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Center for
Sustainable Business

Mitigating and Adapting to Climate Change: Proposed Benefits & Monetization Methods

April 2023

ROSI™ Framework

Return on Sustainability Investment (ROSI™) Framework

By embedding ESG risk and opportunities within core business strategy, the return on sustainable investment can be quantified, delivering the possibility of both financial value and positive societal impact.

Overview of Food & Agriculture Framework

NYU Stern CSB is developing a ROSI™ framework for food & agriculture with publicly available monetization tools to help the industry understand where and how sustainability can unlock financial value.

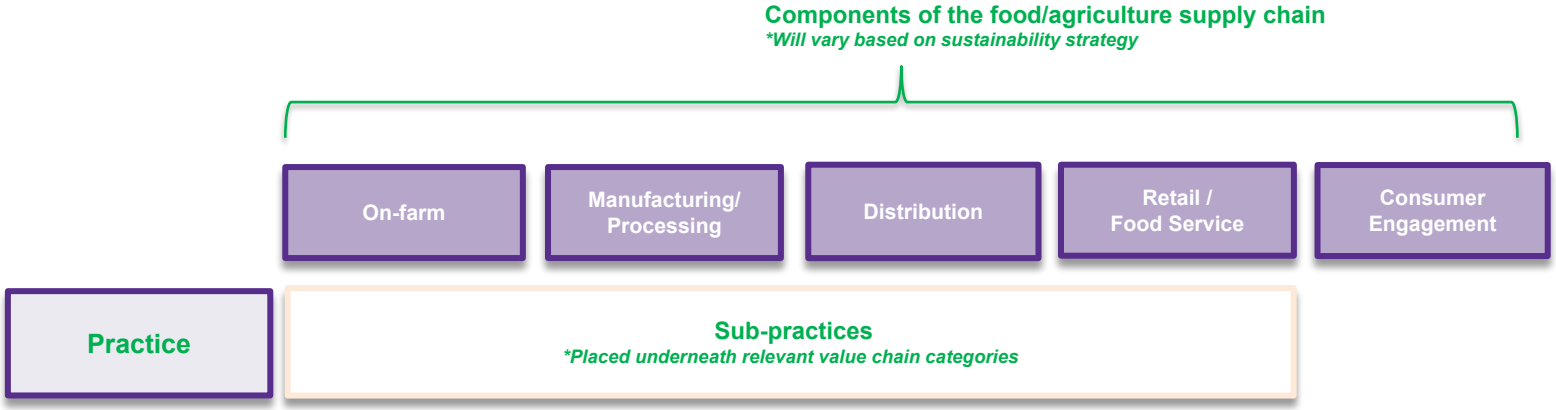
Based on research, experience, and engagement with industry leaders, we have identified the following sustainability strategies* used by the industry to include in the framework:

Water stewardship	Soil health	Climate change	Chemical management
Biodiversity and ecosystem conservation	Animal stewardship	Food waste management	Sustainable sourcing
Food safety and nutrition	Sustainable packaging	Employee and supplier well-being	Brand marketing and communications

Identified Sustainability Practices and Sub-Practices

Framework Layout

- Through our research, we identified key sustainability practices and sub-practices food and agriculture supply chains are implementing to achieve their sustainability strategies
- Each strategy includes sub-practices which are mapped under the relevant components of the food/agriculture supply chain, (if not relevant to a part of the supply chain, it is excluded)
- There are some benefits that are referenced across multiple strategies
- Compliance / enforcement practices are not explicitly listed in this framework but should be considered when implementing the twelve strategies
- Please see diagram below of the framework layout, which is illustrated for each strategy in the subsequent slides



