Chicken
Key Performance Indicators

Version 04.05

THESIS
BY THE SUSTAINABILITY CONSORTIUM

About the Chicken Key Performance Indicators

This THESIS Performance Assessment covers fresh and frozen chicken products. This includes, but is not limited to, chicken breast, drumsticks, chicken legs cornish hens, and ground chicken. It does not include prepared foods or turkey.
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

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2. Nutrient Management - Feed Sourcing What percentage of the feed purchased by animal farm operations in your supply chain originated from feed producers that had a nutrient management plan in place?	**A.** We are unable to determine at this time. **B.** We are able to report the following: **B1.**_____% of the feed purchased by the animal farm operations that produced our chicken meat supply, by mass, originated from farms that had a verified nutrient management plan in place. **B2.**_____% of the feed purchased by the animal farm operations that produced our chicken meat supply, by mass, originated from farms that had a nutrient management plan in place that was not verified.
3. Air Quality - Animal Farm Operations What percentage of your chicken meat supply, by mass, originated from animal farm operations that apply air emission reduction techniques?	**A.** We are unable to determine at this time. **B.** The following percentages of our chicken meat supply, by mass, were produced by animal farm operations that employ air emission reduction techniques at each of the following activities: **B1.**_____% in housing systems. **B2.**_____% during manure storage. **B3.**_____% during manure application.
4. Animal Welfare Certifications and Audits What percentage of your chicken meat supply, by mass, was covered by a current comprehensive animal welfare certification or by verifiable, regularly conducted animal welfare audits at each of the following supply chain stages?	**A.** We are unable to determine at this time. **B.** The following percentage of our chicken meat supply, by mass, was covered by a current comprehensive animal welfare certification or by verifiable, regularly conducted animal welfare audits at each of the following supply chain stages: **B1.**_____% of chicken meat supply was certified or audited at the farm stage. **B2.**_____% of chicken meat supply was certified or audited at the transportation stage. **B3.**_____% of chicken meat supply was certified or audited at the slaughter stage.
5. Antibiotic Use - Animal Farm Operations What is your organization's approach to maintaining prudent use of antibiotics on the animal farm operations in your supply chain?	**A.** We are unable to determine at this time. **B.** We are able to report the following for our chicken meat supply: **B1.**____% of our chicken meat supply was produced by animal farm operations that have antibiotic use decisions guided by veterinarians through the implementation of an animal health program and a verified veterinary-client-patient relationship. **B2.**____% of our chicken meat supply was produced by animal farm operations that adhere to a strict antibiotic stewardship policy. **B3.**____% of our chicken meat supply was produced by animal farm operations that have an antibiotic use monitoring system in place.

6. Feed Conversion Ratio What was the average feed conversion ratio on the animal farm operations in your supply chain?	**A.** We are unable to determine at this time. **B.** We are able to report the following for the animal farm operations in our supply chain: **B1.**_____ kg feed dry matter intake per kg live weight gain. **B2.**_____% of our chicken meat supply, by mass, is represented by the number reported above.
7. Greenhouse Gas Emissions Intensity - Animal Farm Operations What was the greenhouse gas emissions intensity associated with the animal farm operations and feed producers in your supply chain?	**A.** We are unable to determine at this time. **B.** Our greenhouse gas emissions intensity was: **B1.**_____ kg CO2e per kg of chicken meat, by live weight. **B2.**_____% of our chicken meat supply, by mass, is represented by the number reported above.
8. Labor Rights - Animal Farm Operations How did your organization manage labor rights risks in the operations that produced your chicken meat supply?	**A.** We are unable to determine at this time. **B.** We are able to report the following: **B1.**_____% of our chicken meat supply, by mass, 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 chicken meat supply, by mass, 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 chicken meat supply, by mass, 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.
9. Nutrient Management - Animal Farm Operations What percentage of your chicken meat supply, by mass, originated from animal farm operations that had a nutrient management plan in place?	**A.** We are unable to determine at this time. **B.** We are able to report the following: **B1.**_____% our chicken meat supply, by mass, originated from farms that had a verified nutrient management plan in place. **B2.**_____% our chicken meat supply, by mass, originated from farms that had a nutrient management plan in place that was not verified.
10. Water Use Intensity - Animal Farm Operations What was the water use intensity associated with the animal farm operations and feed producers in your supply chain?	**A.** We are unable to determine at this time. **B.** Our water use intensity was: **B1.**_____ cubic meters of water use per kg of chicken meat, by live weight. **B2.**_____% of our chicken meat supply, by mass, is represented by the number reported above.
11. Worker Health and Safety - Animal Farm Operations How did your organization manage worker health and safety risks in the operations that produced your chicken meat supply?	**A.** We are unable to determine at this time. **B.** We are able to report the following for our supply: **B1.**_____% of our chicken meat supply, by mass, was produced in operations that have performed a risk assessment to identify high-risk areas for health and safety. **B2.**_____% of our chicken meat supply, by mass, was produced in operations that train workers on health and safety procedures. **B3.**_____% of our chicken meat supply, by mass, was produced in operations that implement a verifiable worker health and safety plan. **B4.**_____% of our chicken meat supply, by mass, was produced in operations that have a worker health and safety performance monitoring system in place. **B5.**_____% of our chicken meat supply, by mass, was produced in operations that were audited in the last three years on worker health and safety issues.

12. Carcass Utilization - Processing What was the average poultry carcass utilization for your product?	**A.** We are unable to determine at this time. **B.** We are able to report the following for our chicken meat supply: **B1.**_____ kg of utilized meat per kg of hot and standardized carcass weight. **B2.**_____% of our chicken meat supply, by mass, is represented by the number reported above.
13. Greenhouse Gas Emissions Intensity - Processing What was the greenhouse gas emissions intensity associated with final processing of your product?	**A.** We are unable to determine at this time. **B.** Our greenhouse gas emissions intensity was: **B1.**_____ kg CO2e per metric tonne of product. **B2.**_____% of our product, by mass, is represented by the number reported above.

Key Performance Indicators with Guidance

1. DEFORESTATION AND LAND CONVERSION - FEED SOURCING

Question

What percentage of your chicken supply, by mass, originated from animal farm operations that only purchased feed from growing operations that are low-risk for conversion to non-forest use, have had zero conversion of High Conservation Value (HCV) forests or High Carbon Stock (HCS) forests since 2010, had zero deforestation, or was provided by growing operations with zero conversion of HCV and HCS non-forest lands since 2010?

Response Options

A. We are unable to determine at this time.

B. We are able to report the following:

B1._____% of our chicken supply originated from animal farm operations that only purchased feed that originated from growing operations that have been determined to be low-risk for conversion to non-forest use.

B2._____% of our chicken supply originated from animal farm operations that only purchased feed that originated from growing operations that have had zero conversion of HCV forests since 2010.

B3._____% of our chicken supply originated from animal farm operations that only purchased feed that originated from growing operations that have had zero conversion of HCS forests since 2010.

B4._____% of our chicken supply originated from animal farm operations that only purchased feed that originated from growing operations that have had zero deforestation since 2010.

B5._____% of our chicken supply originated from animal farm operations that only purchased feed provided by growing operations with zero conversion of HCV and HCS non-forest lands since 2010.

Guidance

Calculation & Scope

The scope of this question includes all feed that is used in this product supply chain that is not directly produced by the animal farm operation.

Calculate B1 as the mass of your chicken supply, by live weight, sourced from animal farm operations that only purchased feed that originated from growing operations that have been determined to be low-risk for the conversion of forests to non-forest use, divided by the total mass of your chicken supply, by live weight, then multiply by 100. A growing operation can be considered low-risk for conversion to non-forest use when one of the following is true: The growing operation is located in a jurisdiction that is assessed to be low risk by a risk classification analysis; the growing operation is located in a jurisdiction that is assessed to be high-risk by a risk classification analysis but corrective actions are taken where needed; or, the site risk was determined to be low by an on-site audit. In B1 you may include your animal feed supply that has been certified by Roundtable on Sustainable Palm Oil (RSPO) and Roundtable on Responsible Soy (RTRS).

Calculate B2 as the mass of your chicken supply, by live weight, sourced from animal farm operations that only purchased feed that originated from growing operations that have had zero conversion of HCV forests since January 1, 2010, divided by the total mass of your chicken supply, by live weight, then multiply by 100. In B2 you may include your animal feed supply that has been certified by Roundtable on Sustainable Palm Oil (RSPO) and Roundtable on Responsible Soy (RTRS).

