Garden flowers, ornamentals, and plants

Key Performance Indicators

Version 02.04

About the Garden flowers, ornamentals, and plants Key Performance Indicators

This THESIS Performance Assessment covers cultivated or wild-harvested whole plants. This includes, but is not limited to, bulbs, shrubs, tree, flowers, and dormant plants. It does not include cut flowers or artificial plants.
The information you collect for these KPIs should cover your global production and not be specific to any region or buyer (e.g., retailer).
Remember to download the assessment documents to help you in completing the KPIs. Make sure to review the detailed guidance and resources for each KPI. Your work is saved automatically but not shared until you are ready.

Introduction

The Sustainability Insight System, THESIS, from The Sustainability Consortium (TSC) is a comprehensive and holistic solution for understanding environmental and social performance in consumer goods supply chains. These key performance indicators (KPIs) can be used to assess action, transparency, and continuous improvement on the material sustainability issues for brands, manufacturers, and producers.

TSC created this KPI set using its science-based, multi-stakeholder, and full life-cycle development process. TSC members and partners, including manufacturers, retailers, suppliers, service providers, NGOs, civil society organizations, governmental agencies, and academics, contributed valuable perspectives and expertise.

TSC is a global organization dedicated to improving the sustainability of consumer products that also offers a portfolio of services to help drive effective implementation. For more information please visit www.sustainabilityconsortium.org

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Key Performance Indicators

QUESTION	RESPONSE OPTION
1. Product Supply Mapping For what percentage of your product supply can you identify the country, region, or farm of origin?	**A.** We are unable to determine at this time. **B.** The following percentages represent the origins of our product supply: **B1.**_____% of our product supply, by total spend, was not traced to the country, region, or farm of origin. **B2.**_____% of our product supply, by total spend, was traced to the country of origin. **B3.**_____% of our product supply, by total spend, was traced to the region of origin. **B4.**_____% of our product supply, by total spend, was traced to the farm of origin.
2. Biodiversity Management - Wild Harvesting What percentage of your wild-harvested product supply, by total spend, was provided by suppliers that had a biodiversity management program in place?	**A.** Not applicable. We do not source wild-harvested flowers or plants. **B.** We are unable to determine at this time. **C.** The following percentage of our wild-harvested product supply, by total spend, was provided by suppliers that had a biodiversity management program in place that has been third-party reviewed: **C1.**_____%.
3. Fertilizer Application - Growing Operations What was the nitrogen use intensity and phosphorus surplus associated with fertilizer application at the growing operations where your product was produced?	**A.** We are unable to determine at this time. **B.** We are able to report the following for our product supply: **B1.**_____ grams nitrogen per dollar of product harvested. **B2.**_____% of our product supply, by total spend, is represented by the number reported in B1. **B3.**_____ grams phosphorus surplus per dollar of product harvested. **B4.**_____% of our product supply, by total spend, is represented by the number reported in B3.
4. Greenhouse Gas Emissions Intensity - Growing Operations What was the greenhouse gas emissions intensity associated with the growing operations that produced your product supply?	**A.** We are unable to determine at this time. **B.** We are able to report the following for our product supply: **B1.**_____ grams CO_2e per dollar of product harvested. **B2.**_____% of our product supply, by total spend, is represented by the number reported above.
5. Indigenous Peoples' and Community Rights How did your organization manage the protection of traditional and civil rights of local indigenous peoples and communities near the growing operations that produced your product supply?	**A.** We are unable to determine at this time. **B.** We are able to report the following for our product supply: **B1.**_____% of our product supply, by total spend, was produced by growing operations that ensured the Free, Prior, and Informed Consent (FPIC) of local indigenous peoples and community users affected by their operations. **B2.**_____% of our product supply, by total spend, came from high-risk countries that have high-risk sites for which we took corrective actions taken through a site-based management program. **B3.**_____% of our product supply, by total spend, was covered by a current certification or verification system that meets the criteria for the protection of traditional and civil rights of local indigenous peoples and communities.
6. Irrigation Water Use Intensity - Growing Operations What was the irrigation water use intensity associated with the growing operations that produced your product supply?	**A.** We are unable to determine at this time. **B.** We are able to report the following for our product supply: **B1.**_____ liters of irrigation water use per dollar of product harvested. **B2.**_____% of our product supply, by total spend, is represented by the number reported above.

7. Labor Rights - Growing Operations How did your organization manage labor rights risks in the operations that produced your product supply?	**A.** We are unable to determine at this time. **B.** We are able to report the following: **B1.**_____% of our product supply, by total spend, was produced in operations that were covered by an internal policy that has quantitative time-bound goals related to child labor, discrimination, forced labor, and freedom of association and collective bargaining. **B2.**_____% of our product supply, by total spend, was produced in operations that were reviewed by a risk assessment which identifies high-risk areas for labor rights abuses. **B3.**_____% of our staff responsible for procurement activities have been trained on labor rights issues in the supply chain. **B4.**_____% of our staff responsible for procurement activities have been evaluated via performance metrics on labor rights improvements in the supply chain. **B5.**_____% of our product supply, by total spend, was produced in operations that were low risk, that were high risk but corrective actions were taken, or that were audited on child labor, discrimination, forced labor, and freedom of association and collective bargaining in the last three years.
8. Pesticide Application - Growing Operations What percentage of your product supply, by total spend, was provided by growing operations that had a verifiable, site-based environmental, health, and safety (EHS) program to assess and manage impacts to humans and the environment from pesticides and that shared data on their pesticide use?	**A.** We are unable to determine at this time. **B.** We are able to report the following percentages for our product supply: **B1.**_____% of our product supply, by total spend, was provided by growing operations that had a verifiable EHS program to assess and manage impacts to humans and the environment from pesticides. **B2.**_____% of our product supply, by total spend, was provided by growing operations that shared data on their pesticide use.
9. Worker Health and Safety - Growing Operations How did your organization manage worker health and safety risks in the operations that produced your product supply?	**A.** We are unable to determine at this time. **B.** We are able to report the following: **B1.**_____% of our product supply, by total spend, was produced in operations that have performed a risk assessment to identify high-risk areas for health and safety. **B2.**_____% of our product supply, by total spend, was produced in operations that train workers on health and safety procedures. **B3.**_____% of our product supply, by total spend, was produced in operations that implement a verifiable worker health and safety plan. **B4.**_____% of our product supply, by total spend, was produced in operations that have a worker health and safety performance monitoring system in place. **B5.**_____% of our product supply, by total spend, was produced in operations that were audited in the last three years on worker health and safety issues.
10. Packaging Raw Material Sourcing What percentage of the sales packaging used for your final products, by mass, was post-consumer recycled material and sustainably-sourced renewable virgin material?	**A.** Not applicable. We do not use sales packaging for our product. **B.** We are unable to determine at this time. **C.** The sales packaging used for our final products was: **C1.**_____% post-consumer recycled material. **C2.**_____% sustainably-sourced renewable virgin material.

11. Sustainable Packaging Design and Production What percentage of the sales packaging for your final product was recyclable, was formally assessed for material and process efficiency and weight or volume optimization, had demonstrated quantified environmental impact reduction, and was labelled for recycling according to an established standard?	**A.** Not applicable. We do not use sales packaging for our product. **B.** We are unable to determine at this time. **C.** We are able to report the following for the sales packaging used for our final products: **C1.**_____% of our packaging, by mass, was recyclable. **C2.**_____ % of our packaging, by mass, has demonstrated progress on goals for material and process efficiency during packaging manufacturing. **C3.**_____ % of our packaging, by mass, has demonstrated progress on goals for weight or volume optimization during packaging design. **C4.**_____ % of our packaging, by mass, has a demonstrated quantified environmental impact reduction. **C5.**_____ % of our packaging, by units sold in the US and Canada, was labeled with How2Recycle. **C6.**_____ % of our packaging, by units sold in regions outside the US and Canada, was labeled with an established third-party recycling label.
12. Invasive Species - Distribution What is your organization's approach to reducing risks related to the transportation of potentially invasive species?	**A.** We are unable to determine at this time, or we only follow relevant regulations regarding potentially invasive species. **B.** We have performed a formal risk assessment to identify risks related to potentially invasive species. **C.** In addition to (B), we have implemented controls that reduce the risk of potentially invasive species. **D.** In addition to (C), we publicly report our progress on this issue.
13. Transportation to Retailers What percentage of your final product was transported to downstream retail or distribution centers by logistics providers (carriers) that reported their annual greenhouse gas (GHG) emissions associated with transportation?	**A.** We are unable to determine at this time. **B.** The following percentage of our product, by revenue, was shipped to retail or distribution centers by carriers who reported their GHG emissions associated with transportation: **B1.**_____%.

Key Performance Indicators with Guidance

1. PRODUCT SUPPLY MAPPING

Question

For what percentage of your product supply can you identify the country, region, or farm of origin?

Response Options

A. We are unable to determine at this time.

B. The following percentages represent the origins of our product supply:

B1._____% of our product supply, by total spend, was not traced to the country, region, or farm of origin.

B2._____% of our product supply, by total spend, was traced to the country of origin.

B3._____% of our product supply, by total spend, was traced to the region of origin.

B4._____% of our product supply, by total spend, was traced to the farm of origin.

Guidance

Calculation & Scope

This question measures your knowledge of the origins of your product supply and does not affect your ability to use both primary and regional data in questions requiring farm-level metrics.

Calculate B1 as your spend on your product supply that was not traced to the country, region, or farm of origin, divided by your total spend on your product supply, then multiply by 100.

Calculate B2, B3, and B4 as your spend on your product supply that was traced to the country, region, and farm of origin, respectively, divided by your total spend on your product supply, then multiply by 100.

The percentages reported for B1, B2, B3, and B4 must be mutually exclusive and their sum must equal 100%. Any individual source of your product supply can only be used once across the response options, and the highest level of specificity should be reported for product supply that can be traced to more than one level of origin. For example, if you know the farm, region, and country of origin for 25% of your product supply, report 25% in B4 (farm of origin). Then, if you know both the region and country of origin for 25% of your product supply, report 25% in B3 (region of origin). Next, if you know only the country of origin for 30% of your product supply, enter 30% in B2 (country of origin). Last, if you know neither the farm, region, or country or origin for the remaining 20% of your product supply, report 20% in B1. Verify that the sum of the percentages you entered in B1-B4 does not exceed 100%: 20% (B1) + 30% (B2) + 25% (B3) + 25% (B4) = 100%.

Perform these calculations using data from a 12-month period that ended within 12 months of the date you respond to this question.

A country is defined as a nation-state recognized by the United Nations. A region is defined as a sub-country area such as an agricultural zone or region, eco-region, or geo-political boundary (e.g., state, county, department). Due to the variance in how "region" may be defined, respondents are encouraged to use a consistent interpretation from year to year when reporting data for this question. A farm is an area of land and its buildings that may be comprised of one or more locations that are managed together.

Procurement data, trade networks, or national or subnational product production data may help to identify the origin of your product supply.

If using the Cool Farm Tool to measure farm-level environmental impacts for any portion of your product supply, you can enter that portion of your supply in B4. Additionally, the percent of your supply from GlobalG.A.P., Veriflora, or Florverde Sustainable Flowers certified farms can be included in your response for B4.

Certifications, Standards & Tools	**Florverde Sustainable Flowers:** The Florverde Sustainable Flowers program certifies flower growers against rigorous social and environmental criteria. The certification scheme covers: management systems, employment rights, employee education and training, employee safety and welfare, water use, nutrient management, integrated pest management, waste management, farm and biodiversity management, energy efficiency, plant material, product handling, and traceability and recordkeeping. https://florverde.org/ **GLOBALG.A.P.:** GLOBALG.A.P. offers farm management certification for crops (fruits and vegetables, flowers and ornamentals, combinable crops, green coffee, and tea); livestock (cattle and sheep, dairy, calf and young beef, pigs, poultry, and turkey); aquaculture; chain of custody; plant propagation material; compound feed manufacturing; and livestock transport. The program also includes a risk assessment for worker health, safety, and welfare, as well as criteria for animal welfare and food safety. https://www.globalgap.org/uk_en/ **Veriflora:** Veriflora is a sustainability certification program for growers and handlers of cut flowers and potted plants. For growers, the program includes criteria for sustainable crop production, ecosystem management and protection, resource conservation and energy efficiency, integrated waste management, fair labor practices, community benefits, product quality, and product safety and purity. For handlers, the program includes criteria for environmental sustainability, social and economic sustainability, product integrity, and fair labor practices. https://www.scsglobalservices.com/services/veriflora-certified-sustainably-grown
Hotspots Addressed	***1.*** *Supply chain traceability*

2. BIODIVERSITY MANAGEMENT - WILD HARVESTING

Question

What percentage of your wild-harvested product supply, by total spend, was provided by suppliers that had a biodiversity management program in place?

Response Options

- **A.** Not applicable. We do not source wild-harvested flowers or plants.
- **B.** We are unable to determine at this time.
- **C.** The following percentage of our wild-harvested product supply, by total spend, was provided by suppliers that had a biodiversity management program in place that has been third-party reviewed:
  C1._____%.

Guidance

Calculation & Scope

Calculate C1 as your spend on your wild-harvested product supply that was provided by suppliers that had a third-party reviewed biodiversity management program in place, divided by your total spend on your product supply, then multiply by 100.

Biodiversity management plans should include a risk assessment and strategies to minimize risks and mitigate impacts associated with wild flora harvesting. Topics to consider include: wild flora habitat conservation, regeneration of wild plant species, and potential effects of wild harvesting on pollinator populations. Biodiversity management plans should also demonstrate awareness of the potential presence of threatened and endangered species. Endangered species are listed on the International Union for Conservation of Nature Red List.

Third party review is a documented, systematic, periodic, and objective evaluation of data or a program by an independent third party. Independent third party refers to the independence of the reviewer from parties that may have a financial interest in the data or program being audited.

Perform this calculation using data from a 12-month period that ended within 12 months of the date you respond to this question.

Background Information

Cape Action for People and the Environment: Cape Action for People and the Environment forages partnerships between government, civil society, and the private sector to protect and restore the biodiversity of the Cape Floristic Region of South Africa and the surrounding marine environment.
http://www.capeaction.org.za

Flower Valley Conservation Trust Sustainable Harvesting Programme Toolkit: The Flower Valley Conservation Trust promotes sustainable harvesting and ethical trade of Fynbos plant species. The trust's Sustainable Harvesting Programme Toolkit contains a Code of Best Practice, audit checklist, vulnerability index, resource-based assessment, harvesting record database, and farm management plan to guide sustainable flower picking practices.
http://www.flowervalley.org.za/sustainable-harvesting/

International Union for Conservation of Nature Red List: The IUCN Red List is a comprehensive list of threatened plant and animal species. The list provides a rating of plant and animal species that are facing a high risk of global extinction. http://www.iucnredlist.org/

ISEAL Alliance: The ISEAL Alliance works to strengthen the effectiveness and impacts of sustainability standards by creating a multi-stakeholder space for aligning across many sustainability standards organizations.
https://www.isealalliance.org/

Definitions

Program: An annually updated document that farmers can demonstrate on-site. The program should summarize concrete goals and a plan for how to achieve these goals.