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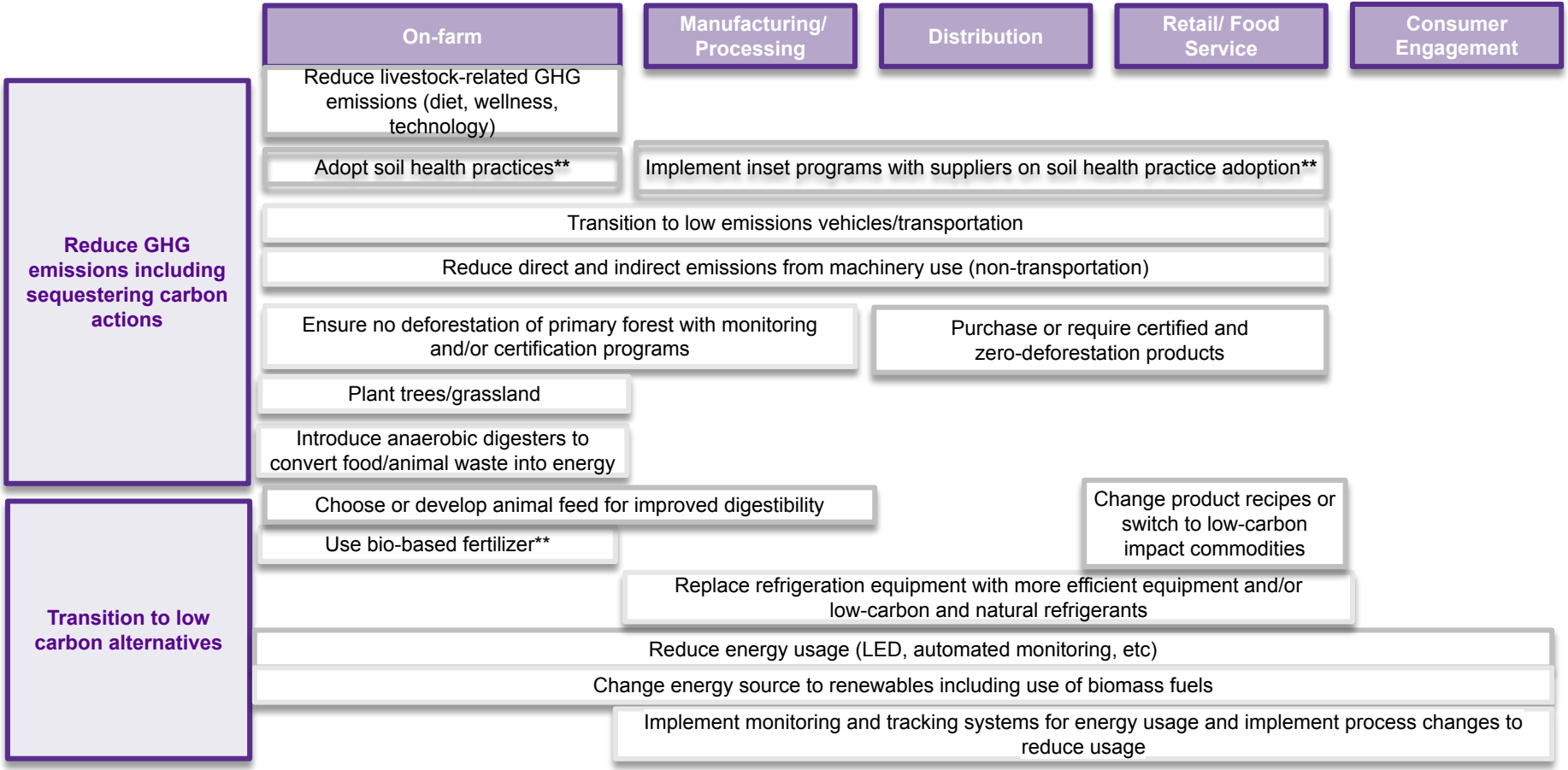
Mitigating and Adapting to Climate Change

Investing in Mitigating and Adapting to Climate Change



***Soil Health practices are detailed in the Soil Health strategy presentation, which collects soil health practices across strategies and maps them in a single visualization*

Investing in Mitigating and Adapting to Climate Change: Framework Layout

	On-farm	Manufacturing/ Processing	Distribution	Retail/ Food Service	Consumer Engagement
Sell / Purchase offsets	Participate in partnerships to maximize carbon offset buy-trade - providing incentives and training to farmers to implement regenerative farming practices				
		Purchase renewable energy certificates			
Investment to improve resilience	Implement new processes and farming practices (vertical or hydroponic farming), and or relocate to protect against extreme weather	Support suppliers implementing resilience programs to combat the impacts of climate risk			
	Plant breeding to develop crop varieties to withstand impacts of climate change				
	Plant trees/grassland				
	Adopt better agronomic practices such as soil health practices**	Implement inset programs with suppliers on soil health practice adoption**			

***Soil Health practices are detailed in the Soil Health strategy presentation, which collects soil health practices across strategies and maps them in a single visualization*