Calculate B3 as the mass of your chicken supply, by live weight, sourced from animal farm operations that only purchased feed that originated from growing operations that have had zero conversion of HCS forests since January 1, 2010, divided by the total mass of your chicken supply, by live weight, then multiply by 100.

Calculate B4 as the mass of your chicken supply, by live weight, sourced from animal farm operations that only purchased feed that originated from growing operations that have had zero deforestation since January 1, 2010 divided by the total mass of your chicken supply, by live weight, then multiply by 100.

Calculate B5 as the mass of your chicken supply, by live weight, sourced from animal farm operations that only purchased feed that originated from growing operations with zero conversion of HCV and HCS non-forest lands since January 1, 2010 divided by the total mass of chicken supply, by live weight, then multiply by 100. HCV and

HSC non-forest lands include HCV and HCS non-forest native ecosystems and ecologically sensitive regions, including but not limited to grasslands and Gran Chaco region in South America.

Zero deforestation means that since January 1, 2010, no existing forest was converted to non-forest use for the production of the feed sourced. Offsets or zero-net deforestation are not included in this definition. Land on which deforestation has occurred since 2010 may be considered to have zero deforestation if restored to its previous state as determined by tree cover, species composition, stored carbon, and all other relevant factors. The absence of deforestation must be confirmed using monitoring of the specific land tracts where the feed originated, such as remote sensing, audits, or other direct observations.

The cut-off date of January 1, 2010 after which forest conversion is prohibited is chosen to ensure a common range of periods (not very recent or long standing cut-off dates) that most methodologies and sustainability initiatives establish and apply for forest, HCV, HCS, and deforestation.

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

The maximum possible response for each response option is 100%. However, multiple response options may be applicable to the same portion of your chicken supply. For example, supply included in the calculation of B2, B3, and/or B4 could also be included in the calculation for B1 if the stated conditions are also met.

Certifications, Standards & Tools

Round Table on Responsible Soy (RTRS): The Round Table on Responsible Soy (RTRS) is a multi-stakeholder initiative that has developed a certification scheme that requires implementation of sustainable production principles and criteria encompassing several sustainability issues associated with soy production. These criteria include land conversion, deforestation, pesticide and fertilizers application, forced and child labor use, labor rights and worker health and safety.
http://www.responsiblesoy.org/

RSPO - Roundtable on Sustainable Palm Oil - Certification: The RSPO certification is a seal of approval ensuring that the palm oil is traceable through the supply chain by certifying each facility that processes or uses it. RSPO was founded on and supports principles for palm oil production including transparency, regulatory compliance, financial viability, natural resource conservation, and continuous improvement.
http://www.rspo.org/about

The HCS Approach Toolkit: This High Carbon Stock Approach Toolkit takes practitioners through the steps in identifying HCS forest, from initial stratification of the vegetation using satellite images and field plots, through a decision tree process to assess the conservation value of the HCS forest patches in the landscape and ensure communities' rights and livelihoods are respected, to making the final conservation and land use map.
http://highcarbonstock.org/the-hcs-approach-toolkit/

Background Information

Greenpeace High Carbon Stock Approach: This website provides information about how to identify High Carbon Stock forests.
https://www.greenpeace.org/archive-international/en/campaigns/forests/solutions/HCS-Approach/

High Carbon Stock Approach: This website provides a standardized methodology for identifying natural, high carbon stock forest areas.
http://highcarbonstock.org

High Conservation Value Resource Network: This resource provides common guidance for how to identify, manage, and monitor High Conservation Value forest areas.
https://hcvnetwork.org/

Jurisdictional and Nested REDD+ (JNR): This website describes a pathway for existing and new projects to be integrated or 'nested' within broader jurisdictional REDD+ programs in order to quantify carbon benefits for individual conservation projects.
https://verra.org/project/jurisdictional-and-nested-redd-framework/

WWF High Conservation Value Forests: This website provides information describing the underlying concept of High Conservation Value forests.
http://wwf.panda.org/?93560/High-Conservation-Value-Forests-The-concept-in-theory-and-practice

Definitions

Animal farm operations: An area of land and its buildings, comprised of one or more locations managed together, that is used for rearing animals. This includes the growing of crops for animal feed on this land.

Cut-off dates: The point in time after which organizations cannot have engaged in unsustainable practices.

Deforestation: The direct human-induced conversion of forested land to non-forested land.

Ecologically sensitive regions: Include but are not limited to High Conservation Value Areas, Protected Areas, and World Wildlife Fund's Priority 200 Ecoregions.

Forest: An area of land that is dominantly covered by trees and that is established naturally or by management activities such as planting or seeding. It does not include land areas that are predominantly under agricultural or urban land use. It includes Primary forest and Secondary forest.

High Carbon Stock (HCS) forest: Forest areas with a significant amount of carbon stored within the vegetation and soil. Burning and clearing HCS forests releases stored carbon as greenhouse gas emissions. Different initiatives have set thresholds for identifying High Carbon Stock forests.

High Conservation Value (HCV) forest: Forested areas that support natural concentrations and distribution of species including significant species and ecosystems (e.g., endemic or endangered species, refuges), provide the basic services of nature in critical conditions (e.g., watershed protection, erosion control), and are fundamental to meeting the basic needs and traditional cultural identity of local communities.

Land conversion: The human-induced change of the prevailing physical and ecological conditions of an area of land to facilitate a new use or function. Examples include conversion of forests for pasture; conversion of native grasslands or other ecosystems for crop production, grazing, or other uses; conversion of farmland for urban development; and draining marshes or wetlands to create dry land.

Native ecosystems: Lands that have not been previously cultivated, cleared, drained or otherwise irrevocably altered that retain a dominant and characteristic native community of living organisms (as opposed to invasive or introduced species) which collectively function to provide unique value and services.

Non-forest: An area of land that is no longer dominated by trees.

Primary forest: A forest that has never been logged or cut and has developed following natural disturbances and under natural processes, regardless of its age.

Secondary forest: A forest that has been logged and has recovered naturally or artificially. It also includes degraded forest which is a secondary forest that has lost, through human activities, the structure, function, species composition or productivity normally associated with a natural forest type expected on that site.

Hotspots Addressed

***5.** Environmental impacts - Feed cultivation*

2. NUTRIENT MANAGEMENT - FEED SOURCING

Question	Response Options
What percentage of the feed purchased by animal farm operations in your supply chain originated from feed producers that had a nutrient management plan in place?	**A.** We are unable to determine at this time. **B.** We are able to report the following: **B1.**_____% of the feed purchased by the animal farm operations that produced our chicken meat supply, by mass, originated from farms that had a verified nutrient management plan in place. **B2.**_____% of the feed purchased by the animal farm operations that produced our chicken meat supply, by mass, originated from farms that had a nutrient management plan in place that was not verified.

Guidance

Calculation & Scope

The scope of this question includes all feed purchased by the animal farm operations that produced your chicken meat supply. Do not include feed produced by the animal farm operations themselves.

Calculate B1 as the mass of feed used by the animal farm operations in your supply chain that came from feed producers that had a verified nutrient management plan in place, divided by the total mass of feed purchased from all producers, then multiply by 100. Include all feed that was not directly produced on the animal farm operations in your supply chain. To be included in B1, nutrient management plans must meet the criteria of EPA Comprehensive Nutrient Management Planning (CNMP) or the SAI Platform Farmer Sustainability Assessment (FSA) or equivalent.

Calculate B2 as the mass of feed used by the animal farm operations in your supply chain that came from feed producers that had a nutrient management plan in place that was not verified, divided by the total mass of feed purchased from all producers, then multiply by 100. Include all feed that is not directly produced on the animal farm operations in your supply chain.

To be included in B2, nutrient management plans should be developed in conjunction with subject matter experts such as certified crop advisors, extension agents, relevant NGOs, or other similar entities.

Both verified and unverified nutrient management plans must at a minimum address the amount, form, placement, and timing of the application of manure and fertilizers to fields or crops. They must also include strategies to minimize emissions from manure storage and fertilizer application.

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

The sum of B1 and B2 must not exceed 100%.