Risk assessment: A systematic process to evaluate potential risks within an operation, system, or supply chain. It can include an on-site audit by a second party or third party or a country risk classification analysis that judges the site risk due to prevailing conditions, controls, or other mitigating factors.

Wild-harvested: Gathered or harvested from the natural environment; not cultivated or under agricultural management.

Hotspots Addressed

***2.** Biodiversity loss - Wild harvesting*

3. FERTILIZER APPLICATION - GROWING OPERATIONS

Question

What was the nitrogen use intensity and phosphorus surplus associated with fertilizer application at the growing operations where your product was produced?

Response Options

A. We are unable to determine at this time.

B. We are able to report the following for our product supply:

B1._____ grams nitrogen per dollar of product harvested.

B2._____% of our product supply, by total spend, is represented by the number reported in B1.

B3._____ grams phosphorus surplus per dollar of product harvested.

B4._____% of our product supply, by total spend, is represented by the number reported in B3.

Guidance

Calculation & Scope

Calculate B1 as the average of the most recent nitrogen (N) use intensities for the growing operations that produced your product supply, weighted by your spend on products supplied by each growing operation. For each growing operation, calculate N use intensity as the mass of N applied, divided by the market value in US dollars of product harvested. Include all N applied with organic and synthetic fertilizers, as well as N applied with irrigation water, from the end of the harvest of the previous product supply through the harvest of the product that produced your current supply. Include N applied to a non-harvested cover crop grown between both harvests. Exclude N deposition from the atmosphere.

For conversion purposes, 1 lb = 454 g and 1 short ton = 0.907 metric tonnes.

Calculate B3 as the average of the most recent phosphorus (P) surpluses for the growing operations that produced your product supply, weighted by your spend on products supplied by each growing operation. For each growing operation, calculate P surplus as the mass of P applied minus the mass of P recommended, divided by the market value in US dollars of product harvested. Soil test results should be used to determine the amount of recommended P. Recommendations may be provided directly by soil test labs or by extension agents, certified crop consultants, or similar entities. Include all P applied with organic and synthetic fertilizers, from the end of the harvest of the previous product supply through the harvest of the product that produced your current supply, and P applied to a non-harvested cover crop grown between both harvests. Data reported in phosphorus pentoxide (P_2O_5) should be converted to P as follows: 1 kg P_2O_5 = 0.436 kg P.

If primary growing operations data are unavailable for any of your product supply, you may use a regional estimate to answer B1 and B3. Do not combine primary data and regional estimates. To answer B1 and B3 using regional estimates, you should only use estimates from a sub-country area such as an agricultural zone or region, eco-region, or geo-political boundary (e.g., state, county, department) where the product is grown. A regional estimate must be based on a study that is representative of the production system of this product supply, based on production data not older than 3 years before the harvest date of this supply, and published in a publicly available document.

Calculate B2 and B4 as your spend on your product supply for which you were able to obtain primary data, divided by your total spend on your product supply, then multiply by 100. If you have reported a regional estimate in B1 and B3, then report 0% for B2 and B4.

Perform these calculations using data from a 12-month period that ended within 12 months of the date you respond to this question.

To calculate N use intensity and P surplus, use one of the tools listed below or farm management software. If using the Cool Farm Tool, convert data reported as phosphorus pentoxide (P_2O_5) to P using the conversion factor listed above. Note that the Cool Farm Tool does not provide information about recommended P; this data will need to be obtained from other sources. THESIS Fertilizer Application KPI Calculation Tool can also assist in your N use intensity and P surplus calculations. See Certifications, Standards, and Tools below. If not using one of these tools, base your calculations on the "Nitrogen Use" metric and "Phosphorus Use" metric guidelines given by the Stewardship Index for Specialty Crops (SISC), listed in the Background Information.

Certifications, Standards & Tools

Cool Farm Tool: This calculator is available globally and calculates greenhouse gas emissions associated with farms, processing facilities, and transportation for many agriculture and livestock products.
http://www.coolfarmtool.org/CoolFarmTool

THESIS Help Center Video: Fertilizer Application - On-farm KPI: Short video tutorial on the Fertilizer Application - On-farm KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/529551750

Background Information

GLOBALG.A.P.: GLOBALG.A.P. offers farm management certification for crops (fruits and vegetables, flowers and ornamentals, combinable crops, green coffee, and tea); livestock (cattle and sheep, dairy, calf and young beef, pigs, poultry, and turkey); aquaculture; chain of custody; plant propagation material; compound feed manufacturing; and livestock transport. The program also includes a risk assessment for worker health, safety, and welfare, as well as criteria for animal welfare and food safety.
https://www.globalgap.org/uk_en/

MPS-ABC: MPS-ABS is a farm-level certification program, based on registration of pesticides, fertilizers, energy, water, and waste management. Lower and upper limits for use of inputs are calculated, based on the crops grown, and points are assessed based on actual input usage. The total farm score determines the level of certification (A, B or C).

SAI Platform: Sustainable Performance Assessment (SAI-SPA): The SAI Platform provides fact sheets and guidelines for sustainable agriculture assessment including metrics.
https://saiplatform.org/our-work/

Stewardship Index for Specialty Crops (SISC): SISC provides guidance for calculating irrigation water use, energy use, nitrogen use, phosphorus surplus, and soil organic matter on U.S. specialty crop farms.
https://www.stewardshipindex.org/

Definitions

Cover crops: A crop planted to improve or maintain soil, water and biodiversity quality, and to help control pests and disease of agricultural fields.

Fertilizer: Any material of natural or synthetic origin that is applied to soils or to plant tissues (usually leaves) to supply one or more plant nutrients essential to the growth of plants.

Growing operation: An area of land and its buildings (including greenhouses), comprised of one or more locations managed together, that is used for growing crops delivered fresh to market or to processors.

Organic fertilizers: Fertilizers derived from animal or vegetable matter. Examples include peat, animal waste (manure or other wastes), plant waste from agriculture, and sewage sludge.

Synthetic fertilizers: Fertilizers produced by chemical synthesis from inorganic starting materials.

Hotspots Addressed

4. *Fertilizer application - On-farm*

4. GREENHOUSE GAS EMISSIONS INTENSITY - GROWING OPERATIONS

Question

What was the greenhouse gas emissions intensity associated with the growing operations that produced your product supply?

Response Options

A. We are unable to determine at this time.

B. We are able to report the following for our product supply:

B1._____ grams CO2e per dollar of product harvested.

B2._____% of our product supply, by total spend, is represented by the number reported above.

Guidance

Calculation & Scope

Calculate B1 as the average of the most recent greenhouse gas (GHG) emissions intensity estimates for the growing operations that produced your product supply, weighted by your spend on products supplied by each growing operation. For each growing operation, calculate GHG emissions intensity as the mass of all GHGs emitted, divided by the market value in US dollars of product harvested. Include the product grown between the end of the harvest of the previous product supply through the harvest of your current product supply. For conversion purposes, 1 lb = 454 g and 1 short ton = 0.907 metric tonnes.

If primary growing operations data are unavailable for any of your product supply, you may use a regional estimate to answer B1. Do not combine primary data and regional estimates. To answer B1 using regional estimates, you should only use estimates from a sub-country area such as an agricultural zone or region, eco-region, or geo-political boundary (e.g., state, county, department) where the product is grown. A regional estimate must be based on a study that is representative of the production system of this product supply, based on production data not older than 3 years before the harvest date of this supply, and published in a publicly available document.

Calculate B2 as your spend on your product supply for which you were able to obtain primary data, divided by your total spend on your product supply, then multiply by 100. If you have reported a regional estimate for B1, then report 0% for B2.

Perform these calculations using data from a 12-month period that ended within 12 months of the date you respond to this question.

To calculate GHG emissions intensity, use one of the tools listed in Certifications, Standards, and Tools below. If you are using the Stewardship Index for Specialty Crops (SISC) Energy Use metric for any portion of your crop supply, enter the electricity and energy use inputs from the SISC Calculator into US EPA's Greenhouse Gas Emissions Equivalencies Calculator, listed in Certifications, Standards, and Tools below, to obtain the carbon dioxide equivalents. If not using the tools listed here, base your calculations on the guidelines given in the SAI Platform Sustainable Performance Assessment or in PAS2050:2011, listed in the Background Information.

Certifications, Standards & Tools

Cool Farm Tool: This calculator is available globally and calculates greenhouse gas emissions associated with farms, processing facilities, and transportation for many agriculture and livestock products.
http://www.coolfarmtool.org/CoolFarmTool

Stewardship Index for Specialty Crops Calculator: SISC metrics, and the SISC calculator function to suit the specific needs of fruit, nut and vegetable growers and supply chains. This calculator allows growers to calculates any one, or combination of, the following metrics: yield, on farm energy use/approximate GHG's, nitrogen use, phosphorus surplus, irrigation water use efficiency, habitat/biodiversity, soil organic matter and food loss for specialty crop (all fruits, nuts, and vegetable) farms across North America. This calculator, and SISC metrics, can also be used globally.
https://www.stewardshipindex.org/sisc-stewardship-calculator

THESIS Help Center Video: Greenhouse Gas Emissions Intensity - Growing Operations KPI: Short video tutorial on the Greenhouse Gas Emissions Intensity - Growing Operations KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/448646995

US EPA Greenhouse Gas Equivalencies Calculator: This calculator converts on-farm energy use (as captured by the SISC Energy Metric Calculator) to carbon dioxide equivalents.

https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

Background Information

GLOBALG.A.P.: GLOBALG.A.P. offers farm management certification for crops (fruits and vegetables, flowers and ornamentals, combinable crops, green coffee, and tea); livestock (cattle and sheep, dairy, calf and young beef, pigs, poultry, and turkey); aquaculture; chain of custody; plant propagation material; compound feed manufacturing; and livestock transport. The program also includes a risk assessment for worker health, safety, and welfare, as well as criteria for animal welfare and food safety.
https://www.globalgap.org/uk_en/

MPS-ABC: MPS-ABS is a farm-level certification program, based on registration of pesticides, fertilizers, energy, water, and waste management. Lower and upper limits for use of inputs are calculated, based on the crops grown, and points are assessed based on actual input usage. The total farm score determines the level of certification (A, B or C).

PAS 2050:2011: According to BSI, "PAS 2050:2011 is a publicly available specification (PAS) providing a method for assessing the life cycle greenhouse gas (GHG) emissions of goods and services (jointly referred to as "products")."
https://shop.bsigroup.com/Browse-By-Subject/Environmental-Management-and-Sustainability/PAS-2050/

PAS 2050-1:2012: PAS 2050-1:2012 provides guidance for determining greenhouse gas emissions throughout the life cycle of horticultural products.
https://shop.bsigroup.com/en/forms/PASs/PAS-2050-1/

Sustainability Assessment of Food and Agricultural systems (SAFA): The Food and Agricultural Organization (FAO) of the United Nations developed guidelines for the food value chain. FAO is working to establish a universal framework for Sustainability Assessment of Food and Agriculture systems (SAFA).
http://www.fao.org/nr/sustainability/sustainability-assessments-safa/en/

Definitions

CO2e: Carbon dioxide equivalent; a metric that expresses the impact of a greenhouse gas in terms of the amount of carbon dioxide (CO2) that has the same global warming potential.

Greenhouse gas: Gases that contribute to the greenhouse effect by absorbing infrared radiation in the atmosphere, e.g., carbon dioxide, methane, nitrous oxide, ozone, and chlorofluorocarbons.

Growing operation: An area of land and its buildings (including greenhouses), comprised of one or more locations managed together, that is used for growing crops delivered fresh to market or to processors.

Hotspots Addressed

3. *Energy consumption - On-farm*

4. *Fertilizer application - On-farm*

5. INDIGENOUS PEOPLES' AND COMMUNITY RIGHTS

Question

How did your organization manage the protection of traditional and civil rights of local indigenous peoples and communities near the growing operations that produced your product supply?

Response Options

A. We are unable to determine at this time.

B. We are able to report the following for our product supply:

B1._____% of our product supply, by total spend, was produced by growing operations that ensured the Free, Prior, and Informed Consent (FPIC) of local indigenous peoples and community users affected by their operations.

B2._____% of our product supply, by total spend, came from high-risk countries that have high-risk sites for which we took corrective actions taken through a site-based management program.

B3._____% of our product supply, by total spend, was covered by a current certification or verification system that meets the criteria for the protection of traditional and civil rights of local indigenous peoples and communities.

Guidance

Calculation & Scope

Calculate B1 as your spend on your product supply that came from growing operations in low-risk countries, divided by your total spend on the product supply, then multiply by 100. The risk assessment for the protection of traditional and civil rights of community members should measure the strength of a country's ability to govern and enforce laws, regulations, and internationally recognized principles. This assessment may be a first-party systematic review assessment or an external risk analysis. First-party assessments or risk analysis must have been conducted at least once per year. Second- or third-party on-site risk assessments and audits, where necessary, can be conducted using a standard based on internationally recognized principles. Second- or third-party risk assessments must have been conducted at least once every two years. The assessments, audits, and standard must be verifiable and must align with International Labor Organization Convention No. 169 (Indigenous and Tribal Peoples) or the United Nations Declaration on the Rights of Indigenous Peoples.

Calculate B2 as your spend on your product supply that came from growing operations that ensured the Free, Prior, and Informed Consent (FPIC) of local indigenous peoples and community users affected by their growing operations, divided by your total spend on the product supply, then multiply by 100. Growing operations that reduced the land or resource use rights of local indigenous peoples and communities must have received the FPIC of the local indigenous peoples and communities. If the farm management diminished communities' land or resource use rights, mutually agreed compensation commensurate with the loss of use must have been negotiated with and provided to local indigenous peoples and communities as part of the FPIC process. The FPIC process must have been fully documented (For more information on the FPIC, see Article 16 of the Indigenous and Tribal Peoples Convention and Article 32(2) of the United Nations Declaration on the Rights of Indigenous Peoples). If any portion of your product supply is certified under Fairtrade International, Rainforest Alliance, or Sustainable Agriculture Network (SAN), or verified under SAI Platform's Farm Sustainability Assessment (FSA), you may include that portion of your supply in your response for B2.

Calculate B3 as your spend on your product supply that came from growing operations that maintain at least one current certification or verification system that meets the criteria for the protection of traditional and civil rights of local indigenous peoples and communities, divided by your total spend on the product supply, then multiply by 100. If any portion of your product supply is certified under Fairtrade International, Rainforest Alliance, or Sustainable Agriculture Network (SAN), you may include that portion of your supply in your response for B3.

Perform these calculations using data from a 12-month period that ended within 12 months of the date you respond to this question.

Other standards, certifications, and tools may also be applicable.