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Monetization Approach

Investing in Mitigating and Adapting to Climate Change

Overview of Sustainability Strategy and Impact Categories

In the following slides, we will be focusing on benefits from the *Climate Change* sustainability strategy, which are categorized based on the impact categories highlighted below

Sustainability Strategy Definition	
Investing in Mitigating & Adapting to Climate Change	**Food and agriculture value chain participants are investing in strategies to adapt to and mitigate the impacts of climate change, including actions to reduce Ghg emissions in their operations (machinery use, transport modes, use of anaerobic digesters), through regenerative agriculture practices (soil health practices, livestock raising, avoiding deforestation), and transitioning to low carbon sources of energy**

Relevant Impact Categories	**Benefits that…**
Operational Efficiency (OE)	**Optimize corporate and supply chain efficiencies to lower cost and increase profits**
Sales and Marketing (SM)	**Increase volume of sales through brand and marketing policies**
Customer Loyalty (CL)	**Attract an increasing community of conscious buyers & consumers, while reducing retention costs**
Risk Management (RM)	**Encourage risk mitigation and resilience within the value chain**

Investing in Mitigating/Adapting to Climate Change

Overview of Sustainability Strategy and Impact Categories

In the following slides, we will be focusing on benefits from the *Climate Change* sustainability strategy, which are categorized based on the impact categories highlighted below

Relevant Impact Categories	Benefits that…
Stakeholder Engagement (SE)	Improve goodwill among the broader stakeholder community (i.e. NGOs)
Talent Management (TM)	Attract and retain high-quality internal talent
Supplier Relations (SR)	Improve upon the relationships between the company and its suppliers
Media Coverage (MC)	Increase a company's media presence with the development of traditional and social media content
Innovation (IN)	Create new revenue streams using sustainable business models

Investing in Reduce Greenhouse Gas Emissions, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Reduce GHG emissions, including sequestering carbon	Reduce livestock related GHG emissions (diet, wellness, technology)	CC-1	Changes in breeding practices, feed alternatives (improved forage and/or higher quality feed), additives, etc. to improve feed conversion **improves livestock productivity and resilience**	OE	Calculate livestock productivity gains resulting from changing breeding practices, feed alternatives (improved forage and/or higher quality feed), additives, etc.. Measure either as the additional output produced by the system (increased sales) or the lower input costs required to meet the same output level than before (cost savings)
		CC-2	Changes in breeding practices, feed alternatives (improved forage and/or higher quality feed), additives, and manure storage **reduces GHG emissions**	RM	Calculate the GHG emission reduction obtained by change in practice (i.e.converting livestock breed at constant production/output levels, changing feed alternatives, additives, and improved manure storage. Multiply the amount of GHG emission reduced by the market price for carbon. Benefit can be calculated as an avoided cost of potential liability or compare to the ROI of alternative investments to reduce emissions.
		CC-3	Intensifying cattle operation and pasture use in areas of low intensity cattle ranching can reduce the land footprint needed and **reduce expansion over native vegetation landscapes, avoiding GHG emissions**	RM	Calculate the GHG emission reduction obtained by avoiding conversion or reducing the amount of land being converted to new pastures. Multiply the amount of GHG emission reduced by the market price for carbon. Benefit can be calculated as an avoided cost of potential liability or compare to the ROI of alternative investments to reduce emissions.

OE
SM
CL
RM

= Impact categories based on color coding illustrated on previous slides

Investing in Reduce Greenhouse Gas Emissions, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Reduce GHG emissions, including sequestering carbon	Transition to low emissions transport vehicles	CC-4	Replacing old transport vehicles, or switching to more fuel efficient providers, to lower fossil fuel dependence **lowers Ghg emissions**	OE, RM	Calculate GHG emission amount per mile of use for old and new equipment. Calculate the per mile reduction in emissions by mile of useage and multiply be the market price of carbon. Benefit can be calculated as an avoided cost of potential liability or compare to the ROI of alternative investments to reduce emissions.
		CC-5	Replacing old transport vehicles, or switching to more fuel efficient providers, to lower fossil fuel dependence **lowers machinery, fuel and maintenance and repair costs**	OE	Calculate fuel, repair and equipment cost savings by comparing costs per acre before and after the equipment change. Multiplying by the # of acres to calculate the benefit
	Reduce direct and indirect emissions from machinery use (other than transport)	CC-6	Improving or changing production processes and/or replacing old equipment, lighting, and upgrading to more efficient less fossil fuel dependent models **lowers Ghg emissions**	OE, RM	Calculate change in GHG emission per unit (e.e output - units produced, miles driven or hour of use, etc) before and after the vehicle/equipment, process, or provider change. Calculate reduced emissions and multiply by market price of carbon. Benefit can be calculated as an avoided cost of potential liability or to reflect savings by comparing to alternative investments to reduce emissions.