Certifications, Standards & Tools

THESIS Help Center Video: Nutrient Management - Feed Sourcing KPI: Short video tutorial on the Nutrient Management - Feed Sourcing KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/531017143

USDA: Comprehensive Nutrient Management Plan (CNMP): This website has planning tools, templates, resources, nutrient management tools, quality assurance documents and technical criteria for CNMPs.
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/wi/farmerrancher/?cid=nrcs142p2_020843

Background Information

SAI Platform: Farm Sustainability Assessment FSA23-FSA29: The Sustainable Agriculture Initiative (SAI) Platform's Farm Sustainability Assessment (FSA) is a simple 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. Proprietary codes FSA23-FSA29 provide requirements for nutrient management planning.
https://saiplatform.org/our-work/news/discover-the-farm-sustainability-assessment-fsa/

USAD: Comprehensive Nutrient Management Planning (CNMP): This USDA resource addresses nutrient management strategies.

	https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/?cid=nrcs143_014041
Definitions	**Comprehensive plan:** Complete and detailed proposal including all or nearly all elements pertaining to relevant sustainability impacts. **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. **Nutrient management:** The complex of activities farmers carry out to manage the amount, form, placement, and timing of the application of manure and fertilizers to fields or crops. It also includes the minimization of emissions from storage of manure and fertilizers. The purpose is to minimize airborne emissions and pollution of ground and surface water. **Verified:** Having previously demonstrated, through a reputable assessor, the truth or accuracy of a claim.
Hotspots Addressed	***5.*** *Environmental impacts - Feed cultivation*

3. AIR QUALITY - ANIMAL FARM OPERATIONS

Question	Response Options
What percentage of your chicken meat supply, by mass, originated from animal farm operations that apply air emission reduction techniques?	**A.** We are unable to determine at this time. **B.** The following percentages of our chicken meat supply, by mass, were produced by animal farm operations that employ air emission reduction techniques at each of the following activities: **B1.**_____% in housing systems. **B2.**_____% during manure storage. **B3.**_____% during manure application.

Guidance

Calculation & Scope

This question addresses acidifying, particulate matter, and greenhouse gas emissions from animal farm operations.

Calculate B1, B2, and B3 as the mass of chicken meat, by live weight, that originated from animal farm operations that employ emission reduction techniques during the respective activity, divided by the total mass of your chicken meat supply, by live weight, then multiply by 100.

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

To be included in your calculations, the emission reduction technique(s) need to be proven to decrease emissions. Examples include but are not limited to:

Housing systems: Reduction of the emitting surface, use of slatted floors, use of air scrubbers, and drying of manure.

Manure storage: Fully covering the manure storage with a solid cover, or manure cooling, acidification, and anaerobic digestion.

Manure application: Injectors (e.g., slot injectors, deep injectors, arable injectors), band spreaders (e.g., trailing hose, trailing shoes), and incorporation of manure into soil.

Background Information

DEFRA guide on reducing air pollution on-farms: The United Kingdom Department for Environment, Food & Rural Affairs and Environment (DEFRA) provides an easily accessible guidance document about preventing and minimizing air pollution from farming. The guide provides also information about air emission reduction techniques that can be deployed on-farm.
https://www.gov.uk/reducing-air-pollution-on-farms

EEA: Emissions of the main air pollutants in Europe: This European Environment Agency (EEA) website describes main acidifying and particulate matter emission in Europe.
https://www.eea.europa.eu/data-and-maps/indicators/main-anthropogenic-air-pollutant-emissions/assessment-6

EEA: Progress to greenhouse gas emission targets by the EU: This European Environment Agency (EEA) website describes greenhouse gas emission projections and targets in the EU.
https://www.eea.europa.eu/data-and-maps/indicators/greenhouse-gas-emission-trends-7/assessment

US-EPA: Particulate Matter (PM) Pollution: This US Environmental Protection Agency (US-EPA) website describes particulate matter, its sources and its effects.
https://www.epa.gov/pm-pollution

Definitions

Animal farm operations: An area of land and its buildings, comprised of one or more locations managed together, that is used for rearing animals. This includes the growing of crops for animal feed on this land.

Emission reduction techniques: Technologies that have been scientifically proven to reduce gaseous emissions from animal farm operations.

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.

Live weight: The weight of a living animal before it has been slaughtered.

Particulate matter: Small particles or liquid droplets, typically considered 10 micrometers or less in diameter, which can have negative health consequences when inhaled by humans.

Hotspots Addressed

1. *Air quality - Animal farm operations*

7. *Manure management - Animal farm operations*

4. ANIMAL WELFARE CERTIFICATIONS AND AUDITS

Question

What percentage of your chicken meat supply, by mass, was covered by a current comprehensive animal welfare certification or by verifiable, regularly conducted animal welfare audits at each of the following supply chain stages?

Response Options

- **A.** We are unable to determine at this time.
- **B.** The following percentage of our chicken meat supply, by mass, was covered by a current comprehensive animal welfare certification or by verifiable, regularly conducted animal welfare audits at each of the following supply chain stages:

  B1._____% of chicken meat supply was certified or audited at the farm stage.

  B2._____% of chicken meat supply was certified or audited at the transportation stage.

  B3._____% of chicken meat supply was certified or audited at the slaughter stage.

Guidance

Calculation & Scope

Calculate B1, B2, and B3 as the mass of chicken meat, by live weight, that came from suppliers that either maintain a current comprehensive animal welfare certification or regularly conduct verifiable animal welfare audits within the corresponding supply chain activity, divided by the total mass of your chicken supply, by live weight, then multiply by 100.

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

To be included in B1, B2, or B3, animal welfare certification or verifiable, regularly conducted animal welfare audits are required for the farm, transportation, or slaughter stages, respectively. Verifiable, regularly conducted audits should be performed by a second party or third party. Government regulations or parties in the supply chain can initiate these audits. Regulations, audits, and certifications that align with the animal welfare standards as described in Section 7 of the World Organisation for Animal Health (OIE) Terrestrial Animal Health Code and are well-enforced by the implementation of auditing systems can be included in your calculations.

Farm stage:

Efforts should be taken to achieve minimization of pain, risk of injury, and transmission of diseases or parasites to animals; a physical environment in which the air quality, temperature, and humidity supports good animal health; a structural and social environment that allows animals to rest comfortably, provides opportunities for physical and cognitive activity, and allows for the opportunity to perform all beneficial natural, individual, and social behaviors.

Animals should have access to sufficient water and appropriate feed, so as to be free from hunger and thirst. The handling of animals should foster a positive relationship between humans and animals and should not cause injury, panic, lasting fear, or avoidable stress.

Genetic selection should take into account the health and welfare of animals.

Transportation stage:

Animals should not be transported if they are not fit to travel. For those animals fit to travel, the number of journeys and the length of time should be minimized. Loading and unloading procedures should minimize animal stress, prevent injury, and use facilities that promote calm and safe animal movement. Protection from extreme temperatures and other extreme weather conditions is provided. Adequate feed and water is available when required.

Slaughter stage:

Animals should be treated humanely before and during all slaughter procedures, including pre-slaughter stunning for non-ritual slaughter. The pre-slaughter stunning must render the animal insensible to pain until death occurs. The minimization of fear, stress, and pain is included in humane treatment.

TSC provides a list of animal welfare certifications, standards, and programs to assist users in choosing a program that aligns with their needs. See Background Information for more details.

Please refer to THESIS Assessment for Animal Welfare (Broiler Chickens, Laying Hens) for more detailed animal welfare indicators.

Background Information

TSC List of Animal Welfare Certifications and Programs: TSC has compiled a list of animal welfare standards, certifications, and programs. This list may assist users in choosing a program that fits their needs.
https://www.sustainabilityconsortium.org/tsc-downloads/animal-welfare-organizations-and-programs/

World Organisation for Animal Health (OIE) Terrestrial Animal Health Code: Chapter 7 of the OIE Terrestrial Health Code outlines the internationally recognized principles of animal welfare, commonly known as "The Five Freedoms".
https://www.oie.int/en/standard-setting/terrestrial-code/access-online/

Definitions

Animal welfare: Animal welfare refers to the well-being of an animal and how an animal is coping with the conditions in which it lives. A good state of welfare varies substantially between different contexts, but in general an animal is in a good state of welfare if it is healthy, comfortable, well-nourished, safe, able to express innate behavior, and not suffering from pain, fear, and distress. Ensuring animal welfare is a human responsibility that requires treatments such as good housing, good care, good feed, humane handling and humane slaughter/killing. The treatments that an animal receives is covered by other terms such as animal care, animal husbandry, and humane management (adapted from The World Organisation for Animal Health (OIE)).

Comprehensive plan: Complete and detailed proposal including all or nearly all elements pertaining to relevant sustainability impacts.

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.

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.

Hotspots Addressed

***2.** Animal welfare*

5. ANTIBIOTIC USE - ANIMAL FARM OPERATIONS

Question

What is your organization's approach to maintaining prudent use of antibiotics on the animal farm operations in your supply chain?