Certifications, Standards & Tools

Fairtrade International Certification: Fairtrade International provides several standards (e.g. for smallholders and workers), and a certification through FLOCERT. Fairtrade aims to improve the livelihoods of smallholders and workers amongst others via fair trade relationships.

https://www.fairtrade.net/about/certification

Rainforest Alliance Sustainable Agriculture Standard: Rainforest Alliance has two certifications: farm and chain of custody. The standard encompasses all three pillars of sustainability—social, economic, and environmental. RA is currently developing a new certification program, following their 2018 merger with UTZ. Since 2018 RA has also become the sole owner and operator of the 2017 SAN Standard.
https://www.rainforest-alliance.org/business/solutions/certification/agriculture/

SAI Platform - Farm Sustainability Assessment (SAI-FSA): The SAI Platform Farm Sustainability Assessment (SAI-FSA) is an easy-to-use tool that assesses farm environmental, social, and economic sustainability. The FSA is based on SAI Platform's Principles and Practices for sustainable agriculture and can be used by farmers as a benchmarking tool for comparing various certification schemes and proprietary codes.
http://www.fsatool.com/

SAN Sustainable Agriculture Framework: The Sustainable Agriculture Network (SAN) Sustainable Agriculture Framework is a modular, outcome-based tool that focuses on sustainability as a central part of agricultural management. The flexible framework is designed to address challenges and desired outcomes specific to local contexts and covers ten environmental, social, and economic impact areas.
https://www.sustainableagriculture.eco/sustainable-agriculture-framework/

Background Information

Amfori Country Risk Classification List: The risk classification of countries is based on the Worldwide Governance Indicators. These determine the level of risks related to Governance in sourcing countries.
http://duediligence.amfori.org/CountryRiskClassification

International Finance Corporation: Performance Standards on Environmental and Social Sustainability: The IFC Performance Standards are directed towards clients, provide guidance on how to identify risks and impacts, and are designed to avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way.
https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards

LandMark: LandMark is an online, interactive global platform that provides precise maps and other critical information on lands that are collectively held and used by Indigenous Peoples and local communities.
http://www.landmarkmap.org/map/#x=-102.46&y=13.47&l=3

UN Global Compact: Business Engagement with Indigenous Peoples: This website provides links to documents that address business engagement with indigenous peoples.
https://www.unglobalcompact.org/what-is-gc/our-work/social/indigenous-people

United Nations Declaration on the Rights of Indigenous Peoples: This website is the homepage of the UN Permanent Forum on Indigenous Issues. The United Nations Declaration on the Rights of Indigenous Peoples can be found here.
https://www.un.org/development/desa/indigenouspeoples/declaration-on-the-rights-of-indigenous-peoples.html

United Nations Global Compact Human Rights and Business Dilemmas Forum: United Nations Global Compact Human Rights and Business Dilemmas Forum present an introduction to, analysis of, and business recommendations for minimizing social sustainability risks in the supply chain.
https://www.unglobalcompact.org/library/9

Definitions

Community: A community is an organized group of people who reside within or in the vicinity of a particular area. The community's culture, health, or economy are affected by the use of the area.

Community user: Community user is a person or group of people that are part of a community and use a particular area for cultural, economic, or health-related activities.

First party systematic risk assessment: A first party systematic risk assessment is conducted by the organization itself for management review and other internal purposes and may form the basis for an organization's declaration of conformity.

Free, Prior, and Informed Consent: Free, prior, and informed consent is a right under international law and the United Nations Declaration on the Rights of Indigenous Peoples. It gives indigenous peoples the right to be involved in decisions that impact their traditional lands and resources.

Indigenous Peoples: Indigenous Peoples have the following characteristics: 1) They are a group of people that have an historical continuity with their ancestors who inhabited land areas prior to colonization or present political boundaries. 2) They identify with their land, both culturally and economically. 3) They possess language(s), culture(s), belief(s), or social, political, and economic systems that are distinct from that of the internationally-recognized governments that have political boundaries in the region, and 4) They identify themselves as an indigenous person or peoples.

Indigenous Peoples' Rights: Rights held by Indigenous Peoples including, but not limited to, the right to cultural survival and the right to use traditional lands.

Risk assessment: A systematic process to evaluate potential risks within an operation, system, or supply chain. It can include an on-site audit by a second party or third party or a country risk classification analysis that judges the site risk due to prevailing conditions, controls, or other mitigating factors.

Second-party audit: An audit conducted by a party having an interest in the organization, such as customers, or by another entity on their behalf.

Site-based management program: A program that operates on-site that has steps to address community concerns relating to operations, works to respect traditional and civil rights, and can ensure free, prior, and informed consent (FPIC) is received.

Third-party audit: An audit conducted by external, independent auditing organizations, such as those providing certification of conformity to a standard.

Traditional and civil rights: Traditional rights require community approval to occupy and/or use land, fishing grounds, or other natural resources. These rights exist due to habitual and frequent use of an area over a long period of time. Such rights may predate government or private claims to the area. Sometimes referred to as customary rights, civil rights are the rights of individuals or communities to be treated fairly and honestly. The principle of free, prior, and informed consent (FPIC) is an expression of civil rights.

Verifiable: Having the ability to demonstrate, through a reputable assessor, the truth or accuracy of a claim.

Hotspots Addressed

5. *Indigenous and community rights - On-farm, land acquisition*

6. IRRIGATION WATER USE INTENSITY - GROWING OPERATIONS

Question

What was the irrigation water use intensity associated with the growing operations that produced your product supply?

Response Options

- **A.** We are unable to determine at this time.
- **B.** We are able to report the following for our product supply:
  B1._____ liters of irrigation water use per dollar of product harvested.
  B2._____% of our product supply, by total spend, is represented by the number reported above.

Guidance

Calculation & Scope

Calculate B1 as the average of the most recent irrigation water use intensity estimates for the growing operations that produced your product supply, weighted by your spend on products supplied by each growing operation. For each growing operation, calculate irrigation water use intensity as the volume of irrigation water applied, divided by the market value in US dollars of product harvested. Include the product grown between the end of the harvest of the previous product supply through the harvest of your current product supply. Methods of obtaining irrigation water use data include, but are not limited to, flow meters, measurements with rain gauges, estimates based on the effective precipitation rate of the sprinklers used, irrigation district reporting, pressurized pipes, or extrapolation from power records.

For conversion purposes, 1 U.S. acre-inch = 10.3 hectare-mm or 102,790 liters, 1 gallon = 3.79 liters, 1 litre = 0.001 cubic meters, 1 kg = 0.001 metric tonnes, and 1 short ton = 0.907 metric tonnes. To convert bushels from volume to weight, see the USDA Weights, Measures, and Conversion Factors for Agricultural Commodities and Their Products, listed in the Background Information.

If primary growing operations data are unavailable for any of your product supply, you may use a regional estimate to answer B1. Do not combine primary data and regional estimates. To answer B1 using regional estimates, you should only use estimates from a sub-country area such as an agricultural zone or region, eco-region, or geo-political boundary (e.g., state, county, department) where the product is grown. A regional estimate must be based on a study that is representative of the production system of this product supply, based on production data not older than 3 years before the harvest date of this supply, and published in a publicly available document.

Calculate B2 as your spend on your product supply for which you were able to obtain primary data, divided by your total spend on your product supply, then multiply by 100. If you have reported a regional estimate in B1, then report 0% for B2.

If no irrigation water was used to produce any portion of your product supply, enter "0" for B1 and 100% for B2.

Perform these calculations using data from a 12-month period that ended within 12 months of the date you respond to this question.

Irrigation water use intensity can be calculated directly from farm data or by one of the tools listed below. If using the Cool Farm Tool, report data from the "Blue water" results field only. Do not use data from the "Total water" or "Green water" results fields. If not using the tools listed here, base your calculations on the "Applied Water Use Efficiency" metric guidelines given by the Stewardship Index for Specialty Crops (SISC), listed in the Background Information.

Certifications, Standards & Tools

Cool Farm Tool: This calculator is available globally and calculates greenhouse gas emissions associated with farms, processing facilities, and transportation for many agriculture and livestock products.
http://www.coolfarmtool.org/CoolFarmTool

THESIS Help Center Video: Irrigation Water Use Intensity - On-farm KPI: Short video tutorial on the Irrigation Water Use Intensity - On-farm KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/531017121

Background Information

Florverde Sustainable Flowers: The Florverde Sustainable Flowers program certifies flower growers against rigorous social and environmental criteria. The certification scheme covers: management systems, employment rights, employee education and training, employee safety and welfare, water use, nutrient management, integrated pest management, waste management, farm and biodiversity management, energy efficiency, plant material, product handling, and traceability and recordkeeping.
https://florverde.org/

GLOBALG.A.P.: GLOBALG.A.P. offers farm management certification for crops (fruits and vegetables, flowers and ornamentals, combinable crops, green coffee, and tea); livestock (cattle and sheep, dairy, calf and young beef, pigs, poultry, and turkey); aquaculture; chain of custody; plant propagation material; compound feed manufacturing; and livestock transport. The program also includes a risk assessment for worker health, safety, and welfare, as well as criteria for animal welfare and food safety.
https://www.globalgap.org/uk_en/

MPS-ABC: MPS-ABS is a farm-level certification program, based on registration of pesticides, fertilizers, energy, water, and waste management. Lower and upper limits for use of inputs are calculated, based on the crops grown, and points are assessed based on actual input usage. The total farm score determines the level of certification (A, B or C).

SAI Platform: Sustainable Performance Assessment (SAI-SPA): The SAI Platform provides fact sheets and guidelines for sustainable agriculture assessment including metrics.
https://saiplatform.org/our-work/

Stewardship Index for Specialty Crops (SISC): SISC provides guidance for calculating irrigation water use, energy use, nitrogen use, phosphorus surplus, and soil organic matter on U.S. specialty crop farms.
https://www.stewardshipindex.org/

Veriflora: Veriflora is a sustainability certification program for growers and handlers of cut flowers and potted plants. For growers, the program includes criteria for sustainable crop production, ecosystem management and protection, resource conservation and energy efficiency, integrated waste management, fair labor practices, community benefits, product quality, and product safety and purity. For handlers, the program includes criteria for environmental sustainability, social and economic sustainability, product integrity, and fair labor practices.
https://www.scsglobalservices.com/services/veriflora-certified-sustainably-grown

Water Footprint Network: Waterfootprint.org provides various tools, assessments, and information regarding water consumption accounting.
https://waterfootprint.org/en/

World Resources Institute (WRI) Aqueduct Measuring and Mapping Water Risk: WRI created the global water risk mapping tool, Aqueduct, which used 12 indicators to map where and how water risks and opportunities occur globally.
https://www.wri.org/aqueduct

Definitions

Growing operation: An area of land and its buildings (including greenhouses), comprised of one or more locations managed together, that is used for growing crops delivered fresh to market or to processors.

Irrigation water use: Total withdrawals from municipal and private water providers, surface water, groundwater, or wells for purposes of crop irrigation. Collected rainwater is not included.

Hotspots Addressed

***8.** Water use - On-farm*

7. LABOR RIGHTS - GROWING OPERATIONS

Question

How did your organization manage labor rights risks in the operations that produced your product supply?

Response Options

A. We are unable to determine at this time.

B. We are able to report the following:

B1._____% of our product supply, by total spend, was produced in operations that were covered by an internal policy that has quantitative time-bound goals related to child labor, discrimination, forced labor, and freedom of association and collective bargaining.

B2._____% of our product supply, by total spend, was produced in operations that were reviewed by a risk assessment which identifies high-risk areas for labor rights abuses.

B3._____% of our staff responsible for procurement activities have been trained on labor rights issues in the supply chain.

B4._____% of our staff responsible for procurement activities have been evaluated via performance metrics on labor rights improvements in the supply chain.

B5._____% of our product supply, by total spend, was produced in operations that were low risk, that were high risk but corrective actions were taken, or that were audited on child labor, discrimination, forced labor, and freedom of association and collective bargaining in the last three years.

Guidance

Calculation & Scope

Calculate B1 as your spend on your product supply that is covered by an internal policy that has quantitative time-bound goals related to child labor, discrimination, forced labor, and freedom of association and collective bargaining, divided by your total spend on your product supply, then multiply by 100. Where freedom of association and collective bargaining are restricted by law, employers can use other forms of non-union employee representation and relations to respect this aspect of workers' rights.

Calculate B2 as your spend on your product supply that has been reviewed by a risk assessment which identifies high-risk areas for labor rights abuses, divided by your total spend on your product supply, then multiply by 100.

To be included in B2, a risk assessment must have been conducted by second or third parties and must have been conducted at least once every three years using a standard based on internationally recognized principles. The risk assessments and standard must be verifiable and must address labor rights abuses such as discrimination on grounds of gender, age, ethnicity or disability, physical violence, sexual harassment and abuse, child labor, forced labor, and freedom of association and collective bargaining or any other range of behaviors and practices as outlined by internationally-recognized labor standards. The standards and websites listed in Background Information below may be helpful for conducting your risk assessment(s) and for understanding appropriate corrective actions which can inform your responses.

In addition, to determine if an operation is in a high-risk area for labor rights abuses, you may utilize a country risk analysis tool. The tool should measure the strength of a country's ability to govern and enforce laws, regulations, and internationally recognized principles. The country risk assessment may be a first party systematic risk assessment, or external risk analyses tools may be utilized. The AMFORI Countries' Risk Classification tool listed below may be used to inform your response. The country risk assessment can be complemented with risks associated with specific activities, regions, and suppliers.

Calculate B3 as the number of staff responsible for procurement activities that have been trained on labor rights issues in the supply chain, divided by the total number of staff responsible for procurement activities, then multiply by 100. Include both full-time and contracted employees. The training must be verifiable. Staff training should cover child labor, discrimination, forced labor, and freedom of association and collective bargaining, as outlined by internationally-recognized labor principles. Staff training should be renewed as appropriate to maintain competency and implementation of good practices for labor rights issues and to prevent training exhaustion. Additional staff training may be required to perform job duties.

Calculate B4 as the number staff responsible for procurement activities that have been evaluated via performance metrics on labor rights improvements in the supply chain, divided by the total staff responsible for procurement activities, then multiply by 100. Evaluation on labor rights should include, child labor, discrimination, forced labor, and freedom of association and collective bargaining, as outlined by internationally-recognized labor principles. Examples of improvements include decreased incidence of child labor, forced labor, or discrimination, or an Increased worker participation in collective bargaining.

Calculate B5 as your spend on your product supply that was produced in operations that were low risk, that were high risk but corrective actions were taken, or that were audited on child labor, discrimination, forced labor, and freedom of association and collective bargaining in the last three years, divided by your total spend on your product supply, then multiply by 100. To be included in B5, audits must be verifiable and address child labor, discrimination, forced labor, and freedom of association and collective bargaining, as outlined by internationally-recognized labor principles. Examples include, but are not limited to, principles outlined by the United Nations Global Compact, the International Labour Organization Declaration on Fundamental Principles and Rights at Work. Where freedom of association & collective bargaining is restricted by law, employers can use other forms of non-union employee representation and relations to respect this aspect of workers' rights. Audits should be conducted by second or third parties at least once every three years, or more often depending on the requirements of the standard organization See the Certifications, Standards & Tools for more information. Government regulations or parties in the supply chain may initiate these audits.