Investing in Reduce Greenhouse Gas Emissions, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Reduce GHG emissions, including sequestering carbon	Ensure no deforestation of primary forest with monitoring and/or certification programs	SS-1	Avoiding deforestation leads to **decreased likelihood of getting fined**	RM	Estimate the probability of receiving a fine and/or experiencing a regulatory sanction. Calculate the increased costs resulting from paying a fine and the administrative costs related to get back into compliance. If applicable, calculate also the potential yield or production loss resulting from the regulatory sanction.
		SS-2	Avoiding deforestation leads to decreased likelihood of **losing a customer or decline in profitable revenues**	RM	Estimate the probability of losing a customer and related loss in sales and/or deterioration of margin due to diversion to lower-margin sales channels. Calculate related friction costs (administrative costs, extra storage costs, etc.)
		SS-4	Avoiding deforestation leads to ability to **earn a premium**	SM	Calculate the sales differential by comparing the volume of product sold with the certification at a premium compared to volume of product if it had been sold on the conventional market. Apply the margin % to the sales differential (accounting for costs) to estimate the net benefit. Note that there may be a lower volume produced after implementing the practices.

Investing in Reduce Greenhouse Gas Emissions, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Reduce GHG emissions, including sequestering carbon	Plant trees/grasslands where possible	CC-7	Increased revenue from public **incentive payments** for planting trees/grasslands	OE	Calculate the amount of incentive payments that the tree planting project can receive from public institutions
		CC-8	Avoided crop loss due to **reduced flooding risk** and associated damages	RM, OE	Estimate likelihood of a flood event occurring. Determine the impact on yields, (before and after new planting) and multiply yield differential by average prices to capture avoided loss in revenues
		CC-9	Improved revenue through the **sale of carbon offsets**	OE	Using research based estimates of amount of carbon sequestered related to tree planting and estimates of market value of carbon offsets to capture benefit

Investing in Reduce Greenhouse Gas Emissions, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Reduce GHG emissions, including sequestering carbon	Choose animal feed for improved digestibility	CC-21	Access to new markets for products	S&M	Estimate the additional volumes and or price premium from selling into premium markets to calculate the benefits
	Introduce anaerobic digesters to farming practices	CC-10	**Cost savings** resulting from replacing energy purchased by **self-produced energy**	OE	Calculate the reduction in purchased electricity from the grid (cost savings) and subtract by the total costs of biogas energy production. Project benefit in the future by making assumptions of electricity price fluctuation (and stable biogas-generated electricity price)
		CC-11	Improved revenue through the **sale of biogas**	OE	Calculate the total energy produced by the anaerobic digester sold back to the market, multiply by electricity market price less any associated costs to calculate the benefit
		CC-12	Reduced GHG emissions by consuming self-produced energy as opposed to using power from the grid	RM	Calculate the GHG emissions linked to consumption of energy from the grid (determine the energy source mix used by the utility for the location of the farm). Estimate the GHG emissions from the biogas digested (using a Life-Cycle Analysis if available). Subtract the biogas digester emissions from the emissions associated with purchased electricity to obtain the total GHG emissions avoided. Multiply this value by the market price for carbon offsets

Investing in Transition to Low Carbon Alternatives, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Transition to low carbon alternatives	Use bio based fertilizer	CC-13	Reduce GHG emissions from fertilizer input by replacing it with bio-based fertilizer (livestock manure, crop waste, anaerobically digested bio-waste)	RM	Calculate the GHG emission reduction obtained by converting to bio-based fertilizer (as compared to using chemical fertilizer). Multiply the amount of GHG emission reduced by the market price for carbon. Benefit can be calculated as an avoided cost of potential liability or compare to the ROI of alternative investments to reduce emissions.
		CC-14	Reduce input costs by relying on bio-based fertilizer (livestock manure, crop waste, anaerobically digested bio-waste)	OE	Calculate the input cost of bio-based fertilizer as compared to conventional, chemical fertilizer while maintaining output level constant. Include any administration, machinery, or organizational costs associated with this technological change.
		SH-5	Farmers that use natural fertilizers reduce the risk of liability related to chemical run-off	RM	Use a research based estimate for amount of N&P reduction per acre related to a specific practice adoption and apply to impacted acres. Multiply the total amount of N&P reduced by estimates of market value to parties seeking water quality offsets to quantify the benefit

