requesting member**

The Coca-Cola Company

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO2e**

108,602

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO2e.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO2e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program. Resulting CO2e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO2e emissions at the product line level. Note that Scope 1 CO2e totals reported include CH4 and N2O from combustion of biogenic materials, while excluding CO2 from biologically sequestered carbon.

---

**Requesting member**

The Coca-Cola Company

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO2e**

35,935

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO2e emissions.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level.

---

**Requesting member**

Colgate Palmolive Company

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

7,503

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO<sub>2</sub>e.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO2e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program.

Resulting CO2e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO2e emissions at the product line level. Note that Scope 1 CO2e totals reported include CH4 and N2O from combustion of biogenic materials, while excluding CO2 from biologically sequestered carbon.

---

**Requesting member**

Colgate Palmolive Company

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO2e**

1,562

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO<sub>2</sub>e emissions.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level.

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**Requesting member**

Clorox Company

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

186

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO<sub>2</sub>e.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO<sub>2</sub>e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level. Note that Scope 1 CO<sub>2</sub>e totals reported include CH<sub>4</sub> and N<sub>2</sub>O from combustion of biogenic materials, while excluding CO<sub>2</sub> from biologically sequestered carbon.

---

**Requesting member**

Clorox Company

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO2e**

61

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO2e emissions.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO2e emissions were aggregated at the regional level and were

allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level.

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**Requesting member**

Diageo Plc

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

3,222

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO<sub>2</sub>e.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO<sub>2</sub>e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level. Note that Scope 1 CO<sub>2</sub>e totals reported include CH<sub>4</sub> and N<sub>2</sub>O from combustion of biogenic materials, while excluding CO<sub>2</sub> from biologically sequestered carbon.

---

**Requesting member**

Diageo Plc

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

1,160

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO<sub>2</sub>e emissions.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level.

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**Requesting member**

FIRMENICH SA

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO2e**

553

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO2e.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO2e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program. Resulting CO2e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO2e emissions at the product line level. Note that Scope 1 CO2e totals reported include CH4 and N2O from combustion of biogenic materials, while excluding CO2 from biologically sequestered carbon.

---

**Requesting member**

FIRMENICH SA

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

158

**Uncertainty (±%)**

**Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO<sub>2</sub>e emissions.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level.

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**Requesting member**

Givaudan SA

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

2,476

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO<sub>2</sub>e.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO<sub>2</sub>e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level. Note that Scope 1 CO<sub>2</sub>e totals reported include CH<sub>4</sub> and N<sub>2</sub>O from combustion of biogenic materials, while excluding CO<sub>2</sub> from biologically sequestered carbon.

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**Requesting member**

Givaudan SA

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

876

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO<sub>2</sub>e emissions.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level.

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**Requesting member**

International Flavors & Fragrances Inc.

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

1,385

**Uncertainty ( $\pm\%$ )**

### **Major sources of emissions**

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO2e.

### **Verified**

No

### **Allocation method**

Allocation based on mass of products purchased

### **Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO2e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program.

Resulting CO2e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO2e emissions at the product line level. Note that Scope 1 CO2e totals reported include CH4 and N2O from combustion of biogenic materials, while excluding CO2 from biologically sequestered carbon.

---

### **Requesting member**

International Flavors & Fragrances Inc.

### **Scope of emissions**

Scope 2

### **Allocation level**

### **Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

408

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO<sub>2</sub>e emissions.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level.

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**Requesting member**

Kellogg Company

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO2e**

18,595

**Uncertainty (±%)**

**Major sources of emissions**

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO2e.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO2e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program. Resulting CO2e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO2e emissions at the product line level. Note that Scope 1 CO2e totals reported include CH4 and N2O from combustion of biogenic materials, while excluding CO2 from biologically sequestered carbon.

---

**Requesting member**

Kellogg Company

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

6,695

**Uncertainty (±%)**

**Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO<sub>2</sub>e emissions.

**Verified**

No

**Allocation method**

Allocation based on the volume of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level.