Response Options

- **A.** We are unable to determine at this time.
- **B.** We are able to report the following for our chicken meat supply:
  - **B1.**____% of our chicken meat supply was produced by animal farm operations that have antibiotic use decisions guided by veterinarians through the implementation of an animal health program and a verified veterinary-client-patient relationship.
  - **B2.**____% of our chicken meat supply was produced by animal farm operations that adhere to a strict antibiotic stewardship policy.
  - **B3.**____% of our chicken meat supply was produced by animal farm operations that have an antibiotic use monitoring system in place.

Guidance

Calculation & Scope

This question addresses injected and ingested antibiotics use.

Calculate B1, B2, and B3 as the mass of chicken meat, by live weight, supplied by animal farm operations that fulfill the criteria below, divided by the total mass of chicken meat, by live weight, supplied by all animal farm operations, then multiply by 100.

To be included in B1, veterinary-client-patient relationships must meet the criteria of the American Veterinary Medical Association or the European Platform for the Responsible Use of Medicines in Animals. See the Background Information for the requirements of an animal health program.

To be included in B2, animal farm operations must adhere to an antibiotic stewardship policy requiring that antibiotics are only used for therapy of diseases (e.g., treatment, prevention, control) and that shared-class antibiotics are only used when animal-only antibiotics are not available.

To be included in B3, animal farm operations must monitor all antibiotic use, and have access to benchmark data to compare their results with other, similar operations.

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

American Veterinary Medical Association: The American Veterinary Medical Association (AVMA) licenses and regulates the Veterinarian-Client-Patient Relationship (VCPR), which is defined in AVMA Principles of Veterinary Medical Ethics. The VCPR is an essential basis for interaction between veterinarians, their clients, and their patients and is critical to providing quality veterinary care.
https://www.avma.org/resources-tools/pet-owners/petcare/veterinarian-client-patient-relationship-vcpr

European Platform for the Responsible Use of Medicines in Animals: The European Platform for the Responsible Use of Medicines in Animals is a multi-stakeholder platform linking best practice with animal health and public health and aims to promote the responsible use of medicines in animals in the European Union.
https://www.epruma.eu/

World Health Organization Critically Important Antimicrobials: The World Health Organization (WHO) published a list of antimicrobials that are critically important for human medical treatment. Critically important antimicrobials are antibiotics that match both criteria below; highly important criteria match only one criteria below:
Criteria 1: "An antimicrobial agent which is the sole, or one of limited available therapy, to treat serious human disease."
Criteria 2: "Antimicrobial agent is used to treat diseases caused by either (1) organisms that may be transmitted to humans from non-human sources, or (2) human diseases causes by organisms that may acquire resistance genes from nonhuman sources."
https://www.who.int/foodsafety/areas_work/antimicrobial-resistance/cia/en/

Background Information

Federation of Veterinarians of Europe - Herd Health Plan: The Federation of Veterinarians of Europe provides a policy paper that outlines objectives and benefits of a Herd Health Plan (HHP) for farms. A HHP aims to enhance animal health and welfare and quality of products by decreasing the use of veterinary medicinal products and feed additives and properly planning preventative healthcare. This paper also provides guidelines for the prevention of epizootics and zoonotic diseases and information about good husbandry practices.
https://www.fve.org/publications/herd-health-plan/

World Organisation for Animal Health (OIE) Terrestrial Animal Health Code: Chapter 7 of the OIE Terrestrial Health Code outlines the internationally recognized principles of animal welfare, commonly known as "The Five Freedoms".
https://www.oie.int/en/standard-setting/terrestrial-code/access-online/

Definitions

Animal farm operations: An area of land and its buildings, comprised of one or more locations managed together, that is used for rearing animals. This includes the growing of crops for animal feed on this land.

Animal health program: A farm-specific plan for how to maintain and improve animal health and welfare written and regularly updated by the farmer together with a veterinarian and other relevant technical advisors.

Antibiotics: Medicines that destroy or inhibit bacterial growth and infections that are used in food animals for treatment, prevention of disease, increased production performance or increased feed use efficiency.

Live weight: The weight of a living animal before it has been slaughtered.

Non-therapeutic (sub-therapeutic) antibiotic use: Administration of antibiotics to farm animals not intended to treat or prevent diseases.

Shared-class antibiotics: Antibiotics that are used both in animals and humans.

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

Veterinarian-Client-Patient Relationship (VCPR): A cooperative relationship between a veterinarian, a client and the patient. A VCPR is an essential basis for interaction between veterinarians and their clients and is critical to providing quality veterinary care. Veterinarians and their clients may choose to establish a VCPR, and to decide on veterinary medical care under the terms of the VCPR. The American Veterinary Medical Association (AVMA) licenses and regulates the VCPR in the US, which is defined in AVMA Principles of Veterinary Medical Ethics.

Hotspots Addressed

***3.** Antibiotic use - Animal farm operations*

6. FEED CONVERSION RATIO

Question

What was the average feed conversion ratio on the animal farm operations in your supply chain?

Response Options

- **A.** We are unable to determine at this time.
- **B.** We are able to report the following for the animal farm operations in our supply chain:

  B1._____ kg feed dry matter intake per kg live weight gain.

  B2._____% of our chicken meat supply, by mass, is represented by the number reported above.

Guidance

Calculation & Scope

Calculate B1 as the average feed conversion ratio from animal farm operations in your supply chain weighted by the mass of chicken meat supplied by each animal farm operation.

Calculate the feed conversion ratio for each farm as the feed dry matter intake, divided by the live weight sold. Feed input includes all feed used regardless of mortality, product losses, and feed losses.

Use primary data on feed intake and live weight. Data can be collected through public disclosure, or private disclosure from the supplier to your organization directly or through another party.

Calculate B2 as the mass of chicken meat, by live weight, for which you were able to obtain data, divided by the total mass of your chicken meat supply, by live weight, and multiply by 100.

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

Definitions

Animal farm operations: An area of land and its buildings, comprised of one or more locations managed together, that is used for rearing animals. This includes the growing of crops for animal feed on this land.

Dry matter intake: The amount of feed an animal consumes on a moisture-free basis.

Feed conversion ratio (FCR): The mass (e.g., kg) of feed used compared to the mass of the product produced (e.g., kg meat). FCR includes mortality, product and feed losses. High mortality, product and feed losses will result in a significant increase in FCR.

Live weight: The weight of a living animal before it has been slaughtered.

Hotspots Addressed

5. *Environmental impacts - Feed cultivation*

7. GREENHOUSE GAS EMISSIONS INTENSITY - ANIMAL FARM OPERATIONS

Question

What was the greenhouse gas emissions intensity associated with the animal farm operations and feed producers in your supply chain?

Response Options

A. We are unable to determine at this time.

B. Our greenhouse gas emissions intensity was:

B1._____ kg CO2e per kg of chicken meat, by live weight.

B2._____% of our chicken meat supply, by mass, is represented by the number reported above.

Guidance

Calculation & Scope

The scope of this question includes greenhouse gases that are emitted at animal farm operations from field activities, manure and fertilizer management, fuel combustion, and soil emissions, as well as during the production and transport of farm inputs such as feed, fertilizer, and animals.

Calculate B1 as the average of the greenhouse gas emission intensity estimates for the animal farm operations that produced your chicken meat supply, weighted by the mass of chicken meat, by live weight, supplied by each farm.

For each animal farm operation, greenhouse gas emission intensity estimates should be calculated with farm specific modeling tools. These tools require farm specific data for feed ration and quantities, animal weight, heads of chicken, and manure management. For other inputs into modeling tools, estimates may be used.

If primary farm data are unavailable for any of your 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 animal farm operations are located. A regional estimate must be based on a study that is representative of the production system, based on production data not older than 3 years and published in a publicly available document.

Calculate B2 as the mass of chicken meat supply, by live weight, for which you were able to obtain primary greenhouse gas intensity data, divided by the total mass of your chicken meat supply, by live weight, 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.