Investing in Low Carbon Alternatives and Sell/Purchase Offsets, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Transition to low carbon alternatives	Reduce energy usage (LED, automated monitoring, etc)	CC-15	Reduce costs for energy usage/consumption	OE	Calculate the cost differential between an upgrade to efficient energy usage (including investment costs of switching to energy efficient resources, total energy usage costs, efficiency investment costs (to program administrator)) and traditional energy usage
		CC-16	Reduced GHG emissions due to reduced energy usage	OE	Calculate the GHG emissions linked to consumption of energy from the grid (determine the energy source mix used by the utility for the location of the farm). Estimate the reduction in electricity consumption resulting from investments in energy usage reduction, and multiply by the market price for carbon offsets
	Change energy source to renewables	CC-17	Reduce GHG emissions due to lower emissions source	OE	Calculate the GHG emissions linked to before and after the switch to renewables (or compare changes in local utility energy source mix). Multiply by the market price for carbon offsets less the investment to measure the benefit (can also compare current and future expected prices of renewable vs fossil fuels to measure the benefit)
		CC-18	Reduce exposure to future regulatory costs	RM	Estimate the probability of receiving a fine and/or experiencing a regulatory sanction. Calculate the increased costs resulting from paying a fine and the administrative costs related to get back into compliance. If applicable, calculate also the potential yield or production loss resulting from the regulatory sanction.
Sell/Purchase Offsets	Participate in partnerships to maximize carbon offset buy-trade	CC-19	Producers can purchase carbon offsets to meet stated targets and avoid fines and/or reputation risk	OE	Calculate the amount of carbon reduction related to implementation of specific practices in partnership with others and multiply by the market value of carbon offsets to measure the benefit

Investing in Low Carbon Alternatives and Sell/Purchase Offsets, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Investment to improve resilience	Implement new processes and farming practices (vertical or hydroponic farming), and or relocate to protect against extreme weather	CC-20	Reduce costs for water use/consumption	OE	Calculate the amount of water use per unit produced before and after the change in process. Multiply the improved unit price to calculate the benefits and reduce by incremental costs (installation, agronomist support, etc.
		CC-21	Access to new markets for products	S&M	Estimate the additional volumes and or price premium from selling into premium markets to calculate the benefits
		CC-7	Increased revenue from **incentive payments** for adopting sustainable practices	OE	Calculate the amount of incentive payments that may be paid for adopting sustainable practices
		CC-22	Avoided crop loss due to extreme weather (flooding/droughts)	RM, OE	Estimate likelihood of an extreme weather event occurring. Determine the impact on yields, (before and after implementing new practice) and multiply yield differential by average prices to capture avoided loss in revenues. Reduce the benefit by any added costs associated with the new practice.

Investing in Low Carbon Alternatives and Sell/Purchase Offsets, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Investment to improve resilience	Plant breeding to develop crop varieties to withstand impacts of climate change	CC-23	Avoided crop loss due to extreme weather (flooding/droughts)	RM, OE	Estimate likelihood of an extreme weather event occurring. Determine the impact on yields, (before and after implementing new practice) and multiply yield differential by average prices to capture avoided loss in revenues. Reduce the benefit by any added costs associated with the new practice.
	Plant trees/grassland where possible	CC-22	Avoided crop loss loss due to **climate change related weather events (floods, drought, desertification)** and associated damages	RM, OE	Estimate likelihood of a weather related event occurring. Determine the impact on yields (before and after new planting) and multiply yield differential by average prices to capture avoided loss in revenues. Reduce the benefit by any added costs associated with the new practice.