Perform these calculations using data from a 12-month period that ended within 12 months of the date you respond to this question. Audits must have been conducted in the 36 months prior to the end of the 12-month period.

Certifications, Standards & Tools

Amfori BSCI Code of Conduct: This global business association for open and sustainable trade, empowers members worldwide by monitoring and improving social performance in their supply chains. It offers tools to carry out human rights due diligence – identifying and mitigating any risks in supply chains and supporting remedial action.
https://www.amfori.org/sites/default/files/amfori%20BSCI%20Brochure-compressed.pdf

Amfori Country Risk Classification: This list classifies countries' risk of social injustice in an effort to assist companies in determining high and low risk for their sourcing and operations.
http://duediligence.amfori.org/CountryRiskClassification

Fair for Life Certification Program: The Fair Life program provides certification for fair trade and responsible supply chains. The goal of Fair for Life is to ensure social and economic benefits to socioeconomically disadvantaged agricultural producers and workers and to ensure that smallholder producers receive a fair share.
http://www.fairforlife.org/

Fair Trade USA - Certified Flowers Program: The Fair Trade USA Certified Flowers Program provides flower farm workers with better wages, safer working conditions, access to labor unions, and opportunities for community investment.
https://www.fairtrade.net/product/flowers-and-plants

Fairtrade International Certification: Fairtrade International provides several standards (e.g. for smallholders and workers), and a certification through FLOCERT. Fairtrade aims to improve the livelihoods of smallholders and workers amongst others via fair trade relationships.
https://www.fairtrade.net/about/certification

Florverde Sustainable Flowers: The Florverde Sustainable Flowers program certifies flower growers against rigorous social and environmental criteria. The certification scheme covers: management systems, employment rights, employee education and training, employee safety and welfare, water use, nutrient management, integrated pest management, waste management, farm and biodiversity management, energy efficiency, plant material, product handling, and traceability and recordkeeping.
https://florverde.org/

SA8000® Standard: Social Accountability International (SAI) is a global non-governmental organization that aims to advance human rights at work via the SA8000® Standard. SA 8000 measures social performance in eight areas that are relevant for workplaces in factories and organizations worldwide.
https://sa-intl.org/programs/sa8000/

Sedex Members Ethical Trade Audit: Sedex Members Ethical Trade Audit is an auditing system that aligns with Ethical Trading Initiative's Base Code as well International Labour Organization Conventions. It has been developed to provide a public auditing methodology and format for companies to use to assess compliance.
https://www.sedex.com/our-services/smeta-audit/

Background Information

CSR Europe. Blueprint for Embedding Human Rights in Key Company Functions: The purpose of this blueprint is to provide practical support to CSR and human resource managers on how to embed human rights in the company with the aim to reduce risks for the company.
https://humanrights.wbcsd.org/project/blueprint-for-embedding-human-rights-in-key-company-functions/

GlobalG.A.P. Risk Assessment on Social Practice (GRASP): GRASP is an add-on module for GLOBALG.A.P. developed to assess social practices on the farm, addressing specific aspects of workers' health, safety and welfare, and labor rights.
https://www.globalgap.org/uk_en/for-producers/globalg.a.p.-add-on/grasp/

International Labour Organization Declaration on Fundamental Principles and Rights at Work: This declaration outlines the universal rights of all workers regardless of citizenship status, gender, or the local level of economic development.
http://www.ilo.org/declaration/lang--en/index.htm

International Labour Organization defines Gender Equality/Discrimination: Every worker has the right to be treated fairly and to have access to equal opportunities regardless of their gender, sexual orientation, age, marital status, and religious and political beliefs. In addition, each worker should be free to decide where to work, and when to terminate the working relationship. To facilitate equality, it is important that a variety of workers are actively involved in decision making. This can be stimulated through workers organizations, unions, workers surveys, hotlines, and employers organizations.
http://www.ilo.org/global/topics/dw4sd/themes/gender-equality/lang--en/index.htm

IS0 26000 Social Responsibility: ISO 2600 is not a certification tool, but it offers guidance about social responsibility to all sorts of organizations regardless of their activity, size or location.
https://www.iso.org/iso-26000-social-responsibility.html

Social Accountability International Guidance Document for Social Accountability 8000: According to Social Accountability International, "this guidance document provides various tools and information for users of the Social Accountability 8000 standard, including definitions, background information, and examples."
https://sa-intl.org/wp-content/uploads/2020/02/SA8000-2014-Guidance-Document.pdf

United Nations Global Compact Human Rights and Business Dilemmas Forum: United Nations Global Compact Human Rights and Business Dilemmas Forum present an introduction to, analysis of, and business recommendations for minimizing social sustainability risks in the supply chain.
https://www.unglobalcompact.org/library/9

United Nations Global Compact Self-Assessment Tool on Human Rights: This tool can be used by organizations to assess human rights performance against international standards, conventions and agreements. It also provides suggestions for continuous improvement.
https://globalcompactselfassessment.org/humanrights

Definitions

Collective bargaining: According to the ILO this is a key means through which employers and their organizations and trade unions can establish fair wages and working conditions and ensure equal opportunities between women and men.

Corrective actions: Prompt actions taken to eliminate the causes of a problem, thus preventing their recurrence.

Discrimination: Discrimination is defined under ILO Convention No. 111 as any distinction, exclusion or preference made on the basis of race, color, sex, religion, political opinion, national extraction or social origin (among other characteristics), "which has the effect of nullifying or impairing equality of opportunity and treatment in employment or occupation".

First party audit: A first party audit is conducted by the organization itself for management review and other internal purposes and may form the basis for an organization's declaration of conformity.

First party systematic risk assessment: A first party systematic risk assessment is conducted by the organization itself for management review and other internal purposes and may form the basis for an organization's declaration of conformity.

Forced labor: Any task or service performed by a person against their will or under threat of negative consequence. Forced labor includes debt bondage, human trafficking, withholding of wages or identity papers, threats of violence, unreasonable restriction of movement, and exploitation of marginalized workers.

Freedom of association: The right of workers to join or form trade union or other worker organizations of their choosing/or refrain from doing so/and could bargain collectively without fear of retaliation or repercussion as long as it not contrary to local law.

Freedom of collective bargaining: The right to negotiate the conditions of employment as a group rather than individually without fear of repercussions.

Internationally-recognized labor principles: Internationally-recognized labor principles include the United Nations Global Compact and International Labour Organization Declaration on Fundamental Principles and Rights at Work or equivalent.

Labor rights: The universal rights of workers, regardless of race, gender, nationality, or other distinguishing characteristic. These include protection from the worst forms of child labor, forced labor, and discrimination, as well as freedom of association and collective bargaining as outlined by the United Nations Global Compact or the International Labour Organization Declaration on Fundamental Principles and Rights at Work.

Risk assessment: A systematic process to evaluate potential risks within an operation, system, or supply chain. It can include an on-site audit by a second party or third party or a country risk classification analysis that judges the site risk due to prevailing conditions, controls, or other mitigating factors.

Second-party audit: An audit conducted by a party having an interest in the organization, such as customers, or by another entity on their behalf.

Staff responsible for procurement activities: All both full-time and contracted employees responsible for attaining raw materials, parts, components, products and services at a facility that are being evaluated via KPIs on labor rights improvements in the supply chain.

Third-party audit: An audit conducted by external, independent auditing organizations, such as those providing certification of conformity to a standard.

Verifiable: Having the ability to demonstrate, through a reputable assessor, the truth or accuracy of a claim.

Worst forms of child labor: Labor that negatively affects a child's health, safety, morals, or reasonable ability to receive an education. This includes forced labor, prostitution or pornography, labor for illicit activities, and hazardous work. Hazardous work activities include work that is abusive, work underground, underwater, at dangerous heights or in confined spaces, work with dangerous machinery and tools, work with heavy loads, work involving hazardous substances and environments, work for long hours, work at night, or work in which the worker is unreasonably restricted from movement outside the premises.

Hotspots Addressed

6. *Labor rights - On-farm, farm laborers*

8. PESTICIDE APPLICATION - GROWING OPERATIONS

Question

What percentage of your product supply, by total spend, was provided by growing operations that had a verifiable, site-based environmental, health, and safety (EHS) program to assess and manage impacts to humans and the environment from pesticides and that shared data on their pesticide use?

Response Options

- **A.** We are unable to determine at this time.
- **B.** We are able to report the following percentages for our product supply:
  B1._____% of our product supply, by total spend, was provided by growing operations that had a verifiable EHS program to assess and manage impacts to humans and the environment from pesticides.
  B2._____% of our product supply, by total spend, was provided by growing operations that shared data on their pesticide use.

Guidance

Calculation & Scope

Calculate B1 as your spend on your product supply sourced from growing operations that have a verifiable EHS program, divided by your total spend on your product supply, then multiply by 100. Site-based EHS programs must address the protection of workers and the surrounding community from potential negative health effects related to pesticide use (e.g., toxicity from handling chemicals or exposure from drift). EHS programs must also address environmental impacts related to pesticide use, such as soil and water toxicity and death of non-target organisms (e.g., insects, birds, mammals, soil microbes, etc.). For more information about EHS programs related to pesticide use, refer to the certifications and Background Information listed below. Product supply for which it can be verified that all applied pesticides were used in compliance with a national and/or local regulatory body (for supply produced in the U.S.) or with World Health Organization, United Nations, Food and Agriculture Organization, European, or U.S. standards (for supply produced outside of the U.S.) may be included in your response for B1. In B1, you may include your product supply that has been certified by Fair Trade USA - Certified Flowers Program, Fairtrade International, GLOBALG.A.P., and Rainforest Alliance, Veriflora, or verified by SAI Platform's Bronze FSA. In addition, for supply coming from developing countries, TSC's Responsible Pest Management (RPM) Framework may be used to inform your response in B1 by including % of your supply from developing countries scoring Medium or High on RPM's Drivers Risk management and Worker and Neighbor protections. For more information about RPM and its Outcomes and Drivers, see below under Certifications, Standards & Tools.

Calculate B2 as your spend on your product supply sourced from growing operations that shared data on their pesticide use, divided by your total spend on your product supply, then multiply by 100. Pesticide use data includes crop name, pesticide name, date of application, dosage, and any other relevant information that encourages dialogue between producers and suppliers regarding pesticide management. In addition, TSC's Responsible Pest Management (RPM) Framework may be used to inform your response for B2 by including % of your supply sharing information on RPM's Driver Recordkeeping. For more information about RPM and its Outcomes and Drivers, see below under Certifications, Standards & Tools.

For B1 and B2, include all growing operations, regardless of whether they are certified organic, certified under an ecological farming program, use biological and/or plant-derived pesticides, or do not use pesticides.

Because both response options may be relevant to the same portion of your product supply, you may respond with up to 100% for both B1 and B2. For example, supply included in the calculation of B1 can also be included in the calculation of B2 if appropriate.

Perform this calculation using data from a 12-month period that ended within 12 months of the date you respond to this question.

Certifications, Standards & Tools

Fair Trade USA - Certified Flowers Program: The Fair Trade USA Certified Flowers Program provides flower farm workers with better wages, safer working conditions, access to labor unions, and opportunities for community investment.
https://www.fairtrade.net/product/flowers-and-plants

Fairtrade International Certification: Fairtrade International provides several standards (e.g. for smallholders and workers), and a certification through FLOCERT. Fairtrade aims to improve the livelihoods of smallholders and workers amongst others via fair trade relationships.
https://www.fairtrade.net/about/certification

Florverde Sustainable Flowers: The Florverde Sustainable Flowers program certifies flower growers against rigorous social and environmental criteria. The certification scheme covers: management systems, employment rights, employee education and training, employee safety and welfare, water use, nutrient management, integrated pest management, waste management, farm and biodiversity management, energy efficiency, plant material, product handling, and traceability and recordkeeping.
https://florverde.org/

GLOBALG.A.P.: GLOBALG.A.P. offers farm management certification for crops (fruits and vegetables, flowers and ornamentals, combinable crops, green coffee, and tea); livestock (cattle and sheep, dairy, calf and young beef, pigs, poultry, and turkey); aquaculture; chain of custody; plant propagation material; compound feed manufacturing; and livestock transport. The program also includes a risk assessment for worker health, safety, and welfare, as well as criteria for animal welfare and food safety.
https://www.globalgap.org/uk_en/

Rainforest Alliance Sustainable Agriculture Standard: Rainforest Alliance has two certifications: farm and chain of custody. The standard encompasses all three pillars of sustainability—social, economic, and environmental. RA is currently developing a new certification program, following their 2018 merger with UTZ. Since 2018 RA has also become the sole owner and operator of the 2017 SAN Standard.
https://www.rainforest-alliance.org/business/solutions/certification/agriculture/

SAI Platform - Farm Sustainability Assessment (SAI-FSA): The SAI Platform Farm Sustainability Assessment (SAI-FSA) is an easy-to-use tool that assesses farm environmental, social, and economic sustainability. The FSA is based on SAI Platform's Principles and Practices for sustainable agriculture and can be used by farmers as a benchmarking tool for comparing various certification schemes and proprietary codes.
http://www.fsatool.com/

SAN Sustainable Agriculture Framework: The Sustainable Agriculture Network (SAN) Sustainable Agriculture Framework is a modular, outcome-based tool that focuses on sustainability as a central part of agricultural management. The flexible framework is designed to address challenges and desired outcomes specific to local contexts and covers ten environmental, social, and economic impact areas.
https://www.sustainableagriculture.eco/sustainable-agriculture-framework/

THESIS Help Center Video: Pesticide Application - Growing Operations KPI: Short video tutorial on the Pesticide Application - Growing Operations KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/529550783

TSC Responsible Pest Management (RPM) Framework: The RPM Framework is an innovative, science-based multi-stakeholder-developed approach for measuring RPM in crop production to enable improved communication throughout the value chain.
https://www.sustainabilityconsortium.org/responsible-pest-management-rpm-framework/

Veriflora: Veriflora is a sustainability certification program for growers and handlers of cut flowers and potted plants. For growers, the program includes criteria for sustainable crop production, ecosystem management and protection, resource conservation and energy efficiency, integrated waste management, fair labor practices, community benefits, product quality, and product safety and purity. For handlers, the program includes criteria for environmental sustainability, social and economic sustainability, product integrity, and fair labor practices.
https://www.scsglobalservices.com/services/veriflora-certified-sustainably-grown

Background Information

Fair Flowers Fair Plants: The Fair Flowers Fair Plants standard has two components: environmental certification and social certification. To earn environmental certification, flower and plant producers must meet the requirements of MPS-A certification. For social certification, producers must meet the criteria outlined in the International Code of Conduct for cut flowers.
http://www.fairflowersfairplants.com/en/home-2/

MPS-ABC: MPS-ABS is a farm-level certification program, based on registration of pesticides, fertilizers, energy, water, and waste management. Lower and upper limits for use of inputs are calculated, based on the crops grown, and points are assessed based on actual input usage. The total farm score determines the level of certification (A, B or C).