The tools listed below can be used to calculate the greenhouse gas emission intensity from animal farm operations. In case these tools are not used, the calculation should be based on the guidelines given in the SAI Platform Sustainable Performance Assessment (see 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: Greenhouse Gas Emissions Intensity - Animal Farm Operations KPI: Short video tutorial on the Greenhouse Gas Emissions Intensity - Animal Farm Operations KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/529548326

Background Information

Field to Market's Fieldprint Platform: Utilized by Insight and Innovation Projects enrolled in Field to Market's Continuous Improvement Accelerator, the Fieldprint Platform calculates and aggregates field-level outcomes for land use efficiency, soil conservation, irrigation water use efficiency, energy use efficiency, and greenhouse gas emissions for U.S. alfalfa, barley, corn, cotton, peanuts, potato, rice, sorghum, soy, sugar beet, and wheat farms. It also provides index scores for soil carbon, nitrogen and phosphorus impacts on water quality, and biodiversity at the field and farm level. The Platform offers an optional module to quantify soil carbon estimates if projects wish to calculate sequestration alongside avoided emissions. In addition, farmers have the ability to compare individual

sustainability performance against project, state, and national benchmarks to assess opportunities for continuous improvement.
https://fieldtomarket.org/our-programs/fieldprint-platform/

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

Animal farm operations: An area of land and its buildings, comprised of one or more locations managed together, that is used for rearing animals. This includes the growing of crops for animal feed on this land.

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.

Live weight: The weight of a living animal before it has been slaughtered.

Hotspots Addressed

4. *Energy consumption - Animal farm operations*

5. *Environmental impacts - Feed cultivation*

7. *Manure management - Animal farm operations*

8. LABOR RIGHTS - ANIMAL FARM OPERATIONS

Question

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

Response Options

A. We are unable to determine at this time.

B. We are able to report the following:

B1._____% of our chicken meat supply, by mass, 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 chicken meat supply, by mass, 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 chicken meat supply, by mass, 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 the mass of your chicken meat supply, by live weight, 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 the total live weight of your chicken meat 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 the mass of your chicken meat supply, by live weight, that has been reviewed by a risk assessment which identifies high-risk areas for labor rights abuses, divided by the total live weight of your chicken meat 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 the mass of your chicken meat supply, by live weight, 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 the total live weight of your chicken meat 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/

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

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 - Animal farm operations*

9. NUTRIENT MANAGEMENT - ANIMAL FARM OPERATIONS

Question	Response Options
What percentage of your chicken meat supply, by mass, originated from animal farm operations that had a nutrient management plan in place?	**A.** We are unable to determine at this time. **B.** We are able to report the following: **B1.**_____% our chicken meat supply, by mass, originated from farms that had a verified nutrient management plan in place. **B2.**_____% our chicken meat supply, by mass, originated from farms that had a nutrient management plan in place that was not verified.

Guidance

Calculation & Scope

Calculate B1 as the mass of chicken meat, by live weight, that came from animal farm operations that had a verified nutrient management plan in place, divided by the total mass of your chicken meat supply, by live weight, then multiply by 100.

To be included in B1, nutrient management plans must meet the criteria of EPA Comprehensive Nutrient Management Planning (CNMP) or the SAI Platform Farmer Sustainability Assessment (FSA) or equivalent.

Calculate B2 as the mass of chicken meat, by live weight, that came from animal farm operations that had a nutrient management plan in place that was not verified, divided by the total mass of your chicken meat supply, by live weight, then multiply by 100.

To be included in B2, nutrient management plans should be developed in conjunction with subject matter experts such as certified crop advisors, extension agents, relevant NGOs, or other similar entities.

Both verified and unverified nutrient management plans must at a minimum address the amount, form, placement, and timing of the application of manure and fertilizers to fields or crops. They must also include strategies to minimize emissions from manure storage and fertilizer application.

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

The sum of B1 and B2 must not exceed 100%.

Certifications, Standards & Tools

USDA: Comprehensive Nutrient Management Plan (CNMP): This website has planning tools, templates, resources, nutrient management tools, quality assurance documents and technical criteria for CNMPs.
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/wi/farmerrancher/?cid=nrcs142p2_020843

Background Information

SAI Platform: Farm Sustainability Assessment FSA23-FSA29: The Sustainable Agriculture Initiative (SAI) Platform's Farm Sustainability Assessment (FSA) is a simple 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. Proprietary codes FSA23-FSA29 provide requirements for nutrient management planning.
https://saiplatform.org/our-work/news/discover-the-farm-sustainability-assessment-fsa/

USAD: Comprehensive Nutrient Management Planning (CNMP): This USDA resource addresses nutrient management strategies.
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/?cid=nrcs143_014041

Definitions

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.

Nutrient management: The complex of activities farmers carry out to manage the amount, form, placement, and timing of the application of manure and fertilizers to fields or crops. It also includes the minimization of emissions

	from storage of manure and fertilizers. The purpose is to minimize airborne emissions and pollution of ground and surface water. **Verified:** Having previously demonstrated, through a reputable assessor, the truth or accuracy of a claim.
Hotspots Addressed	***5.*** *Environmental impacts - Feed cultivation* ***7.*** *Manure management - Animal farm operations*

10. WATER USE INTENSITY - ANIMAL FARM OPERATIONS

Question

What was the water use intensity associated with the animal farm operations and feed producers in your supply chain?

Response Options

A. We are unable to determine at this time.

B. Our water use intensity was:

B1._____ cubic meters of water use per kg of chicken meat, by live weight.

B2._____% of our chicken meat supply, by mass, is represented by the number reported above.

Guidance

Calculation & Scope

The scope of this question includes all water use on animal farm operations and the irrigation water use for the production of all feed used in this supply chain.

Calculate B1 as the average water use intensity of animal farm operations that produced your chicken meat, weighted by the mass of chicken meat, by live weight, supplied by each farm.

For each animal farm operation, calculate the total water use by summing total withdrawals from municipal and private water providers, surface water, groundwater, or wells on the farm and the irrigation water use that was needed for the production of purchased feed. For the latter, farm specific model results may be used. Calculate the water use intensity of the animal farm operations by dividing the total water use by the mass of chicken meat, by live weight, supplied by each farm.

If primary farm data are unavailable for any of your 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 animal farm operations are located. A regional estimate must be based on a study that is representative of the production system, based on production data not older than 3 years and published in a publicly available document.

Calculate B2 as the mass of chicken meat, by live weight, for which you were able to obtain primary water use intensity data, divided by the total mass of your chicken meat supply, by live weight, 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.

The tools listed below can be used to calculate the water use intensity from animal farm operations and their supply chain. In case these tools are not used, the calculation should be based on the guidelines given by the SAI Platform listed in the Background Information.

Certifications, Standards & Tools

NIEA Water use reckoner: The Northern Ireland Environment Agency (NIEA) provides ready to use water use reckoners that help to calculate water usage on livestock farms.
https://www.daera-ni.gov.uk/publications/agriculture-ready-reckoner-help-calculate-water-usage-farms

THESIS Help Center Video: Water Use Intensity - Animal Farm Operations KPI: Short video tutorial on the Water Use Intensity - Animal Farm Operations KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/531017190

Background Information

SAI Platform: Farm Sustainability Assessment FSA51-FSA62: The Sustainable Agriculture Initiative (SAI) Platform's Farm Sustainability Assessment (FSA) is a simple 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. Proprietary codes FSA51-FSA62 provide requirements for irrigation record keeping.
https://saiplatform.org/our-work/news/discover-the-farm-sustainability-assessment-fsa/

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/

SAI Platform: Water Footprinting Methodologies for Livestock: Sustainable Agriculture Initiative (SAI) Platform has issued an overview of available Water Footprinting Methodologies for Livestock.
https://saiplatform.org/our-work/news/sai-platform-issues-overview-of-available-water-footprinting-methodologies-for-livestock/

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

Weights, Measures, and Conversion Factors for Agricultural Commodities and Their Products: This publication provides information on agricultural commodity weights and measures.
https://www.ers.usda.gov/publications/pub-details/?pubid=41881

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

Animal farm operations: An area of land and its buildings, comprised of one or more locations managed together, that is used for rearing animals. This includes the growing of crops for animal feed on this land.

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.

Live weight: The weight of a living animal before it has been slaughtered.

Hotspots Addressed

5. *Environmental impacts - Feed cultivation*

11. WORKER HEALTH AND SAFETY - ANIMAL FARM OPERATIONS

Question

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

Response Options

A. We are unable to determine at this time.

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

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

B2._____% of our chicken meat supply, by mass, was produced in operations that train workers on health and safety procedures.

B3._____% of our chicken meat supply, by mass, was produced in operations that implement a verifiable worker health and safety plan.