Investing in Reduce GHG Emissions, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Reduce GHG emissions	Transition to low emissions vehicles/transport and Reduce direct and indirect emissions from machinery use	CC-24	Cost savings of using fuel economy technologies or practices	OE	Quantify the reduction in fuel usage following the implementation of new technologies or practices. Use current and projected fuel prices to calculate the cost savings, minus the cost of technology/practice implementation
		CC-25	Cost savings linked to switching transport type	OE	Calculate the costs of the current and proposed new transportation methods, including costs of organizational changes (negotiating contracts, infrastructure investments, etc.). Compare the costs to calculate the savings of switching to a new mode of transportation
		CC-26	Cost savings linked to avoided GHG emissions due to switching to lower emission vehicles	RM	Estimate the number of (1) zero emission vehicles (ZEV); (2) hybrid vehicles, and (3) plug-in hybrid vehicles. Compare GHG emissions from this number of vehicles with a conventional fleet with equal transport capacity. Calculate the amount of GHG emissions avoided and assign a price by using the market value of carbon offsets
		CC-27	Cost savings linked to avoided GHG emissions due to new transport method	RM	Estimate GHG emissions of current transportation methods. Calculate reduction in GHG emissions following the change in transportation method (negotiating contracts, infrastructure investments, etc.). Assign value to the volume of reduced GHG emissions by using the market price for carbon offsets. Calculate the cost savings of switching to the new method. Do not double count transportation method change costs if calculating also economic cost savings.

Investing in Reduce GHG Emissions, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Reduce GHG emissions	Implement inset programs with suppliers around-soil health practice adoption *	SH-19	Enhances relationship with the farmer - increasing stability of supply and reducing costs associated with less optimal sourcing alternatives	OE, RM	Calculate the amount of commodity purchased directly from farmers. Estimate the expected increase in direct purchases and the time period for which the increases occur. Calculate the incremental amount of commodity purchased direct from farmers and apply an estimate of margin improvement versus alternative sourcing channel to measure the benefit
		SH-20	Supporting sustainable agriculture creates a more resilient supply chain (because producer yields remain stable under different weather conditions) thus **stabilizing prices**	OE	Calculate the amount spent on commodity raw materials. Forecast future demand (purchases) and multiply by the potential price volatility (based on historical -or research based evidence- of supplier costs), probability of occurrence (based on historical percentage of occurrence) and an assumption on the soil health farmer yields drop as compared to conventional farmer to measure cost avoided by sourcing from farmers with more stable yields
		SH-21	Supporting the procurement of sustainably grown food commodities can improve relationships with customers, enabling more **long term contracts**	OE	Gather costs related to contract administration and divide by the number of customer contracts to estimate costs per contract. Calculate the percentage of contracts that are long term, as well as average tenor, and estimate the growth in number of contracts and the growth in percentage that are long term. Calculate the administrative cost savings linked to contract negotiation by multiplying the reduction in number of contracts being negotiated due to term extension by the cost per contract and applying a factor of impact related to sustainable sourcing.

Investing in Reduce GHG Emissions, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Reduce GHG emissions	Implement inset programs with suppliers around soil health practice adoption *	SH-22	Engaging with a supplier supporting sustainably grown food commodities **can reduce the administration costs of preparing sustainability reports** and responding to customer sustainability requirements and surveys	OE	Calculate the number of hours and administrative costs spent to collect data relating to sustainability initiatives of suppliers and the company. Estimate expected increase in data requests and costs, and expected savings achieved by working with suppliers supporting sustainable sourcing. Multiply with wages to estimate cost savings
		SH-23	Supporting soil health practices with farmers enhances the company's **sustainability profile which can lead to increase share of wallet** or incremental growth in revenues and profits with retailers/key clients & customers focused on sustainability	SM	Gather product revenues and margins for those products made with commodities associated with the soil health programs being supported. Estimate a % increase or shift in revenues and multiply by the applicable margin to calculate the value of increased revenue
		SH-24	Supporting soil health practices with farmers enhances the company's sustainability profile reducing the **risk of losing sales** to sustainability focused customers	RM	Estimate the likely decline in sales volume from high sustainability focused customers and margin impact. Apply an attribution factor to estimate the impact of supporting farmer activities reduces the risk.
		SH-25	Supporting soil health practices leads to an increasing supply of sustainably sourced ingredients improving the company's sustainability profile and its ability to **market products as "sustainable"** leading to higher revenues	SM	Identify volumes and revenues of product line(s) associated with farmer support for soil health practices that could be marketed as sustainable along with current margins. Estimate the cost (additional marketing, payments to farmers, etc) and benefit (incremental volume growth or price) associated with marketing products as sustainable. Multiply incremental revenues by average operating margins to capture benefits.