SAI Platform: Sustainable Performance Assessment (SAI-SPA): The SAI Platform provides fact sheets and guidelines for sustainable agriculture assessment including metrics.
https://saiplatform.org/our-work/

Definitions

Developing countries: Countries with little industrial and economic activity and where people generally have low incomes. Developing countries include all countries other than industrialized countries and countries in transition, namely: all countries in Africa except South Africa, all countries in Asia except Israel and Japan, all countries in Oceania except Australia and New Zealand, and all countries in North and Central America except Canada, USA and Mexico, and all countries in South America except Brazil and Chile.

Growing operation: An area of land and its buildings (including greenhouses), comprised of one or more locations managed together, that is used for growing crops delivered fresh to market or to processors.

Pesticide: A substance or mixture of substances used to prevent, destroy, or control a pest (e.g., weeds, fungi, bacteria, unwanted animal species) that are harmful to or interfere with the production, processing, storage, transport, or marketing of agricultural products.

Program: An annually updated document that farmers can demonstrate on-site. The program should summarize concrete goals and a plan for how to achieve these goals.

Site-based environmental health, and safety program: A program that seeks to protect workers, communities and the environment by accounting for the specific conditions and circumstances of each physical site or facility.

Verifiable: Having the ability to demonstrate, through a reputable assessor, the truth or accuracy of a claim.

Verified: Having previously demonstrated, through a reputable assessor, the truth or accuracy of a claim.

Hotspots Addressed

***7.** Pesticide application - On-farm*

9. WORKER HEALTH AND SAFETY - GROWING OPERATIONS

Question

How did your organization manage worker health and safety risks in the operations that produced your product supply?

Response Options

A. We are unable to determine at this time.

B. We are able to report the following:

B1._____% of our product supply, by total spend, was produced in operations that have performed a risk assessment to identify high-risk areas for health and safety.

B2._____% of our product supply, by total spend, was produced in operations that train workers on health and safety procedures.

B3._____% of our product supply, by total spend, was produced in operations that implement a verifiable worker health and safety plan.

B4._____% of our product supply, by total spend, was produced in operations that have a worker health and safety performance monitoring system in place.

B5._____% of our product supply, by total spend, was produced in operations that were audited in the last three years on worker health and safety issues.

Guidance

Calculation & Scope

To be included in B1-B5, risk assessments, training programs, safety plans, performance monitoring systems, and audits must be verifiable and address health and safety issues such as worker injury and worker exposure to harmful elements. The assessments and audits must be conducted by second or third parties. The risk assessment must be conducted once per year while the audit must have been conducted at least once every three years, both using a standard based on internationally-recognized principles such as International Labour Organization Occupational Safety and Health Conventions (e.g., No. 155). The standards and websites listed in Background Information below may be helpful for conducting your risk assessment(s) and for understanding appropriate corrective actions, which can inform your responses. See the Certifications, Standards & Tools for examples of initiatives that meet these requirements.

Calculate B1 as the mass of your product supply that came from operations that have performed a risk assessment to identify high risk areas for health and safety, divided by the total mass of your product supply, then multiply by 100.

To determine if an operation is high risk for health and safety, you may utilize a country risk analysis tool. The tool should measure the strength of a country's ability to govern and enforce laws, regulations, and internationally recognized principles. The country risk assessment may be a first party systematic review assessment, or external risk analyses tools may be utilized. It must be conducted at least once per year. The country risk assessment can be complemented with risks associated with specific activities, regions, and suppliers.

Calculate B2 as the mass of your product supply that came from operations that train workers on health and safety procedures, divided by the total mass of your product supply, then multiply by 100. To be included in B2, the training on health and safety procedures must be available in the language of the employee, including migratory and seasonal workers, and must be renewed as appropriate to maintain competency and implementation of good practices for workers on health and safety procedures and to prevent training exhaustion. Additional worker training may be required to perform job duties. On-site audits, where necessary, should be conducted by second or third parties and must be conducted at least once every three years using a standard based on internationally-recognized principles.

Calculate B3 as the mass of your product supply that came from operations that implement a verifiable worker health and safety plan, divided by the total mass of your product supply, then multiply by 100. To be included in B3, a worker health and safety plan must be verifiable and must be available in the language of the employee, including migratory and seasonal workers, and be prominently displayed in the workplace where employees normally report. The plan should include best practices specific to ergonomics; repetitive motions; chemical and particulate exposure; appropriate use of personal protective equipment (PPE); and proper use of tools, machinery, and the handling of animals (if applicable). On-site audits, where necessary, should be conducted by second or

third parties and must be conducted at least once every three years using a standard based on internationally-recognized principles.

Calculate B4 as the mass of your product supply that came from operations that have a worker health and safety performance monitoring system in place, divided by the total mass of your product supply, then multiply by 100. To be included in B4, a worker health and safety performance monitoring system should include metrics on issues including, but not limited to, incidence of worker injuries and prevalence of diseases. On-site audits, where necessary, should be conducted by second or third parties and must be conducted at least once every three years using a standard based on internationally-recognized principles.

Calculate B5 as the mass of your product supply that came from operations that were audited in the last three years on worker health and safety issues, divided by the total mass of your product supply, then multiply by 100. Audits should be conducted by second or third parties at least once every three years, or more often depending on the requirements of the standard organization. See the Certifications, Standards & Tools for more information. Government regulations or parties in the supply chain may initiate these audits.

To be included in B5, the audits must be verifiable and address preventive measures, freely provided personal protective equipment, identification of worker health and safety hazards and effects on the exposed people, statistics and reasons behind injuries, design of work area, processes, installations, machinery/work equipment, operating processes and work organization, as outlined by internationally-recognized labor principles. Examples include, but are not limited to, principles outlined by the United Nations Global Compact, the International Labour Organization Standards on Occupational Health and Safety.

Perform these calculations using data from a 12-month period that ended within 12 months of the date you respond to this question. Audits must have been conducted in the 36 months prior to the end of the 12-month period.

Certifications, Standards & Tools

Amfori Country Risk Classification: This list classifies countries' risk of social injustice in an effort to assist companies in determining high and low risk for their sourcing and operations.
http://duediligence.amfori.org/CountryRiskClassification

Fairtrade International Certification: Fairtrade International provides several standards (e.g. for smallholders and workers), and a certification through FLOCERT. Fairtrade aims to improve the livelihoods of smallholders and workers amongst others via fair trade relationships.
https://www.fairtrade.net/about/certification

GlobalG.A.P. Risk Assessment on Social Practice (GRASP): GRASP is an add-on module for GLOBALG.A.P. developed to assess social practices on the farm, addressing specific aspects of workers' health, safety and welfare, and labor rights.
https://www.globalgap.org/uk_en/for-producers/globalg.a.p.-add-on/grasp/

Recommended Practices for Safety and Health Programs: Defines and enforces standards for the safe and healthful working conditions for working men and women. OHSA also provides training, outreach education, and assistance. The OSHA tools can be used for self-evaluations, to compare elements and actions of different health and safety standards, to track implemented actions, identify remaining weaknesses, and strategies for continued improvement.
https://www.osha.gov/shpguidelines/explore-tools.html

SA8000® Standard: Social Accountability International (SAI) is a global non-governmental organization that aims to advance human rights at work via the SA8000® Standard. SA 8000 measures social performance in eight areas that are relevant for workplaces in factories and organizations worldwide.
https://sa-intl.org/programs/sa8000/

Sedex Members Ethical Trade Audit: Sedex Members Ethical Trade Audit is an auditing system that aligns with Ethical Trading Initiative's Base Code as well International Labour Organization Conventions. It has been developed to provide a public auditing methodology and format for companies to use to assess compliance.
https://www.sedex.com/our-services/smeta-audit/

THESIS Help Center Video: Worker Health and Safety - Growing Operations KPI: Short video tutorial on the Worker Health and Safety - Growing Operations KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/529546577

Background Information

Fair Flowers Fair Plants: The Fair Flowers Fair Plants standard has two components: environmental certification and social certification. To earn environmental certification, flower and plant producers must meet the requirements of MPS-A certification. For social certification, producers must meet the criteria outlined in the International Code of Conduct for cut flowers.
http://www.fairflowersfairplants.com/en/home-2/

Fair Trade USA - Certified Flowers Program: The Fair Trade USA Certified Flowers Program provides flower farm workers with better wages, safer working conditions, access to labor unions, and opportunities for community investment.
https://www.fairtrade.net/product/flowers-and-plants

Florverde Sustainable Flowers: The Florverde Sustainable Flowers program certifies flower growers against rigorous social and environmental criteria. The certification scheme covers: management systems, employment rights, employee education and training, employee safety and welfare, water use, nutrient management, integrated pest management, waste management, farm and biodiversity management, energy efficiency, plant material, product handling, and traceability and recordkeeping.
https://florverde.org/

IS0 26000 Social Responsibility: ISO 2600 is not a certification tool, but it offers guidance about social responsibility to all sorts of organizations regardless of their activity, size or location.
https://www.iso.org/iso-26000-social-responsibility.html

Social Accountability International Guidance Document for Social Accountability 8000: According to Social Accountability International, "this guidance document provides various tools and information for users of the Social Accountability 8000 standard, including definitions, background information, and examples."
https://sa-intl.org/wp-content/uploads/2020/02/SA8000-2014-Guidance-Document.pdf

United Nations Global Compact Human Rights and Business Dilemmas Forum: United Nations Global Compact Human Rights and Business Dilemmas Forum present an introduction to, analysis of, and business recommendations for minimizing social sustainability risks in the supply chain.
https://www.unglobalcompact.org/library/9

Veriflora: Veriflora is a sustainability certification program for growers and handlers of cut flowers and potted plants. For growers, the program includes criteria for sustainable crop production, ecosystem management and protection, resource conservation and energy efficiency, integrated waste management, fair labor practices, community benefits, product quality, and product safety and purity. For handlers, the program includes criteria for environmental sustainability, social and economic sustainability, product integrity, and fair labor practices.
https://www.scsglobalservices.com/services/veriflora-certified-sustainably-grown

Definitions

Corrective actions: Prompt actions taken to eliminate the causes of a problem, thus preventing their recurrence.

First party systematic risk assessment: A first party systematic risk assessment is conducted by the organization itself for management review and other internal purposes and may form the basis for an organization's declaration of conformity.

Risk assessment: A systematic process to evaluate potential risks within an operation, system, or supply chain. It can include an on-site audit by a second party or third party or a country risk classification analysis that judges the site risk due to prevailing conditions, controls, or other mitigating factors.

Second-party audit: An audit conducted by a party having an interest in the organization, such as customers, or by another entity on their behalf.

Third-party audit: An audit conducted by external, independent auditing organizations, such as those providing certification of conformity to a standard.

Verifiable: Having the ability to demonstrate, through a reputable assessor, the truth or accuracy of a claim.

Worker exposure to harmful elements: Contact with potentially harmful chemical, physical, or biological elements that occurs as a result of one's job-related activities. Examples include chronic interaction with chemicals, dusts, radiation, environmental elements, allergens, noise, and vibrations.

	Worker health and safety: Worker health and safety consists of worker injury and worker exposure to harmful elements. Please see the corresponding terms. **Worker injury:** Physical damage to an individual due to a single act that causes immediate damage or repetitive acts that cause damage over time. Examples of causes of injury include repetitive motions, non-ergonomic motions, damage from use of tools and machinery, falls, and burns.
Hotspots Addressed	***9.*** *Worker health and safety - On-farm*

10. PACKAGING RAW MATERIAL SOURCING

Question	Response Options
What percentage of the sales packaging used for your final products, by mass, was post-consumer recycled material and sustainably-sourced renewable virgin material?	**A.** Not applicable. We do not use sales packaging for our product. **B.** We are unable to determine at this time. **C.** The sales packaging used for our final products was: **C1.**_____% post-consumer recycled material. **C2.**_____% sustainably-sourced renewable virgin material.

Guidance

Calculation & Scope

The scope of this question is the product category's sales packaging, which is defined as packaging that leaves a store with the consumer. Include the transportation-related packaging for product that is shipped directly to an end consumer.

Calculate C1 as the mass of post-consumer recycled material in the sales packaging of your final products, divided by the total mass of sales packaging used for your final products, then multiply by 100. This excludes pre-consumer recycled materials.

Calculate C2 as the mass of sustainably-sourced renewable virgin material in the sales packaging of your final products, divided by the total mass of sales packaging used for your final products, then multiply by 100. To be included in C2, the material must be third-party verified (e.g. for paper-based packaging FSC, SFI, PEFC would be examples of certifications for verification).

If data on packaging materials specific to these final products is not available, you may use more aggregated internal data to calculate C1 and C2 (e.g., company-level data for sales packaging of similar products).

The sum of C1 and C2 cannot be greater than 100%.

Please refer to THESIS KPI set for Packaging for more detailed packaging indicators.

Certifications, Standards & Tools

Global Protocol on Packaging Sustainability: The Global Protocol on Packaging Sustainability provides metrics and a framework for businesses on the relative sustainability of packaging.
https://www.theconsumergoodsforum.com/wp-content/uploads/2017/11/CGF-Global-Protocol-on-Packaging.pdf

ISO 18604:2013: ISO 18604:2013 (Packaging and the environment -- Material recycling) provides measurement standards for determining how recyclable a particular product is.
https://www.iso.org/standard/55872.html

THESIS Help Center Video: Packaging Raw Material Sourcing KPI: Short video tutorial on the Packaging Raw Material Sourcing KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/531017161

Background Information

Circulytics – Measuring circularity: The Ellen Macarthur Foundation's Circulytics assesses a company's overall circularity. The tool is designed to support a company's evolution to a circular economy by informing strategy development and decision making, and identifying opportunities to align with circular economy principles including: designing out waste, keeping materials and products in use, and generating environmental benefits.
https://www.ellenmacarthurfoundation.org/resources/apply/circulytics-measuring-circularity

FTC Green Guide's Recyclability Definition: In the United States, the Federal Trade Commission defines when a product or packaging can be claimed recyclable. Please refer these guidelines when determining recyclability.
https://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-issues-revised-green-guides/greenguides.pdf

Global Protocol on Packaging Sustainability 2.0: The Global Protocol for Packaging Sustainability (GPPS 2.0) is a common set of indicators and metrics for business regarding sustainable packaging. The Consumer Goods Forum condensed the "Sustainable Packaging Indicators and Metrics Framework", developed by GreenBlue's Sustainable Packaging Coalition, into GPPS 2.0.
https://www.theconsumergoodsforum.com/wp-content/uploads/2017/11/CGF-Global-Protocol-on-Packaging.pdf

How2Recycle Certification: The How2Recycle Label provides guidance to consumers on how to recycle packaging for consumable goods. The label is intended to be used on all types of packaging and to provide instruction regarding how and where various raw materials can be recycled.
http://www.how2recycle.info/

Definitions

Post-consumer recycled material: "Material generated by households or by commercial, industrial, and institutional facilities in their role as end-users of the product that can no longer be used for its intended purpose. This includes returns of materials from the distribution chain." (ISO 14021:2016 - Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling))

Pre-consumer recycled material: "Material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it." (ISO 14021:2016 - Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling))

Renewable material: "Material that is composed of biomass from a living source and that can be continually replenished. To be defined as renewable, virgin materials shall come from sources which are replenished at a rate equal to or greater than the rate of depletion." (FTC Green Guides:2012)

Sales packaging: "Packaging that leaves a store with the consumer". (Global Protocol on Packaging Sustainability 2.0:2011)

Sustainably-sourced material: Material for which it can be demonstrated through second- or third-party verification that the virgin raw material has been harvested or produced legally and in a way that minimizes damage to the environment, workers, and communities. Materials such as paper can be included in this definition if the source of the packaging content comes from sustainably-managed forests with no deforestation.