---

**Requesting member**

PepsiCo, Inc.

**Scope of emissions**

Scope 1

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

76,485

**Uncertainty (±%)**

**Major sources of emissions**

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO<sub>2</sub>e.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO<sub>2</sub>e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program. Resulting CO<sub>2</sub>e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO<sub>2</sub>e emissions at the product line level. Note that Scope 1 CO<sub>2</sub>e totals reported include CH<sub>4</sub> and N<sub>2</sub>O from combustion of biogenic materials, while excluding CO<sub>2</sub> from biologically sequestered carbon.

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**Requesting member**

PepsiCo, Inc.

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO<sub>2</sub>e**

25,211

**Uncertainty ( $\pm\%$ )**

### **Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO2e emissions.

### **Verified**

No

### **Allocation method**

Allocation based on mass of products purchased

### **Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO2e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO2e emissions at the product line level.

---

### **Requesting member**

Unilever plc

### **Scope of emissions**

Scope 1

### **Allocation level**

Company wide

### Allocation level detail

#### Emissions in metric tonnes of CO2e

30,745

#### Uncertainty ( $\pm\%$ )

#### Major sources of emissions

Boilers, turbines, and energy efficient cogeneration units are our major source of scope 1 CO2e.

#### Verified

No

#### Allocation method

Allocation based on mass of products purchased

#### Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

Fuels and other sources of GHG emissions are tracked at all manufacturing facilities. Our methodology for estimating CO2e emissions and the accuracy of fuel and other GHG emission records for our global manufacturing operations are included in a 3rd party verification program.

Resulting CO2e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO2e emissions at the product line level. Note that Scope 1 CO2e totals reported include CH4 and N2O from combustion of biogenic materials, while excluding CO2 from biologically sequestered carbon.

---

#### Requesting member

Unilever plc

**Scope of emissions**

Scope 2

**Allocation level**

Company wide

**Allocation level detail**

**Emissions in metric tonnes of CO2e**

8,014

**Uncertainty ( $\pm\%$ )**

**Major sources of emissions**

Purchased electricity and to a lesser extent purchased steam are our major sources of scope 2 CO2e emissions.

**Verified**

No

**Allocation method**

Allocation based on mass of products purchased

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Purchased electricity emissions are based on emission factors from E-Grid in the United States, and either government published or International Energy Administration (IEA) emission factors for other countries. Scope 2 emissions from purchased steam are calculated based on the fuel type, an efficiency estimate, and IPCC 2006 emission factors. Our methodology and emission factors used are included in a 3rd party verification program for our global manufacturing operations. Resulting CO2e emissions were aggregated at the regional level and were allocated to customers based on the mass of products purchased weighted by regions where manufactured. We are not able to estimate CO2e

emissions at the product line level.

## SC1.2

**(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).**

2006 IPCC Guidelines for National Greenhouse Gas Inventories, Default emissions factors for Stationary Combustion in Manufacturing Industries and Construction.

IEA Emission Factors (2019 Edition)

EGRIDv2 released 3/9/2020, U.S. EPA

## SC1.3

**(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?**

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	It would require an exponential increase in costs, engineering resources, and installation and upkeep of metering equipment to track and calculate energy use at the product/product line level on an ongoing basis.

## SC1.4

**(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?**

No

## SC1.4b

### (SC1.4b) Explain why you do not plan to develop capabilities to allocate emissions to your customers.

We have allocated emissions to customers based on the mass of products purchased in the regions where they were purchased, and believe this allocation method is adequate.

## SC2.1

### (SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

---

**Requesting member**

Ajinomoto Co.Inc.

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO<sub>2</sub>e savings**

**Estimated payback**

## Details of proposal

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

### Requesting member

Ajinomoto Co.Inc.

### Group type of project

Other, please specify

### Type of project

Other, please specify  
Agricultural Supply

### Emissions targeted

### Estimated timeframe for carbon reductions to be realized

3-5 years

### Estimated lifetime CO2e savings

### Estimated payback

## Details of proposal

Explore opportunities to collaborate in support of on-farm GHG reductions for select crops and/or geographies.