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

B5._____% of our chicken meat supply, by mass, 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 chicken meat 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 chicken meat 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 chicken meat supply that came from operations that train workers on health and safety procedures, divided by the total mass of your chicken meat 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 chicken meat supply that came from operations that implement a verifiable worker health and safety plan, divided by the total mass of your chicken meat 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 chicken meat supply that came from operations that have a worker health and safety performance monitoring system in place, divided by the total mass of your chicken meat 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 chicken meat 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 chicken meat 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/

Background Information

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

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

***8.** Worker health and safety - Animal farm operations*

12. CARCASS UTILIZATION - PROCESSING

Question	Response Options
What was the average poultry carcass utilization for your product?	**A.** We are unable to determine at this time. **B.** We are able to report the following for our chicken meat supply: **B1.**_____ kg of utilized meat per kg of hot and standardized carcass weight. **B2.**_____% of our chicken meat supply, by mass, is represented by the number reported above.

Guidance

Calculation & Scope

Calculate B1 as the total mass of utilized meat, divided by the total mass of hot and standardized carcass weight. The hot and standardized carcass weight is the weight after slaughter and the removal of by-products such as head, skin, intestinal tract, and internal organs.

Calculate B2 as the mass of supply for which you were able to obtain data, divided by the total mass of supply, then multiply by 100.

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

Background Information

MSU Extension: Michigan State University (MSU) Extension provides easy accessible research publications library about various topics including agriculture. The website provides also an article that discusses hot and cold carcass weights among species and type of animals.
http://msue.anr.msu.edu/news/carcass_dressing_percentage_and_cooler_shrink

Definitions

Hot and standardized carcass weight: Un-chilled weight of the carcass. The standardized carcass is the body of a slaughtered animal where head, hide, limbs, fat, intestinal tract, and internal organs are removed.

Processing facility: The stage of the supply chain in which a series of operations are performed for the making, treatment, preparation, or conversion of a product.

Utilized meat: The carcass that ends up as the closely trimmed, mostly boneless, retail product from the round, loin, rib, and chuck.

Hotspots Addressed

***4.** Energy consumption - Animal farm operations*

***5.** Environmental impacts - Feed cultivation*

13. GREENHOUSE GAS EMISSIONS INTENSITY - PROCESSING

Question

What was the greenhouse gas emissions intensity associated with final processing of your product?

Response Options

- **A.** We are unable to determine at this time.
- **B.** Our greenhouse gas emissions intensity was:
  B1._____ kg CO2e per metric tonne of product.
  B2._____% of our product, by mass, is represented by the number reported above.

Guidance

Calculation & Scope

Included in the scope of this question are fuels combusted and electricity used in facilities that perform final processing activities, as well as trace gases released during processing. This may include some or all of your organization's corporate scope 1 and 2 emissions, as well as scope 1 and 2 emissions from any final processing facilities not within your organization's financial or operational control (e.g., contract processers). Excluded from the scope of this question are GHG allowances, offsets, and credits.

You may calculate B1 using product-specific data or estimate intensity via facility data that is not product specific. If using product-specific data, calculate B1 as the average of each product's greenhouse gas emissions intensity, weighted by the total mass produced of each product.

If using facility data, calculate B1 as the average of each final processing facility's greenhouse gas emissions intensity, weighted by the total mass of final product produced. If the processing facilities produce more than one category of product, only weight using the total mass of production specific to the product category in question.

Calculate B2 as the mass of final products for which you are able to obtain data, divided by total mass of final products produced, then multiply by 100. For each final processing facility, follow the instructions in the Greenhouse Gas Protocol Corporate Standard (2015) to calculate scope 1 and 2 greenhouse gas emissions generated from electricity purchased or produced, fuels combusted, and trace gases released, and then add them together. Worksheets are available on the GHG Protocol web site to facilitate these calculations.

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

The data required for the CDP Climate Change 2020 Questionnaire combined with production data can be used to calculate your response (refer to C7.3b and C7.6b). The data required for "Disclosure 302-1 Energy consumption within the organization" in GRI 302: Energy 2016 or "Disclosure 305-1 Direct (Scope 1) GHG emissions" and "Disclosure 305-2 Energy indirect (Scope 2) GHG emissions" in GRI 305: Emissions 2016 can also be used to calculate your response.

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

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

GRI G4 Sustainability Reporting Guidelines: The GRI G4 Sustainability Reporting Guidelines provide a standard set of metrics for companies to report on material environmental, social, and economic impacts, actions, and outcomes.
https://www.globalreporting.org/standards/

THESIS Help Center Video: Greenhouse Gas Emissions Intensity - Processing KPI: Short video tutorial on the Greenhouse Gas Emissions Intensity - Processing KPI. Use case-sensitive password 'thesis' when prompted.
https://vimeo.com/536525506

Background Information	**Greenhouse Gas (GHG) Protocol Corporate Standard:** The Greenhouse Gas (GHG) Protocol provides guidance and is a useful resource published by the World Resources Institute with the World Business Council for Sustainable Development as a guide for monitoring and accounting for greenhouse gas emissions. https://ghgprotocol.org/corporate-standard
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	***9.*** *Energy consumption - Processing*

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. **Air quality - Animal farm operations**
   Dust from bedding, down feathers, and litter and mineral crystals from urine contribute to particulate matter formation in poultry houses, which can be harmful to workers and community health and safety.

   Related Improvement Opportunities

   8. *Implement programs, practices, and technologies to clean air in the housing*
   9. *Implement programs, practices, and technologies to clean air that is leaving the housing*

   KPIs

   3. *Air Quality - Animal Farm Operations*

References

- Gay et al., 2003
- Heederik et al., 2007
- Hobbs, Webb, Mottram, Grant, & Misselbrook, 2004
- Leibler, Otte & Silbergeld, 2008
- Merchant et al., 2003
- Ullman, Mukhtar, Lacey, & Carey, 2004
- Zhu, Jacobson, Schmidt, & Nicolai, 2000

2. Animal welfare

Farm animals may suffer from inadequate housing, painful procedures, improper handling and transportation conditions, and inhumane slaughtering methods, which can have detrimental effects on their well-being and productivity as well as product quality.

Related Improvement Opportunities

2. *Implement animal welfare best practices during transport*
3. *Implement animal welfare best practices on-farm*
18. *Implement animal welfare best practices during slaughter*

KPIs

4. *Animal Welfare Certifications and Audits*

References

- Bianchi, Petracci, & Cavani, 2006
- Bozakova, Gerzilov, Popova-Ralcheva, & Sredkova, 2011
- De Boer & Cornelissen, 2002
- de Jong, van Harn, Gunnink, Hindle, & Lourens, 2012
- European Parliament and Council Directive 1999/74/EC, 1999
- European Parliament and Council Directive 2007/43/EC, 2007
- European Parliament and Council Directive 98/58/EC, 1998
- EFSA, 2010
- Ellen et al., 2012
- EU Council Regulation 1099/2009, 2009
- Gentle, 2011
- Green, Wesley, Trampel, & Xin, 2009
- Gregory, 2008
- Jones & Berk, 2012
- Julian, 2005
- Lay et al., 2011
- Leenstra et al., 2012
- Mench, Sumner & Rosen-Molina, 2011
- Petracci, Bianchi, Cavani, Gaspari, & Lavazza, 2006
- EU Council Regulation No. 1/2005, 2005
- SCAHAW, 2000
- Schwartzkopf-Genswein et al., 2012
- SMK, 2012
- Speer, Slack & Troyer, 2001
- Strawford, Watts, Crowe, Classen, & Shand, 2011
- van Emous & Fiks-van Niekerk, 2004
- van Horne et al., 2010
- Ventura, Siewerdt & Estevez, 2012
- Vieira et al., 2011
- Zimermann et al., 2012

3. Antibiotic use - Animal farm operations

Antibiotics fed or administered to livestock can lead to increased antibiotic resistance in workers, consumers, and ecosystems.

Related Improvement Opportunities

4. *Implement antibiotic monitoring programs, plans, and systems to optimize the use of antibiotics*
7. *Implement practices to optimize the use of antibiotics that are critical to treating humans*

KPIs

5. *Antibiotic Use - Animal Farm Operations*

References

- Alali, 2010
- FDA, 2000
- Florini, Denison, Stiffler, Fitzgerald, & Goldburg, 2005
- Kolar, 2002
- Love, 2012
- Mench, Sumner & Rosen-Molina, 2011
- Price et al., 2007
- SDa, 2013
- Van den Bogaard, London, Driessen, & Stobberingh, 2001

4. Energy consumption - Animal farm operations

The use of energy for the operation of chicken housing leads to climate change effects from greenhouse gas emissions and fossil fuel resource depletion. It also leads to tropospheric ozone formation and particulate air emissions, which can be harmful to human health.