Hotspots Addressed

10. *Energy consumption - Packaging production*

11. *Packaging disposal - Resource impacts*

11. SUSTAINABLE PACKAGING DESIGN AND PRODUCTION

Question

What percentage of the sales packaging for your final product was recyclable, was formally assessed for material and process efficiency and weight or volume optimization, had demonstrated quantified environmental impact reduction, and was labelled for recycling according to an established standard?

Response Options

- **A.** Not applicable. We do not use sales packaging for our product.
- **B.** We are unable to determine at this time.
- **C.** We are able to report the following for the sales packaging used for our final products:
  - **C1.**_____% of our packaging, by mass, was recyclable.
  - **C2.**_____ % of our packaging, by mass, has demonstrated progress on goals for material and process efficiency during packaging manufacturing.
  - **C3.**_____ % of our packaging, by mass, has demonstrated progress on goals for weight or volume optimization during packaging design.
  - **C4.**_____ % of our packaging, by mass, has a demonstrated quantified environmental impact reduction.
  - **C5.**_____ % of our packaging, by units sold in the US and Canada, was labeled with How2Recycle.
  - **C6.**_____ % of our packaging, by units sold in regions outside the US and Canada, was labeled with an established third-party recycling label.

Guidance

Calculation & Scope

Calculate C1 as the mass of sales packaging used for your final product that was recyclable, divided by the total mass of sales packaging used for your final product, then multiply by 100.

Calculate C2 as the mass of sales packaging used for your final product that has demonstrated progress on goals for material and process efficiency during packaging manufacturing, divided by the total mass of sales packaging used for your final product, then multiply by 100.

Calculate C3 as the mass of sales packaging used for your final product that has demonstrated progress on goals for weight or volume optimization during packaging design, divided by the total mass of sales packaging used for your final product, then multiply by 100.

Goals must be quantitative and time-bound and progress must be reported publicly. Public reporting may include voluntary corporate reporting, sustainability reporting programs, or reporting as part of regulatory compliance.

Calculate C4 as the mass of sales packaging used for your final product that has demonstrated quantified environmental impact reductions, divided by the total mass sales packaging used for your final product, then multiply by 100. Include sales packaging with demonstrated impact reductions since the inception of the product or since purchase of the brand, if post-inception.

Methods for demonstrating quantified environmental impact reduction include, but are not limited to, life cycle impact assessment, or assessment against ISO Standard 18602:2013 (Packaging and the environment -- Optimization of the packaging system), or EN 13428:2004 (Packaging: Requirements specific to manufacturing and composition - Prevention by source reduction).

Calculate C5 as the number of units sold in the US and Canada that had sales packaging labeled with How2Recycle divided by the total number of units sold in the US and Canada that had sales packaging, then multiply by 100.

Calculate C6 as the number of units sold in regions outside the US and Canada that had sales packaging labeled according to an established third-party standard divided by the total number of units sold in regions outside the US and Canada that had sales packaging, then multiply by 100. Third party standards include those listed in the Certifications, Standards & Tools section of this KPI. Only include regions outside the US and Canada that are covered by the referenced third-party standards in your calculations.

Perform these calculations using data from a 12-month period that ended within 12 months of the date you respond to this question.

Certifications, Standards & Tools

Australasian Recycling Label (ARL): Used in Australia and New Zealand, the ARL details how best to label packaging for recycling to assist consumers in recycling correctly.
https://recyclingnearyou.com.au/arl/

Ecoembes Recycling Symbols: Used in Spain, the Ecoembes recycling symbols provide information to consumers for the recycling of packaging up to six different colors: blue for paper and cardboard, yellow for plastics and cans, green for glass, orange for organic materials, red for hazardous waste, and grey for everything else.
https://www.ecoembes.com/en/home

EN 13428: Prevention by packaging source reduction: European standard 13428:2004 outlines a method for evaluating if packaging material weight and/or volume have been sufficiently minimized while also taking into consideration other packaging performance parameters. The standard also includes recommended methodology for identifying heavy metals and dangerous substances in packaging formats.
http://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/packaging/index_en.htm

European Certification of Plastics Recycling (EUCertPlast): The EuCertPlast Certification is a European wide certification program for companies that recycle post-consumer plastic waste.
https://www.eucertplast.eu/

How2Recycle Certification: The How2Recycle Label provides guidance to consumers on how to recycle packaging for consumable goods. The label is intended to be used on all types of packaging and to provide instruction regarding how and where various raw materials can be recycled.
http://www.how2recycle.info/

ISO 18602:2013: ISO 18602 provides criteria for optimization of packaging systems. It outlines a procedure for reduction of packaging material weight or volume while taking into consideration packaging function. It also provides assessment methodology for substances hazardous to the environment and heavy metals.
https://www.iso.org/standard/55870.html

Japanese Recycling Symbols: Used in Japan, Japanese recycling symbols tell in a glance to consumers what is recyclable and what is not recyclable, and assist consumers in recycling correctly.
https://www.jcpra.or.jp/Portals/0/resource/eng/JCPRAdocuments202012.pdf

Le Guide du TRI (Citeo Sorting Guide): sed in France, the Citeo Sorting Guide provides information to companies about which product components should be recycled and which should be disposed.
https://bo.citeo.com/sites/default/files/2019-07/20190617_Guide_Info-tri_Citeo_EN.pdf

On-Pack Recycling Label: Used in the UK, the On-Pack Recycling Label details how best to label packaging for recycling to assist consumers in recycling correctly.
http://www.oprl.org.uk/

The Association of Postconsumer Plastic Recyclers (APR): The APR is an international national trade association representing the plastics recycling industry.
https://plasticsrecycling.org/about

The Triman: Used in France, the Triman is a recycling symbol in e-commerce that sells and ships to France.
https://www.msl.io/uploads/downloads/Triman-Users-handbook-english-V21.pdf

Woolworths Recycling Labels: Used in South Africa, the Woolworths Recycling Labels detail how best to label packaging for recycling to assist consumers in recycling correctly.
https://www.woolworths.co.za/content/howto/good-business-journey/how-to-read-our-recycling-labels/_/A-cmp201960

Background Information

Circulytics – Measuring circularity: The Ellen Macarthur Foundation's Circulytics assesses a company's overall circularity. The tool is designed to support a company's evolution to a circular economy by informing strategy development and decision making, and identifying opportunities to align with circular economy principles including: designing out waste, keeping materials and products in use, and generating environmental benefits.
https://www.ellenmacarthurfoundation.org/resources/apply/circulytics-measuring-circularity

FTC Green Guide's Recyclability Definition: In the United States, the Federal Trade Commission defines when a product or packaging can be claimed recyclable. Please refer these guidelines when determining recyclability.
https://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-issues-revised-green-guides/greenguides.pdf

Recycle Now: Recycle Now is the national recycling effort in England. The website contains examples of recycling labels that may be used on packaging and how to interpret them.
http://www.recyclenow.com/recycle/packaging-symbols-explained

Walmart Sustainable Packaging Playbook: Walmart provides an overview of sustainable packaging best practices for suppliers interested in improving and innovating packaging.
https://www.walmartsustainabilityhub.com/climate/project-gigaton/packaging

Definitions

Goals: Goals should be specific, measurable, achievable, relevant, and time-bound.

Material and process efficiency: Material efficiency is the ratio between the material input and the benefits derived. Resource conservation (source reduction) of material inputs and/or improving the functionality of the packaging can positively impact material efficiency. Process efficiency is the ratio between the time spent on production steps to the output. Opportunities to improve material and process efficiency include process improvement, product redesign, and technology changes to packaging equipment. It should be noted that continual source reduction has benefits, but there are trade-offs that must be assessed.

Sales packaging: "Packaging that leaves a store with the consumer". (Global Protocol on Packaging Sustainability 2.0:2011)

Third-party audit: An audit conducted by external, independent auditing organizations, such as those providing certification of conformity to a standard.

Weight or volume optimization: "Process for the achievement of a minimum adequate weight or volume (source reduction) for meeting the necessary requirements of primary or secondary or transport packaging, when performance and user/consumer acceptability remain unchanged or adequate, thereby reducing the impact on the environment." (ISO 18601:2013 - Packaging and the environment--General requirements for the use of ISO standards in the field of packaging and the environment)

Hotspots Addressed

10. *Energy consumption - Packaging production*

12. INVASIVE SPECIES - DISTRIBUTION

Question

What is your organization's approach to reducing risks related to the transportation of potentially invasive species?

Response Options

- **A.** We are unable to determine at this time, or we only follow relevant regulations regarding potentially invasive species.
- **B.** We have performed a formal risk assessment to identify risks related to potentially invasive species.
- **C.** In addition to (B), we have implemented controls that reduce the risk of potentially invasive species.
- **D.** In addition to (C), we publicly report our progress on this issue.

Guidance

Calculation & Scope

Potentially invasive species include both the marketable plant product as well as any secondary organisms that may be introduced along with the marketable product.

The risk assessment should consider intentional and unintentional exposure to terrestrial, maritime, or airborne animals and plants that may be invasive in the regions to which they are transported.

For a list of invasive species by country, refer to the Global Invasive Species Database, listed in the Background Information.

When answering B, C, and D, use data from a 12-month period that ended within 12 months of the date you respond to this question.

Certifications, Standards & Tools

Convention on Biological Diversity Invasive Species Toolkit: The Convention on Biological Diversity has developed a prototype toolkit to explain international agreements on invasive plant and animal species.
https://www.cbd.int/invasive/cbdtoolkit/

Background Information

Agreement on the Application of Sanitary and Phytosanitary Measures: The Agreement on the Application of Sanitary and Phytosanitary Measures provides guidelines for member countries' policies regarding food safety and the prevention of imported pests and diseases.
https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm

Convention on Biological Diversity - Invasive Species Guidance: This website provides resources and guidance on invasive species, their distribution pathways, and prevention and eradication measures.
https://www.cbd.int/invasive/tools.shtml

Global Invasive Species Database: The Global Invasive Species Database is a tool that allows users to search for potentially invasive species by species name, county or location, habitat, and organism type.
http://www.issg.org/database/welcome/

International Plant Protection Convention - Commission on Phytosanitary Measures: The IPCC Commission on Phytosanitary Measures provides recommendations on how to prevent the spread of invasive species.
https://www.ippc.int/en/core-activities/governance/cpm/

Invasive Alien Species: A Toolkit of Best Prevention and Management Practices: This toolkit provides information related to the prevention, early detection, and assessment and management of invasive species. The toolkit describes the possible pathways for invasive species introduction, exclusion and early detection methods, and management and control strategies and contains guidelines for developing an invasive species plan. The toolkit is relevant for terrestrial, freshwater, marine ecosystems.
http://www.issg.org/pdf/publications/GISP/Guidelines_Toolkits_BestPractice/Wittenberg&Cock_2001_EN.pdf

Definitions	**Invasive species:** Plants and animals that are introduced to an area where they are not native, and subsequently have negative impacts on the area's ecosystem. **Risk assessment:** A systematic process to evaluate potential risks within an operation, system, or supply chain. It can include an on-site audit by a second party or third party or a country risk classification analysis that judges the site risk due to prevailing conditions, controls, or other mitigating factors.
Hotspots Addressed	***13.*** *Invasive species - Distribution*

13. TRANSPORTATION TO RETAILERS

Question

What percentage of your final product was transported to downstream retail or distribution centers by logistics providers (carriers) that reported their annual greenhouse gas (GHG) emissions associated with transportation?

Response Options

- **A.** We are unable to determine at this time.
- **B.** The following percentage of our product, by revenue, was shipped to retail or distribution centers by carriers who reported their GHG emissions associated with transportation:
  B1._____%.

Guidance

Calculation & Scope

Include shipments of your product from final manufacturing facilities to downstream retailers or distributors. Include both company-owned and contracted fleet. Exclude data for return trips. If retailers are responsible for the transportation of some or all of your final product, the retailer may hold the information necessary to calculate your response. It may be made available in a public report or by request.

Calculate B1 as the revenue from product transported by carriers that reported emissions, divided by the total revenue from product transported, then multiply by 100.

Reporting can occur through public disclosure or private disclosure from the supplier to your organization directly or through another party.

If a supplier completed the CDP Climate Change 2020 Questionnaire, you may count that as compliance with this question. Examples of other compliant standards are provided in the Certifications, Standards, & Tools section below.

Perform this calculation using data from a 12-month period that ended within 12 months of the date you respond to this question.

Certifications, Standards & Tools

CDP Climate Change Questionnaire: The CDP Climate Change Questionnaire provides questions that assess a company's greenhouse gas emissions, goals, and management. The report provided by CDP provides the overview of the results from companies responding to the request.
https://www.cdp.net/en/guidance/guidance-for-companies

Clean Shipping Index: According to their website, "Clean Shipping Index is a tool for cargo owners to select clean ships and quality ship operators" to minimize environmental footprint and identify areas for environmental improvement.
https://www.cleanshippingindex.com/

Clear Cargo: The Clean Cargo Working group is a business initiative created by BSR to collaboratively address the environmental impacts of shipping and transportation.
https://www.clean-cargo.org/data-methods

Cool Farm Tool: This calculator is available globally and calculates greenhouse gas emissions associated with farms, processing facilities, and transportation for many agriculture and livestock products.
http://www.coolfarmtool.org/CoolFarmTool

Ecotransit: EcotransIT World calculates and quantifies environmental impacts of different carriers across the world in terms of direct energy usage and emissions during the operation of vehicles during the transport of products.
http://www.ecotransit.org/

EN 16258:2012: The European Committee for Standardization's EN 16258:2012 standard deals with the methodology for calculation and reporting of energy consumption and greenhouse gas (GHG) emissions of freight and passenger transport services.
https://shop.bsigroup.com/ProductDetail/?pid=000000000030241098

IATA CO2 Emissions Measurement Methodology: This document includes a methodology for measuring CO2 emissions from air cargo.

https://www.iata.org/en/programs/cargo/sustainability/carbon-footprint/

THESIS Help Center Video: Transportation to Retailers KPI: Short video tutorial on the Transportation to Retailers KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/529545735

United States Environmental Protection Agency (EPA): Transportation and Air Quality: SmartWay: This program provides information about how to improve fuel efficiency in trucking. Carriers can use the SmartWay carbon emission calculator to track and publicly report emissions associated with their trucking operations.
https://www.epa.gov/smartway

Background Information

Greenhouse Gas Protocol: Calculation Tools: This site provides a list of sector toolsets developed by GHG Protocol, third-party databases, and other tools based on the GHG Protocol standards that can be used to calculate greenhouse gas inventories for use in emissions calculations.
https://ghgprotocol.org/calculation-tools

Definitions

CO2e: Carbon dioxide equivalent; a metric that expresses the impact of a greenhouse gas in terms of the amount of carbon dioxide (CO2) that has the same global warming potential.