Investing in Reduce GHG Emissions, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Reduce GHG emissions	Ensure no deforestation of primary forest with monitoring and/or certification programs and Purchase or require certified and zero-deforestation products	SS-7	Reduction in the likelihood of supply disruption and related costs	OE, RM	Calculate the operational impacts of a supply disruption (using historical cost data related to similar events) or estimating the potential amount of supply likely to be impacted and assessing outcomes (loss in sales or higher substitute procurement costs). Estimate the likelihood of a supply disruption occurring and multiply the by the costs and/or lost sales and margins to calculate the benefit of avoided costs. *Potential supply disruption can also be measured using average frequency of orders, cost of delay (for instance $per pound of product) and apply a research based probability factor of 20% (1 in 5 likely event of an idiosyncratic risk event) t*
		SS-8	Avoid revenue loss from sustainability-focused scandals (reputation risk) or lower sustainability rankings/ratings (customer driven)	RM	Categorize customer sales and margins by emphasis on sustainability profiles/categories/segments of customers. Estimate the likely decline in sales to top-sustainability customers including how this might shift to other segments. Estimate either the change in mix or loss in revenue and multiply by profit margin to estimate the potential loss in earnings. Multiply this result by a probability factor to calculate likely profit loss on sales changes and deduct any additional costs (PR costs, legal costs, etc) to measure avoided costs.

Investing in Reduce GHG Emissions, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Reduce GHG emissions	Ensure no deforestation of primary forest with monitoring and/or certification programs and Purchase or require certified and zero-deforestation products	SS-10	Increased market share with high sustainability driven customers	SM	Estimate company's current market share with select customers focused on sustainability or all customer segments. Forecast the growth in customer volumes and potential increase in company's share of customer purchases due to sustainability initiatives. Apply company estimate of margin earned to quantify the benefit.
		SS-10	Adding product certifications can increase **market share** with new or existing customers focused on sustainability	SM	Estimate current share of wallet with customers and potential increase in share from adding product certifications. Calculate the amount of incremental sales and related profits and subtract any incremental costs associated with adding certifications to calculate the benefit
		SS-11	Adding product certifications can increase higher-margin products or products sold at premium **(improved mix)**	SM	Gather historical sales data (volume, average sale price and margins) for both sustainable and conventionals products. Estimate the sales impact due to adding certifications (overall increase, or change in mix if operating at capacity) and calculate the profit margins. Compare profit results to historical levels (or forecast that excludes adding certifications) to calculate the earnings benefits

Investing in Reduce GHG Emissions, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Reduce GHG emissions	Use low- or no- carbon labeling	SS-10	Carbon attribute labeling can lead to **increased sales** to high sustainability driven customers and or retail channels	SM	Forecast sales volumes of customers focused on sustainability or all customer segments using category growth and market share assumptions. Estimate the incremental growth in customer volumes (increased market share or retail penetration) due to sustainability initiatives (carbon reduction & labelling). Apply company estimate of profit margin earned to quantify the benefit of increased sales and deduct any incremental costs to quantify the net benefit.
		MC-3	Incorporating sustainability into brand identity and co-designing sourcing initiatives with brand engagement	SM	Calculate annual margin/profit from additional business opportunities that emerge from associating with sustainability focused buyers vs. other buyers

Investing in Transition to Low Carbon Alternatives, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Transition to low carbon alternatives	Develop animal feed for improved digestibility	CC-28	Increased sales with farmers	SM	Examine the current mix of animal feed sales to farmers by the company. Calculate the margin impact of increased sales of improved feed.
		CC-29	Cost savings linked to avoided GHG	RM	Use research-based estimates to calculate the reduced GHG emissions resulting from improved feed digestibility.
	Change product recipes or switch to low carbon commodities	CC-30	Cost savings linked to avoided GHG	RM	Estimate the percentage of recipe ingredients that can be changed to lower carbon impact commodities. Use research based estimates of GHG emissions for both the current and future (lower-carbon) ingredients. Calculate the total reduction in GHG emissions and assign value by using the market price for carbon offsets
		SS-10	Adding product quality attributes to marketing messaging can lead to increased **market share** with new or existing customers focused on sustainability	SM	Estimate current share of wallet with customers and potential increase in share from adding product certifications. Calculate the amount of incremental sales and related profits and subtract any incremental costs associated with adding certifications to calculate the benefit
		SS-11	Adding product carbon attributes to communicate lower emission can increase higher-margin products or products sold at premium **(improved mix)**	SM	Gather historical sales data (volume, average sale price and margins) for both sustainable and conventionals products. Estimate the sales impact due to adding certifications (overall increase, or change in mix if operating at capacity) and calculate the profit margins. Compare profit results to historical levels (or forecast that excludes adding certifications) to calculate the earnings benefits