Related Improvement Opportunities

6. *Implement heat conservation practices and technologies for chicken houses*
12. *Use alternative energy on poultry farms*

KPIs

7. *Greenhouse Gas Emissions Intensity - Animal Farm Operations*
12. *Carcass Utilization - Processing*

References

- Bengtsson & Seddon, 2013
- Katajajuuri, Grönroos, & Usva, 2008
- Leinonen, Williams, Wiseman, Guy, & Kyriazakis, 2012
- Wiedemann & McGahan, 2011

5. Environmental impacts - Feed cultivation

Cultivation of feed for livestock can have multiple adverse environmental impacts: Crop protection chemical application can lead to biodiversity loss from the disruption of predator-prey relationships, soil toxicity from persistence in the soil, aquatic toxicity from run-off, groundwater contamination from leaching, and human health effects from aerial drift and exposure during application. Combustion of fuel for farm operations leads to fossil resource depletion and climate change from greenhouse gas emissions. Application of fertilizers leads to climate change from nitrous oxide emission, acidification from ammonia emission and can contribute to eutrophication by increased levels of nitrate and phosphate in surface water runoff, groundwater contamination due to leaching of nitrate. Transformation of non-agricultural land for feed production leads to climate change from greenhouse gas emissions and to biodiversity loss from land clearing and habitat conversion. Agricultural tillage releases soil carbon emissions and can lead to erosion of top soil. Irrigation water usage leads to freshwater depletion and to biodiversity and ecosystem losses from altered aquatic habitats and soil conditions. Irrigation also facilitates run-off, leaching, and soil salinization when not properly managed.

Related Improvement Opportunities

5. *Improve feed conversion efficiency*
11. *Source commodities from REDD+ verified jurisdictions*
13. *Utilize best management practices - feed cultivation*

KPIs

1. *Deforestation and Land Conversion - Feed Sourcing*
2. *Nutrient Management - Feed Sourcing*
6. *Feed Conversion Ratio*
7. *Greenhouse Gas Emissions Intensity - Animal Farm Operations*
9. *Nutrient Management - Animal Farm Operations*
10. *Water Use Intensity - Animal Farm Operations*
12. *Carcass Utilization - Processing*

References

- Anders, Brye, Olk, Schmid, 2010
- Barber, Hutson, Linsey, Lovelace, & Maupin 2009
- Biswas, Barton, & Carter, 2008
- Blengini & Busto, 2009
- Brodt et al., 2009
- Charles, Jolliet, Gaillard, & Pellet, 2006
- Derpsch, Friedrich, Kassam, & Li, 2010
- Donald, 2004
- Grant & Beer, 2008
- Huggins & Reganold, 2008
- International Rice Research Institute, 2009
- Klink & Moreira, 2002
- Lee et al., 2004b
- McDevitt & Canals, 2009
- Mossbarger & Yost, 1989
- Nemecek, Frick, Dubois, & Gaillard, 2001
- Ongley, 1996
- Pelletier, Arsenault, & Tyedmers, 2008
- Tan, Quigley, Brock, & Hulugalle, 2013
- U.S. EPA, 2012g
- West & Post, 2002
- Wright & Wimberly, 2013

6. Labor rights - Animal farm operations*

Workers are at risk of several labor rights challenges, including unfair pay. Women and migrants are at an increased risk of facing these challenges.

Related Improvement Opportunities

1. *Develop compensation policies and supplier guidance that consider the cost of living in the area of employment for farm laborers*
17. *Allow workers to join unions or non-union employee representation (NER) programs*
19. *Implement labor management and equality monitoring programs*

KPIs

8. *Labor Rights - Animal Farm Operations*

References

- Gallasch Jr, 1975
- Morison & Walker, 2007
- Nowell, 2000

7. Manure management - Animal farm operations

Production and storage of animal manure on-farm, when not properly stored, leads to climate change from direct and indirect nitrous oxide emissions and acidification from ammonia emissions, and can result in increased levels of nitrate and phosphate in surface water runoff. Application of animal manure to fields/crops contributes to climate change from nitrous oxide emissions, acidification from ammonia emissions, eutrophication from increased levels of nitrate and phosphate in surface water runoff, and groundwater contamination from leaching of nitrate.

Related Improvement Opportunities

5. *Improve feed conversion efficiency*
8. *Implement programs, practices, and technologies to clean air in the housing*
9. *Implement programs, practices, and technologies to clean air that is leaving the housing*

KPIs

3. *Air Quality - Animal Farm Operations*
7. *Greenhouse Gas Emissions Intensity - Animal Farm Operations*
9. *Nutrient Management - Animal Farm Operations*

References

- De Vries & de Boer, 2010
- Jiang, Dong, & Zhao, 2011
- Katajajuuri, Grönroos, & Usva, 2008
- Leinonen, Williams, Wiseman, Guy, & Kyriazakis, 2012
- Lesschen, Van den Berg, Westhoek, Witzke, & Oenema, 2011
- Pelletier, 2008
- Wiedemann & McGahan, 2011

8. Worker health and safety - Animal farm operations*

Workers are at risk of several health and safety challenges associated with farm work. These challenges include injuries associated with tools and machinery, repetitive motions, as well as exposure to chemicals and dusts that may have adverse effects on their health.

Related Improvement Opportunities

10. *Implement worker health and safety programs on-farm*

KPIs

11. *Worker Health and Safety - Animal Farm Operations*

References

- Leibler, Otte & Silbergeld, 2008
- Price, 2007

MANUFACTURING AND ASSEMBLY

9. Energy consumption - Processing

The use of energy for chicken processing leads to climate change effects from greenhouse gas emissions and to fossil fuel resource depletion.

Related Improvement Opportunities

14. *Implement benchmarking tools for industrial energy management*
15. *Implement industrial energy management programs and goals*
16. *Obtain ENERGY STAR certification for industrial facilities*

KPIs

13. *Greenhouse Gas Emissions Intensity - Processing*

References

- Bengtsson & Seddon, 2013

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

AGRICULTURE AND LIVESTOCK

1.	**Develop 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 - Animal farm operations*	**References** ▪ Ethical Trading Initiative, 2008 ▪ International Labour Organization, 2011
2.	**Implement animal welfare best practices during transport** Seek out and implement practices associated with transport of animals that maximize animal welfare. Considerations may include loading density, temperature and moisture control, ventilation, and transportation time. **Related Hotspots** ***2.*** *Animal welfare*	**References** ▪ Compassion in World Farming, 2006 ▪ EU Council Regulation No. 1/2005, 2005
3.	**Implement animal welfare best practices on-farm** Seek out and implement practices associated with the raising of animals on farms that maximize animal welfare. Considerations may include practices associated with housing, painful procedures, euthanasia, and handling. **Related Hotspots** ***2.*** *Animal welfare*	**References** ▪ European Parliament and Council Directive 98/58/EC, 1998 ▪ D'Silva, 2006
4.	**Implement antibiotic monitoring programs, plans, and systems to optimize the use of antibiotics** Implement antibiotic monitoring programs, plans, and systems to limit overuse and optimize low-level use of antibiotics in livestock production. **Related Hotspots** ***3.*** *Antibiotic use - Animal farm operations*	**References** ▪ Ahmad, Ghosh, Schal, & Zurek, 2011 ▪ FAO, OIE, & WHO, 2004 ▪ Florini, Denison, Stiffler, Fitzgerald, & Goldburg, 2005 ▪ SDa, 2013 ▪ HSUS
5.	**Improve feed conversion efficiency** Improving feed conversion rate (FCR) reduces impacts at all earlier stages of the supply chain. **Related Hotspots** ***5.*** *Environmental impacts - Feed cultivation* ***7.*** *Manure management - Animal farm operations*	**References** ▪ Bengtsson & Seddon, 2013 ▪ Cederberg, Sonesson, Henriksson, Sund, & Davis, 2009 ▪ De Boer, Van Der Togt, Grossman, & Kwakkel, 2000 ▪ De Vries & de Boer, 2010 ▪ Dekker, De Boer, Vermeij, Aarnink, & Koerkamp, 2011 ▪ Herrero et al., 2013 ▪ Herrero, Thornton, Gerber, & Reid, 2009 ▪ SCAHAW, 2000