Greenhouse gas: Gases that contribute to the greenhouse effect by absorbing infrared radiation in the atmosphere, e.g., carbon dioxide, methane, nitrous oxide, ozone, and chlorofluorocarbons.

Hotspots Addressed

12. *Fuel combustion - Distribution*

Category Sustainability Profile

Hotspots

Hotspots are activities in a product's life cycle that have a documented environmental or social impact. TSC evaluates the quality and quantity of the scientific sources of evidence for each hotspot according to a defined decision tree before they are included in the CSP. Items marked with an asterisk (*) are *additional issues* that have not achieved the same level of evidence as a hotspot. For more information on the methodology TSC uses to identify hotspots visit: http://www.sustainabilityconsortium.org/toolkit-methodology

AGRICULTURE AND LIVESTOCK

1.	**Supply chain traceability** Due to the complexity of supply chains, information about where the products originate is limited. This makes it more difficult for companies to manage environmental and social impacts. **Related Improvement Opportunities** ***18.*** *Map the geographic origins of agricultural supply chains* **KPIs** ***1.*** *Product Supply Mapping*	**References** ▪ Dutch Ministry of Economic Affairs, Agriculture & Innovation, 2012 ▪ Hughes, 2000 ▪ Malindretos, Moschuris, & Folinas, 2015
2.	**Biodiversity loss - Wild harvesting** The systematic collection of endemic and exotic flora from natural areas for the international flower market could result in over-harvesting. This increases the risk of extinction of wild plant species. **Related Improvement Opportunities** ***1.*** *Cultivate indigenous flower and plant varieties* ***4.*** *Develop education programs to prevent over-exploitation of wild plant species* ***15.*** *Implement sustainable wild-harvesting practices* **KPIs** ***2.*** *Biodiversity Management - Wild Harvesting*	**References** ▪ Coetzee & Littlejohn, 1995 ▪ Ghendov, Ciocarlan, & Sirbu, 2011 ▪ Laubscher et al., 2009 ▪ Privett et al., 2014
3.	**Energy consumption - On-farm** Combustion of fossil fuels and electricity use for greenhouse facilities leads to fossil resource depletion and releases greenhouse gases. Combustion of fuel for field operations, particularly for machinery use and water pumping for irrigation, leads to fossil resource depletion and releases greenhouse gas, acidifying, eutrophying, smog-forming, and ozone-depleting emissions. **Related Improvement Opportunities** ***6.*** *Implement energy conservation practices for farm vehicle operation* ***9.*** *Implement irrigation water management* ***13.*** *Implement practices for greenhouse energy efficiency* **KPIs** ***4.*** *Greenhouse Gas Emissions Intensity - Growing Operations*	**References** ▪ Lazzerini, Lucchetti, & Nicese, 2014 ▪ Martin, 2008 ▪ Mugnozza, Russo, & De Lucia Zeller., 2006 ▪ Russo & De Lucia, 2008 ▪ Russo, Scarascia-Mugnozza, & De Lucia Zeller, 2007 ▪ Vringer & Blok, 2000

4. Fertilizer application - On-farm Applied fertilizers, both synthetic and organic, release greenhouse gas, smog-forming, ozone-depleting, and acidifying emissions and contribute to water quality impacts. Eutrophication is caused by nutrients in surface water runoff, and groundwater contamination occurs due to leaching of nitrate. **Related Improvement Opportunities** ***10.*** *Implement nutrient fertigation* ***11.*** *Implement nutrient management programs on-farm* ***12.*** *Implement nutrient recycling of organic waste on-farm* **KPIs** ***3.*** *Fertilizer Application - Growing Operations* ***4.*** *Greenhouse Gas Emissions Intensity - Growing Operations*	**References** ▪ Cabrera, Evans, & Paul, 1993 ▪ Getu, 2009 ▪ Lazzerini, Lucchetti, & Nicese, 2014 ▪ Mugnozza, Russo, & De Lucia Zeller., 2006 ▪ Russo & De Lucia, 2008 ▪ Western Australia Department of Water, 2006
5. Indigenous and community rights - On-farm, land acquisition* Expansion of greenhouse production for ornamental plants contributes to decreased land availability for traditional farming systems. This threatens the maintenance of cultural heritage and increases vulnerability to food insecurity among smallholder farmers. **Related Improvement Opportunities** ***2.*** *Develop a land-use policy* ***22.*** *Take steps to obtain free, prior, and informed consent (FPIC) from the local community before starting growing operations* **KPIs** ***5.*** *Indigenous Peoples' and Community Rights*	**References** ▪ Breilh, 2012 ▪ Merlin-Uribe et al., 2013
6. Labor rights - On-farm, farm laborers* Workers may face several labor rights issues, including unfair pay, discrimination, challenges to join unions and collectively bargain, long working hours, and sexual harassment and assault. Women and migrants are at an increased risk of facing these issues. **Related Improvement Opportunities** ***3.*** *Compensation policies and supplier guidance that consider the cost of living in the area of employment for farm laborers* ***5.*** *Implement company policies for gender equality* ***21.*** *Support collective worker rights* **KPIs** ***7.*** *Labor Rights - Growing Operations*	**References** ▪ Dolan, Opondo, & Smith, 2012 ▪ Mena & Proano, 2005 ▪ NFFPFATU, 2010
7. Pesticide application - On-farm Crop protection chemical application and improper disposal of crop protection chemical containers can lead to biodiversity loss, soil toxicity from persistence in the soil, aquatic toxicity from run-off, groundwater contamination from leaching, and human health effects from aerial drift, exposure during application, and contact with empty chemical containers and rinse water. **Related Improvement Opportunities** ***7.*** *Implement incentives targeting best practices for crop protection chemical use* ***8.*** *Implement integrated pest management* ***17.*** *Implement worker health and safety programs on-farm* **KPIs** ***8.*** *Pesticide Application - Growing Operations*	**References** ▪ Breilh, 2012 ▪ Getu, 2009 ▪ Lu, 2005 ▪ Roseth, 2010 ▪ Rossing et al., 1997 ▪ Western Australia Department of Water, 2006

8. Water use - On-farm Irrigation water use leads to freshwater depletion, as well as to biodiversity and ecosystem losses from altered aquatic habitats and soil conditions. Irrigation also facilitates runoff and leaching when it is not properly managed. **Related Improvement Opportunities** ***14.*** *Implement programs, practices, and technologies to optimize irrigation water use* ***16.*** *Implement watershed conservation plans* **KPIs** ***6.*** *Irrigation Water Use Intensity - Growing Operations*	**References** ▪ Mekonnen, Hoekstra, & Becht, 2012 ▪ Merlin-Uribe et al., 2013 ▪ Munyuli, 2014 ▪ Western Australia Department of Water, 2006
9. Worker health and safety - On-farm Workers may face several health and safety issues associated with farm work, including injuries resulting from repetitive motions and exposure to chemicals and dust, and lack of safe transportation after normal working hours. **Related Improvement Opportunities** ***17.*** *Implement worker health and safety programs on-farm* ***19.*** *Provide safe transportation services* ***20.*** *Require appropriate use of personal protective equipment (PPE) on-farm* **KPIs** ***9.*** *Worker Health and Safety - Growing Operations*	**References** ▪ Breilh, 2012 ▪ Defar & Ali, 2013 ▪ Dolan, Opondo, & Smith, 2012 ▪ Meier, 1999 ▪ NFFPFATU, 2010

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10. Energy consumption - Packaging production Energy consumption for extracting and processing the raw materials that make up cut flower and potted plant containers and packaging, and for fabricating the containers and packaging, leads to fossil-fuel resource depletion and releases greenhouse gas, acidifying, eutrophying, smog-forming, and ozone-depleting emissions. **Related Improvement Opportunities** ***23.*** *Energy recovery from non-recyclable primary packaging* ***24.*** *Optimized packaging-product systems* **KPIs** ***10.*** *Packaging Raw Material Sourcing* ***11.*** *Sustainable Packaging Design and Production*	**References** ▪ Lazzerini, Lucchetti, & Nicese, 2014 ▪ Martin, 2008 ▪ Mugnozza, Russo, & De Lucia Zeller., 2006 ▪ Russo, Scarascia-Mugnozza, & De Lucia Zeller, 2007 ▪ Vringer & Blok, 2000
11. Packaging disposal - Resource impacts Low recovery of packaging material results in resource related impacts from creation of packaging from virgin materials, including depletion of non-renewable resources and environmental and social impacts in raw material extraction. **Related Improvement Opportunities** ***24.*** *Optimized packaging-product systems* ***25.*** *Utilize recycled content* ***26.*** *Utilize renewable content* **KPIs** ***10.*** *Packaging Raw Material Sourcing*	**References** ▪ European Commission, 2014 ▪ Randell, Picken, & Grant, 2014 ▪ US EPA, 2014b

DISTRIBUTION

12.	**Fuel combustion - Distribution** Fuel combustion for distribution of product to retail contributes to non-renewable resource depletion and releases greenhouse gases that lead to terrestrial and aquatic acidification and climate change. **Related Improvement Opportunities** ***28.*** *Information technology in transportation* ***29.*** *Use maritime transport* **KPIs** ***13.*** *Transportation to Retailers*	**References** ▪ Bohm, Ellegren, & Hansson, 2013 ▪ Martin, 2008 ▪ Parrado, Bojacá, & Schrevens, 2009 ▪ Vringer & Blok, 2000
13.	**Invasive species - Distribution** Distribution of cut flowers, ornamentals, and garden plants is a potential dispersal mechanism for non-native species, especially insects. The spread of invasive species outside of their natural range can cause harm to agricultural crops, native local flora, and biodiversity loss. **Related Improvement Opportunities** ***27.*** *Implement a phytosanitary program to monitor and control the spread of invasive species* **KPIs** ***12.*** *Invasive Species - Distribution*	**References** ▪ Areal et al., 2008 ▪ Hong et al., 2012 ▪ Knowler & Barbier, 2005 ▪ Palmieri et al., 2005 ▪ Perrings et al., 2005

Improvement Opportunities

Improvement opportunities are practices that address one or more environmental or social hotspots and are actionable by brand manufacturers or their suppliers. TSC evaluates the quality of the evidence supporting each improvement opportunity according to a defined decision tree before including it in the CSP. For more information on the methodology TSC uses to identify hotspots visit: http://www.sustainabilityconsortium.org/toolkit-methodology

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1.	**Cultivate indigenous flower and plant varieties** Commercial cultivation of indigenous flora for fresh flower markets helps to avoid over-harvesting of wild populations. **Related Hotspots** ***2.*** *Biodiversity loss - Wild harvesting*	**References** ▪ Coetzee & Littlejohn, 1995
2.	**Develop a land-use policy** Develop and implement sector-specific policies that address the negative effects of land acquisitions on local communities. Specific policy commitments can reference the "United Nations Declaration on the Rights of Indigenous Peoples". **Related Hotspots** ***5.*** *Indigenous and community rights - On-farm, land acquisition*	**References** ▪ Amazon Watch, 2011 ▪ International Land Coalition, 2013
3.	**Compensation policies and supplier guidance that consider the cost of living in the area of employment for farm laborers** Compensation policies may consider the expenses needed to provide for the basic level of consumption, as well as other costs of living. There are many models for determining a fair compensation for workers. Prominent models include living wage and family wage, which take into account many variables for the cost of living. Monitor actual wages against the chosen model. **Related Hotspots** ***6.*** *Labor rights - On-farm, farm laborers*	**References** ▪ Dolan, Opondo, & Smith, 2012 ▪ NFFPFATU, 2010
4.	**Develop education programs to prevent over-exploitation of wild plant species** Developing education programs for wild flora pickers will help to prevent over-exploitation of wild populations. **Related Hotspots** ***2.*** *Biodiversity loss - Wild harvesting*	**References** ▪ Coetzee & Littlejohn, 1995
5.	**Implement company policies for gender equality** Companies can develop, implement, and monitor execution of policies that prohibit any form of discrimination based on gender including pay, advancement opportunities, sexual harassment, violence, and limiting of reproductive rights. **Related Hotspots** ***6.*** *Labor rights - On-farm, farm laborers*	**References** ▪ Dolan, Opondo, & Smith, 2012 ▪ Mena & Proano, 2005 ▪ NFFPFATU, 2010

6. Implement energy conservation practices for farm vehicle operation There are many practices that can help to conserve energy used by farm vehicles. Some practices include minimizing field passes by performing multiple operations at a time, maintaining proper ballast, using a tractor size that is suitable for each operation, shifting tractors to a higher gear and throttling down during field operations, minimizing driving tractors on the road, upgrading to more efficient models, minimizing idling, reducing excess weight on vehicles, and refraining from using quick start engines. **Related Hotspots** ***3.*** *Energy consumption - On-farm*	**References** ▪ California Farm Bureau Federation, 2014 ▪ NCAT, 2007
7. Implement incentives targeting best practices for crop protection chemical use Develop programs to incentivize the use of technologies and production practices to further optimize crop protection chemical application **Related Hotspots** ***7.*** *Pesticide application - On-farm*	**References** ▪ Munyuli, 2014
8. Implement integrated pest management Integrated pest management (IPM) is a set of strategies taken to prevent crop damage by pests through practices such as biological control, biopesticides, habitat manipulation, and using resistant crop varieties. Crop protection chemical application should only be resorted to after monitoring and guidelines indicate that it is necessary. Additionally, if crop protection chemicals are used, they should only target the pest of concern, and the selection and application process should minimize the risk of environmental and human health impacts. **Related Hotspots** ***7.*** *Pesticide application - On-farm*	**References** ▪ De Boer et al., 2005 ▪ du Jardin, 2015 ▪ Jansma, Snoek, & Wondergem, 2002 ▪ Le Mire et al., 2016 ▪ Ten Berge et al., 2000 ▪ Western Australia Department of Water, 2006
9. Implement irrigation water management Control water volume, frequency of application, flow rate, and duration of application in an efficient manner. **Related Hotspots** ***3.*** *Energy consumption - On-farm*	**References** ▪ NRCS, 2005 ▪ Sustainable Agriculture Initiative Platform, 2009
10. Implement nutrient fertigation The application of nutrients through irrigation systems (fertigation) allows for optimal rate, timing, and placement of nutrients and can reduce fertilizer requirements and nutrient runoff that impairs surface water quality. These systems should be carefully optimized, because over-application can increase leaching of nutrients to groundwater. **Related Hotspots** ***4.*** *Fertilizer application - On-farm*	**References** ▪ Getu, 2009 ▪ Western Australia Department of Water, 2006
11. Implement nutrient management programs on-farm Nutrient management programs may help to reduce the negative environmental impacts that can be caused by nutrient application. Nutrient management programs entail selecting the optimal nutrient source and determining and implementing the optimal rate, timing, and placement of nutrient application. Nutrient sources may include fertilizer, biostimulants, manure, or post-harvest plant material. **Related Hotspots** ***4.*** *Fertilizer application - On-farm*	**References** ▪ du Jardin, 2015 ▪ Le Mire et al., 2016 ▪ Western Australia Department of Water, 2006