---

**Requesting member**

Clorox Company

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO<sub>2</sub>e savings**

**Estimated payback**

**Details of proposal**

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

**Requesting member**

Colgate Palmolive Company

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO2e savings**

**Estimated payback**

**Details of proposal**

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

**Requesting member**

Diageo Plc

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO2e savings**

**Estimated payback**

**Details of proposal**

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

**Requesting member**

Diageo Plc

**Group type of project**

**Type of project**

Other, please specify

Agricultural Supply

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

3-5 years

**Estimated lifetime CO2e savings**

**Estimated payback**

**Details of proposal**

Explore opportunities to collaborate in support of on-farm GHG reductions for select crops and/or geographies.

---

**Requesting member**

FIRMENICH SA

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO2e savings**

**Estimated payback**

**Details of proposal**

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

**Requesting member**

Givaudan SA

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO2e savings**

**Estimated payback**

### **Details of proposal**

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

#### **Requesting member**

Givaudan SA

#### **Group type of project**

#### **Type of project**

Other, please specify

Agricultural Supply

#### **Emissions targeted**

#### **Estimated timeframe for carbon reductions to be realized**

3-5 years

#### **Estimated lifetime CO2e savings**

#### **Estimated payback**

### **Details of proposal**

Explore opportunities to collaborate in support of on-farm GHG reductions for select crops and/or geographies.

---

**Requesting member**

International Flavors & Fragrances Inc.

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO2e savings**

**Estimated payback**

**Details of proposal**

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

**Requesting member**

Kellogg Company

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO<sub>2</sub>e savings**

**Estimated payback**

**Details of proposal**

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

**Requesting member**

PepsiCo, Inc.

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO<sub>2</sub>e savings**

**Estimated payback**

**Details of proposal**

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

**Requesting member**

PepsiCo, Inc.

**Group type of project**

**Type of project**

Other, please specify

Agricultural Supply

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

3-5 years

**Estimated lifetime CO<sub>2</sub>e savings**

**Estimated payback**

**Details of proposal**

Explore opportunities to collaborate in support of on-farm GHG reductions for select crops and/or geographies.

---

**Requesting member**

The Coca-Cola Company

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO<sub>2</sub>e savings**

**Estimated payback**

## Details of proposal

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

### Requesting member

The Coca-Cola Company

### Group type of project

### Type of project

Other, please specify  
Agricultural Supply

### Emissions targeted

### Estimated timeframe for carbon reductions to be realized

3-5 years

### Estimated lifetime CO2e savings

### Estimated payback

## Details of proposal

Explore opportunities to collaborate in support of on-farm GHG reductions for select crops and/or geographies.

---

**Requesting member**

Unilever plc

**Group type of project**

**Type of project**

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

**Estimated lifetime CO<sub>2</sub>e savings**

**Estimated payback**

**Details of proposal**

Ingredion has mapped our supply chain, and we are open to a discussion on how best to collaborate to reduce environmental impact and provide mutual value.

---

**Requesting member**

Unilever plc

**Group type of project**

**Type of project**

- Other, please specify
- Agricultural Supply

**Emissions targeted**

**Estimated timeframe for carbon reductions to be realized**

- 3-5 years

**Estimated lifetime CO<sub>2</sub>e savings**

**Estimated payback**

**Details of proposal**

Explore opportunities to collaborate in support of on-farm GHG reductions for select crops and/or geographies.

**SC2.2**

**(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?**

No

## SC3.1

(SC3.1) Do you want to enroll in the 2020-2021 CDP Action Exchange initiative?

No

## SC3.2

(SC3.2) Is your company a participating supplier in CDP's 2019-2020 Action Exchange initiative?

No

## SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

No, I am not providing data

## Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I am submitting to	Public or Non-Public Submission	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Investors Customers	Public	Yes, submit Supply Chain Questions now

**Please confirm below**