6. Implement heat conservation practices and technologies for chicken houses Use heat-conservation practices and technologies like heat-recovery systems and better insulation to reduce the energy consumed for heating chicken houses. **Related Hotspots** ***4.*** *Energy consumption - Animal farm operations*	**References** ▪ Katajajuuri, Grönroos, & Usva, 2008
7. Implement practices to optimize the use of antibiotics that are critical to treating humans Reduce the use of antibiotics used to treat humans in order to help minimize antibiotic resistance. **Related Hotspots** ***3.*** *Antibiotic use - Animal farm operations*	**References** ▪ Ahmad, Ghosh, Schal, & Zurek, 2011 ▪ FAO, OIE, & WHO, 2004 ▪ Price et al., 2007
8. Implement programs, practices, and technologies to clean air in the housing Use technologies to clean the air in the broiler housing. **Related Hotspots** ***1.*** *Air quality - Animal farm operations* ***7.*** *Manure management - Animal farm operations*	**References** ▪ De Boer & Cornelissen, 2002 ▪ Green, Wesley, Trampel, & Xin, 2009 ▪ Katajajuuri, Grönroos, & Usva, 2008 ▪ Merchant et al., 2003 ▪ SCAHAW, 2000 ▪ Ullman, Mukhtar, Lacey, & Carey, 2004
9. Implement programs, practices, and technologies to clean air that is leaving the housing Use technologies, such as ventilation technologies, air scrubbers, oxidation, biofilters, or water screens, to clean or remove air emissions from broiler housing. **Related Hotspots** ***1.*** *Air quality - Animal farm operations* ***7.*** *Manure management - Animal farm operations*	**References** ▪ Bozakova, Gerzilov, Popova-Ralcheva, & Sredkova, 2011 ▪ Burton & Turner, 2003 ▪ Chambers & Smith, 1998 ▪ Heederik et al., 2007 ▪ Merchant et al., 2003
10. 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 as well as 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** ***8.*** *Worker health and safety - Animal farm operations*	**References** ▪ International Finance Corporation, 2012a ▪ Meyer & Radwin, 2007
11. Source commodities from REDD+ verified jurisdictions As a part of REDD+ programs (Reducing Emissions from Deforestation and Forest Degradation), companies can purchase commodities from zero-deforestation national or subnational jurisdictions that have monitoring systems and other requirements in place. Purchasing commodities from these jurisdictions can help conserve forests and biodiversity at a large scale, reward communities for protecting forests, and mitigate climate change and indigenous rights conflicts that arise from land conversion, while reducing costs to companies of monitoring and tracking deforestation throughout supply chains. **Related Hotspots** ***5.*** *Environmental impacts - Feed cultivation*	**References** ▪ Forest Carbon Partnership Facility, 2013 ▪ The Forest Investment Program, 2014 ▪ United Nations, 2009a ▪ United Nations, 2009

12. Use alternative energy on poultry farms To decrease greenhouse gas emissions, use renewable energy to heat broiler housing rather than fossil fuels. **Related Hotspots** ***4.*** *Energy consumption - Animal farm operations*	**References** ▪ Katajajuuri, Grönroos, & Usva, 2008 ▪ Wiedemann & McGahan, 2011
13. Utilize best management practices - feed cultivation Reduction of impacts from feed cultivation may be addressed through applying nutrient management programs, precision agriculture, irrigation water management programs, fuel efficiency improvement technologies, intercropping, buffer strips or using nitrification inhibitors. **Related Hotspots** ***5.*** *Environmental impacts - Feed cultivation*	**References** ▪ Brady & Weil, 2008 ▪ Brentrup, 2004 ▪ California Farm Bureau Federation, 2014 ▪ Derpsch, Friedrich, Kassam, & Li, 2010 ▪ Gan, Liang, Hamel, Cutforth, & Wang, 2011 ▪ Herrero et al., 2013 ▪ Horrigan, Lawrence, & Walker, 2002 ▪ Innovation Center for U.S. Dairy, 2012 ▪ International Plant Nutrition Institute, 2011 ▪ Iowa State University Extension, 1999 ▪ Machado, 2009 ▪ Michel et al., 1985 ▪ NCAT, 2007 ▪ Rochette & Janzen, 2005 ▪ RSPO, 2007 ▪ Runge, 2002 ▪ Shoemaker, McGranahan, & McBride, 2006 ▪ Snyder et al., 2009 ▪ US EPA, 1999 ▪ USDA NRCS, 2011 ▪ USDA NRCS, 2009 ▪ University of California Agriculture & Natural Resources, 2011

MANUFACTURING AND ASSEMBLY

14. Implement benchmarking tools for industrial energy management Using tools to measure, track, and benchmark energy usage is an effective way to optimize energy usage and reduce risk. **Related Hotspots** ***9.*** *Energy consumption - Processing*	**References** ▪ ENERGY STAR, 2013f
15. Implement industrial energy management programs and goals Implementing energy-management programs and setting goals are the first steps to optimizing energy use. Doing so can help reduce risk and save energy. **Related Hotspots** ***9.*** *Energy consumption - Processing*	**References** ▪ ENERGY STAR, 2013e
16. Obtain ENERGY STAR certification for industrial facilities The United States Environmental Protection Agency has developed a certification that requires the assessment and implementation of energy-efficient practices and technologies for facilities. **Related Hotspots** ***9.*** *Energy consumption - Processing*	**References** ▪ ENERGY STAR, 2013g

IMPROVEMENT OPPORTUNITIES FOR MULTIPLE LIFE CYCLE STAGES

17. Allow workers to join unions or non-union employee representation (NER) programs Non-union employee representation (NER) programs are methods for providing aspects of freedom of association and collective bargaining to workers that may not have access to unions. NERs are alternative approaches to union certifications for employee/employer relations. They involve the implementation of non-adversarial and democratic representation of supply chain actors. Examples of NERs include compulsory proportional representation (CPR) and statutory works councils. **Related Hotspots** ***6.*** *Labor rights - Animal farm operations*	**References** ▪ Harcourt & Lam, 2007
18. Implement animal welfare best practices during slaughter Seek out and implement practices associated with slaughter that maximize animal welfare. Considerations may include adequate stunning and slaughter equipment, alternative procedures, and timing of activities. **Related Hotspots** ***2.*** *Animal welfare*	**References** ▪ Compassion in World Farming, 2009 ▪ EU Council Regulation 1099/2009, 2009 ▪ Gregory, 2008
19. Implement labor management and equality monitoring programs Employers should implement labor management and equality monitoring to prevent discrimination in their labor and hiring policies and procedures along the lines of race, color, gender, age, religion, social class, political tendencies, nationality, sexual orientation, or civil status. **Related Hotspots** ***6.*** *Labor rights - Animal farm operations*	**References** ▪ Kearney and Hays, 2007 ▪ Locke et al., 2007

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Release Notes

*** 04.05.10, 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.
- Removed hotspots, improvement opportunities, and references for removed KPI(s) or response options.
Deforestation and Land Conversion – Feed Sourcing KPI:
- Calculation & Scope: Added text to the guidance to include several certifications that may inform the response options.
Fertilizer Application - Animal Farm Operations KPI:
- This KPI has been deleted as part of the 2021 revision cycle due to this KPI meeting criteria for problematic scores, answerability, or year-over-year tracking.
Animal Welfare Certifications and Audits:
- Calculation & Scope: Text added to reference the THESIS Assessment for Animal Welfare.
04.04.10 May 2020

- In-text references and broken resource links (URLs) included in the KPI guidance were updated to the most recent available versions
- Ensured that all relevant of deforestation-related terms were linked to the deforestation KPI

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04.03.10 June 2019

- Broken links referenced in the KPI guidance were corrected
- Deforestation and Land Conversion KPI: Added language to the guidance clarifying that conversion of HCV and HCS non-forest lands includes HCV and HCS non-forest native ecosystems. Modified definition of "land conversion" to include native ecosystems.
- Nutrient Management – Feed Sourcing KPI: Added a response option that addresses the implementation of nutrient management plans that are not verified. Modified guidance accordingly.
- Labor Rights – Animal Farm 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 – Animal Farm 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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04.02.10, 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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04.02.10, 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:
- Air Quality - Animal Farm Operations
- Animal Welfare Certifications and Audits
- Antibiotic Use - Animal Farm Operations
- Carcass Utilization - Processing
- Feed Conversion Ratio
- Fertilizer Application - Animal Farm Operations
- Greenhouse Gas Emissions Intensity - Animal Farm Operations
- Greenhouse Gas Emissions Intensity - Processing
- Nutrient Management - Animal Farm Operations
- Nutrient Management - Feed Sourcing
- Water Use Intensity - Animal Farm Operations

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.

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