12. Implement nutrient recycling of organic waste on-farm Using organic waste from the growing operation as a nutrient source instead of discarding it reduces greenhouse gas emissions from the use of manufactured fertilizers. The organic material also acts as a soil conditioner. **Related Hotspots** ***4.*** *Fertilizer application - On-farm*	**References** ▪ Getu, 2009 ▪ Jansma, Snoek, & Wondergem, 2002
13. Implement practices for greenhouse energy efficiency Adopt practices and technologies that reduce demand for energy from fossil fuels. This may include using renewable energy, occasional heating systems, and thermal screens in greenhouse facilities. **Related Hotspots** ***3.*** *Energy consumption - On-farm*	**References** ▪ Russo, Scarascia-Mugnozza, & De Lucia Zeller, 2007
14. Implement programs, practices, and technologies to optimize irrigation water use Adopt practices and technologies that reduce irrigation water use, such as drip irrigation, precision irrigation, micro sprinklers, use of soil moisture probes, water recycling systems, or other programs aimed at optimizing water use. **Related Hotspots** ***8.*** *Water use - On-farm*	**References** ▪ Lazzerini, Lucchetti, & Nicese, 2014 ▪ Munyuli, 2014 ▪ Russo & De Lucia, 2008 ▪ Western Australia Department of Water, 2006
15. Implement sustainable wild-harvesting practices Encourage the use of sustainable harvesting practices to prevent over-exploitation of wild populations. **Related Hotspots** ***2.*** *Biodiversity loss - Wild harvesting*	**References** ▪ Laubscher et al., 2009 ▪ Privett et al., 2014
16. Implement watershed conservation plans Companies can work together with civil society organizations and governments to develop watershed conservation plans for the watersheds on which they depend. Watershed conservation plans can help maintain sustainable water supplies for manufacturing operations, agriculture, and local communities. **Related Hotspots** ***8.*** *Water use - On-farm*	**References** ▪ Mekonnen, Hoekstra, & Becht, 2012
17. Implement worker health and safety programs on-farm Worker health and safety programs should address the appropriate ways to handle, use, and store pesticides and pesticide application equipment and the proper procedures for recycling or disposing of empty pesticide containers. Health and safety programs should educate workers about the risks associated with farm work and the practices that mitigate those risks. Practices should be specific to ergonomics, repetitive motions, chemical and particulate exposure, appropriate use of personal protective equipment (PPE), and proper use of tools and machinery. **Related Hotspots** ***7.*** *Pesticide application - On-farm* ***9.*** *Worker health and safety - On-farm*	**References** ▪ Defar & Ali, 2013 ▪ Dolan, Opondo, & Smith, 2012 ▪ Getu, 2009 ▪ Lu, 2005 ▪ NFFPFATU, 2010 ▪ Western Australia Department of Water, 2006

18. Map the geographic origins of agricultural supply chains Knowing the geographic origins of agricultural supply chains can inform planning and policy for the sustainable management of social and environmental farm practices. **Related Hotspots** ***1.*** *Supply chain traceability*	**References** ▪ Hughes, 2000
19. Provide safe transportation services Provide safe and reliable transportation services to protect workers, especially women, traveling between work and home. **Related Hotspots** ***9.*** *Worker health and safety - On-farm*	**References** ▪ Dolan, Opondo, & Smith, 2012 ▪ NFFPFATU, 2010
20. Require appropriate use of personal protective equipment (PPE) on-farm Providing personal protective equipment (masks, gloves, protective clothing) and posting informational guidelines for use and worker safety may help to reduce exposure to hazardous chemicals and particulates where interventions are ineffective. **Related Hotspots** ***9.*** *Worker health and safety - On-farm*	**References** ▪ Defar & Ali, 2013 ▪ Dolan, Opondo, & Smith, 2012 ▪ NFFPFATU, 2010
21. Support collective worker rights Support freedom of association by permitting workers to form and join worker representative bodies and trade unions without fear of repercussions, such as job loss. **Related Hotspots** ***6.*** *Labor rights - On-farm, farm laborers*	**References** ▪ Dolan, Opondo, & Smith, 2012
22. Take steps to obtain free, prior, and informed consent (FPIC) from the local community before starting growing operations To minimize the negative effects of growing operations on local communities, companies should develop and implement an FPIC company policy. Companies should provide ongoing training and support to field personnel to continue to engage and collaborate with the local community throughout operations. **Related Hotspots** ***5.*** *Indigenous and community rights - On-farm, land acquisition*	**References** ▪ Amazon Watch, 2011 ▪ World Resources Institute, 2007

PACKAGING

23. Energy recovery from non-recyclable primary packaging Sending non-recyclable primary packaging to an energy recovery plant could help offset the energy consumed for extracting and processing the raw materials that make up non-recyclable primary packaging for flowers, ornamentals, and garden plants. **Related Hotspots** ***10.*** *Energy consumption - Packaging production*	**References** ▪ Scarascia-Mugozza, Sica, & Russo, 2012

24. Optimized packaging-product systems Optimized packaging systems reduce environmental and social impacts associated with packaging production while appropriately protecting products. **Related Hotspots** ***10.*** *Energy consumption - Packaging production* ***11.*** *Packaging disposal - Resource impacts*	**References** ▪ Sustainable Packaging Coalition, 2009 ▪ The Consumer Goods Forum, 2011
25. Utilize recycled content Utilizing recycled content, measured as percentage pre-consumer and post-consumer recycled content per packaging unit, can reduce impacts associated with virgin material sourcing, lower overall packaging costs, and improve an organization's environmental and social impact. **Related Hotspots** ***11.*** *Packaging disposal - Resource impacts*	**References** ▪ European Commission, 2001b ▪ IFC, 2007c ▪ Miller, Justiniano, & McQueen, 2005 ▪ Paper Task Force, 1995 ▪ Pulselli et al., 2009 ▪ Sustainable Packaging Coalition, 2009 ▪ The Consumer Goods Forum, 2011 ▪ US EPA, 2012b ▪ U.S. General Services Administration, 2013 ▪ US EPA, 2008c
26. Utilize renewable content Renewable content, defined as material derived from living sources that are replenished at a rate equal to or greater than depletion rate, can be used to reduce impacts from virgin material sourcing, lower overall packaging costs, and improve an organization's environmental and social impact. **Related Hotspots** ***11.*** *Packaging disposal - Resource impacts*	**References** ▪ Sustainable Packaging Coalition, 2009 ▪ The Consumer Goods Forum, 2011

DISTRIBUTION

27. Implement a phytosanitary program to monitor and control the spread of invasive species Improving early pest detection and monitoring systems (phytosanitary program) for imported cut flowers, ornamentals, and garden plants can reduce the risk of invasive species introduction in importing countries. Greater detection efforts should be placed on imported plants that pose a high risk of carrying exotic pest species. **Related Hotspots** ***13.*** *Invasive species - Distribution*	**References** ▪ Areal et al., 2008 ▪ Hong et al., 2012 ▪ Knowler & Barbier, 2005 ▪ Perrings et al., 2005
28. Information technology in transportation Use information technology such as radio-frequency identification (RFID), Global Positioning System (GPS), and electronic data interchange (EDI) to improve collaborative decision making with supply chain partners. This potentially increases transportation efficiency and reduces transportation-related impacts, and enables optimization of loads, routes, and modes. Accuracy and timeliness of data is necessary to accrue benefits. **Related Hotspots** ***12.*** *Fuel combustion - Distribution*	**References** ▪ Lim, Bahr, & Leung, 2013 ▪ Zhu, Mukhopadhyay, & Kurata, 2012

29. Use maritime transport

Maritime transport reduces the energy use and environmental impacts of cut flower transport relative to air transportation.

Related Hotspots

12. *Fuel combustion - Distribution*

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Release Notes

*** 02.04.10, May 2021 ***
- In-text references and broken resource links (URLs) included in the KPI guidance were updated to the most recent available versions. Where no alternative resource was available, the item was substituted with a comparable resource or was removed.
Indigenous Peoples' and Community Rights KPI:
- Question: The question text was revised to ask beyond risk assessment.
- Response Options: The response options were revised to ask about low-risk countries, ensuring the Free, Prior, and Informed Consent (FPIC), and certification or verification system that meets the criteria for the protection of traditional and civil rights of local indigenous peoples and communities.
- Calculation & Scope: Added text to support the response options described above.
- Certifications, Standards & Tools: Certifications, standards and tools were added to support the new response options described above.
Pesticide Application - Growing Operations KPI:
- Calculation & Scope: Added language to the guidance to align with other sustainable agriculture standards that include IPM sections.
Biodiversity Management - Growing Operations KPI:
- Calculation & Scope: Added text to the guidance to address suppliers that are using protected agriculture, hydroponic agriculture, and indoor vertical farming.
Sustainable Packaging Design and Production KPI:
- Question: The question text was updated to reflect the changes below.
- Response Options: A response option for the percentage sales packaging labeled with How2Recycle in the US and Canada has been added.
- Response Options: A response option for the percentage of the sales packaging that was labeled for recycling according to an established standard outside the US and Canada has been added.
- Response Options: The existing response options for recyclability, demonstrated progress on goals for material and process efficiency and weight or volume optimization, and impact reduction were retained.
- Calculation & Scope: Text added to support the added response options above.
- Certifications, Standards & Tools: References to support the new response options above have been added.
- Definitions: "Third-party audit" was added.
02.03.10 May 2020

- In-text references and broken resource links (URLs) included in the KPI guidance were updated to the most recent available versions.

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02.03.10 June 2019

- Broken links referenced in the KPI guidance were corrected
- Product Supply Mapping KPI: Added clarifying guidance and an example scenario to help ensure that the percentages reported in B1-B4 are mutually exclusive and the sums do not exceed 100%.
- Fertilizer Application KPI: Added the Cool Farm Tool to Standards, Certifications, and Tools. Revised guidance to provide clarity on how to use results from the Cool Farm Tool to respond to the KPI and included a reference to TSC's Fertilizer Application KPI Calculation Tool.
- Irrigation Water Use Intensity KPI: Provided instructions in the guidance for how to respond to B1 in situations where no irrigation water is used. Also added the Cool Farm Tool to Standards, Certifications, and Tools, along with guidance for how to use the tool to respond to B1.
- Labor Rights – Growing Operations KPI: Revised guidance and response options to address policies, risk assessment, training, evaluation, and audits for labor rights issues. KPI question; Certifications, Standards, and Tools; and Background Information were also revised.
- Worker Health and Safety – Growing Operations KPI: Revised guidance and response options to address a series of practices companies may enact to manage worker health and safety risks including risk assessment, training, and audits. KPI question; Certifications, Standards, and Tools; and Background Information were also revised.

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02.02.10, June 2018

- Broken links referenced in the KPI guidance were corrected.
- KPI guidance language referencing CDP's Information Requests for Climate Change and Water were updated to reflect the 2018 versions.

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02.02.10, June 2017

Language referring to the "last twelve months" was removed from the question and/or response options text to avoid any confusion with the related statement in the "Calculation and Scope" of the Guidance. The following KPIs were affected:

- Product Supply Mapping
- Biodiversity Management - Wild-harvesting
- Fertilizer Application - Growing Operations
- Greenhouse Gas Emissions Intensity - Growing Operations
- Irrigation Water Use - Growing Operations
- Pesticide Application - Growing Operations

Pesticide Application On-farm KPI:
- Question: The question text was updated to reflect the addition of response option B2
- Response options: A new response option was added that asks for the percent of crop supply that came from farming or growing operations that shared their data on pesticide use.
- Calculation and Scope: The guidance for response option B1 was clarified to state: "Crop supply for which it can be verified that all pesticides applied were used in compliance with a national and/or local regulatory body (for supply produced in the U.S.) or with World Health Organization, United Nations, Food and Agriculture Organization, European, or U.S. standards (for supply produced outside of the U.S.) may be included in your response for B1."
- Calculation and Scope: Guidance was added related to the new B2 response option.

Packaging Raw Material Sourcing KPI:
- Title: Changed from "Packaging Raw Material Sourcing and End-of-life"
- Response Options: A response option for recyclable content was moved to the Sustainable Packaging Design and Production KPI to improve the scorability and answerability of both KPIs. The remaining response options are defined to be mutually exclusive where the sum of the two percentages entered cannot be greater than 100%.
- Definitions: "Pre-consumer recycled content", "post-consumer recycled content", "sustainably sourced content", and "renewable content" were added or updated to improve interpretation.

Sustainable Packaging Design and Production KPI:
- Question: The question text was updated to reflect the changes below.
- Response Options: A response option for the percentage of recyclable content was moved from the Packaging Raw Material Sourcing KPI to improve the scorability and answerability of both KPIs.
- Response Options: A qualitative response option was removed which stated: "We have established goals to address all of these factors and publicly report our progress towards those goals."
- Response Options: The above response option was replaced with two percentage response options for reporting "demonstrated progress on goals" for material and process efficiency as well as weight or volume optimization. The information required to respond to the KPI has not changed.
- Response Options: The existing response option for "quantifiable impact reduction" was retained.
- Definitions: "Material and process efficiency" and "weight or volume optimization" were updated.
- Definitions: "Resource conservation" was previously included as a separate factor and was included in the definition for material and process efficiency.

Transportation to Retailers KPI:
- The question and response options were changed to address whether carriers report GHG emissions rather than what those aggregate emissions are.

TSC's Multi-stakeholder Process
The Sustainability Consortium (TSC) is a multi-stakeholder organization comprised of leading companies, non-profit organizations, and other members that represent broad perspectives on sustainability. To build a KPI set that can be deployed widely, TSC acknowledges that members have diverse points of view. As such, the attributes, activities, KPIs, and scoring used in this KPI set represent a composite perspective of the current market and are not necessarily the views, policies, or program of any single member of TSC.