Investing in Transition to Low Carbon Alternatives, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Transition to low carbon alternatives	Replacement of obsolete refrigeration equipment with newer, more efficient equipment and/or low-carbon and natural refrigerants	CC-31	Cost savings from reduced energy bill	OE	Estimate the reduction in electricity consumption and multiply by the purchasing price
		CC-32	Cost savings linked to avoided GHG	RM	Estimate the GHG reduction from reduced use of refrigerants and/or reduced energy use. For refrigerants, identify specific equivalent in CO2 per ton and calculate total value of eliminating their use. For reduced energy use, identify the specific energy mix used locally by the utility supply energy to company. Calculate the total GHG reduction and assign value by using the market price for carbon offsets
	Optimize lighting efficiency (LED, automated monitoring, etc) including increased use of renewables *and* Implement monitoring and tracking systems for energy usage	CC-33	Adding efficient lighting, increasing use of renewables, and monitoring systems results in lower emission	OE	Calculate the GHG emissions linked to consumption of energy from the grid (determine the energy source mix used by the utility to account for increased renewable sources). Estimate the reduction in electricity consumption resulting from investments in energy usage reduction, and multiply by the market price for carbon offsets
		CC-34	Adding efficient lighting, increasing use of renewables, and monitoring systems improves energy efficiency	OE	Calculate the cost differential between an upgrade to efficient energy usage (including investment costs of switching to energy efficient resources, total energy usage costs, efficiency investment costs) and traditional energy usage

Investing in Sell/Purchase Offsets, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Sell / Purchase Offsets	Participate in partnerships to buy/sell carbon offsets	CC-35	Additional revenue from selling or trading carbon offsets	SM	Calculate the costs of generating carbon offsets through a multi-actor partnership program. Estimate the price being paid to the carbon reduction project implementer (e.g. farmers) and add all the costs necessary to generate an offset (which includes, but not limited to, Monitoring, Reporting and Verification costs). Compare the final cost of generating the offset to the price of an equivalent offset on the voluntary carbon market
		CC-36	Producers can purchase carbon offsets to meet stated targets and avoid fines and/or reputation risk	RM	Estimate the likely impacts of missing stated targets including sales impacts (a decline in sales to top-sustainability customers and how this might shift to other segments) as well as potential fines and related costs. Multiply the change in sales mix or loss in revenue by profit margin to estimate the potential loss in earnings. Compare the cost of offsets or RECs to the potential profit impacts of missed targets to measure avoided costs.
	Purchase renewable energy certificates	CC-36	Producers can purchase renewable energy certificates to meet stated targets and avoid fines and/or reputation risk	RM	Estimate the likely impacts of missing stated targets including sales impacts (a decline in sales to top-sustainability customers and how this might shift to other segments) as well as potential fines and related costs. Multiply the change in sales mix or loss in revenue by profit margin to estimate the potential loss in earnings. Compare the cost of offsets or RECs to the potential profit impacts of missed targets to measure avoided costs.

Investing in Sell/Purchase Offsets, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Investment to improve resilience	Support suppliers implementing resilience programs to combat the impacts of climate risk	SS-7	Reduction in the likelihood of supply disruption and related costs	OE, RM	Calculate the operational impacts of a supply disruption (using historical cost data related to past or similar events) or estimating the potential amount of supply likely to be impacted and assessing outcomes (loss in sales or higher substitute procurement costs). Estimate the likelihood of a supply disruption occurring and multiply the by the costs and/or lost sales and margins to calculate the benefit of avoided costs.
		CC-37	Reduce price volatility related to climate change impacts	RM	Calculate historical volatility in prices due to extreme weather events and forecast future volatility expected. Estimate the impact of adding a new more resilient supply source on the price volatility forecast. Calculate the benefit by multiplying the reduction in volatility by amounts procured making sure to incorporate any price premium paid for the goods


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