

Animal Stewardship: Raising and Treating Animals Responsibly: Proposed Benefits & Monetization Methods

April 2023



Return on Sustainability Investment (ROSI™) Framework

Sustainability Drivers of Financial Performance & Competitive Advantage

Embed:

When companies embed sustainability risks and opportunities into their strategy and decision-making processes, they...



Improve:

- Risk Management
- Stakeholder Engagement
- Operational Efficiency
- Talent Management
- Supplier Relations
- Media Coverage
- Customer Loyalty
- Sales & Marketing
- Innovation

Drive:

- Revenue Growth
- Greater Profitability
- Higher Corporate Valuation

Deliver:

- Quantifiable Business Value & Positive Societal Impact



 **NYU | STERN**

Center for Sustainable Business

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

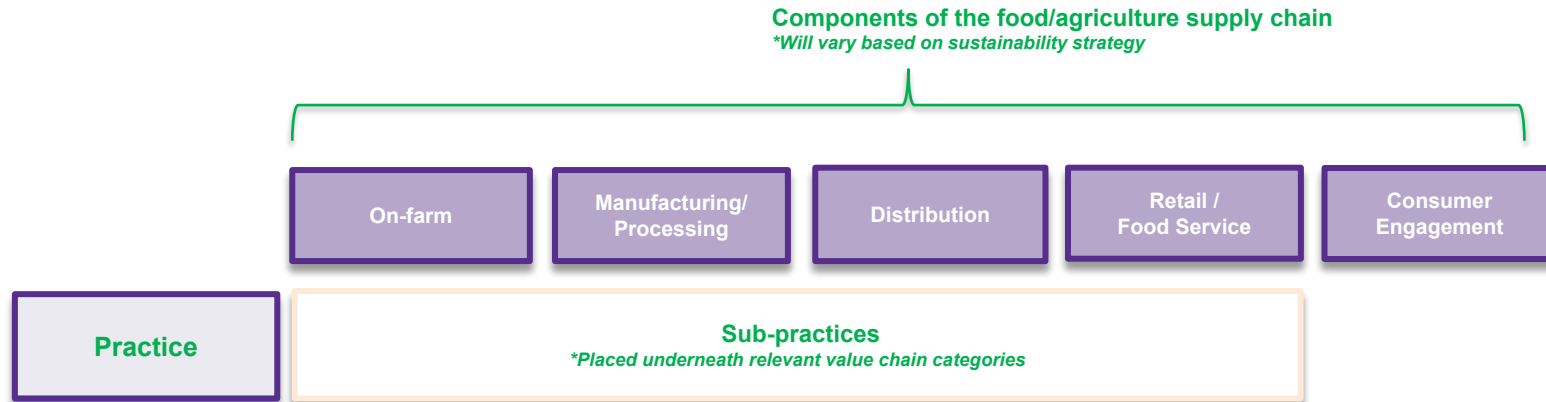
Sustainable packaging

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



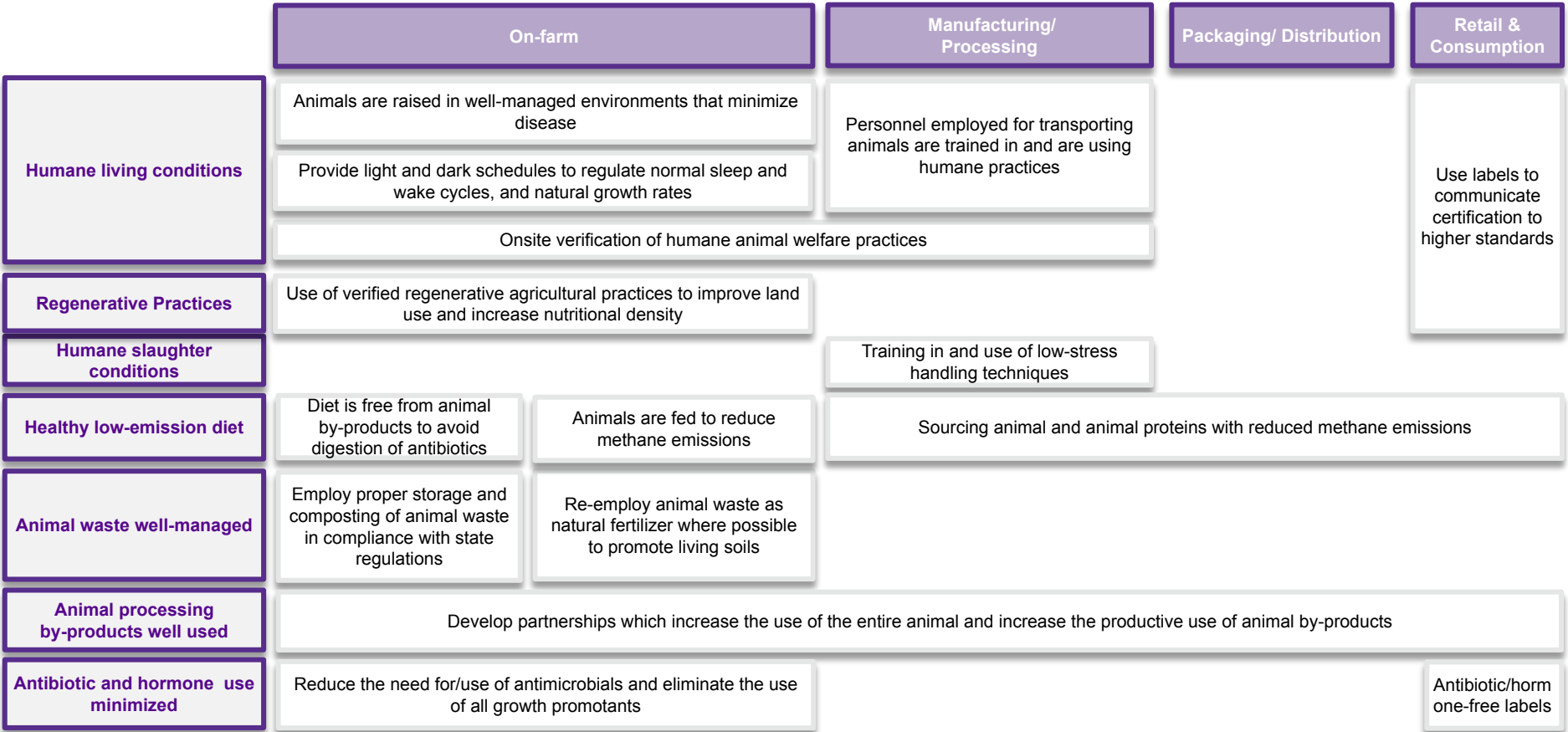


NYU | STERN

Center for
Sustainable Business

Animal Stewardship: Raising and Treating Animals Responsibly

Animal Stewardship: Framework Layout





NYU | STERN

Center for
Sustainable Business

Monetization Approach

Investing in Animal Stewardship

Overview of Sustainability Strategy and Relevant Impact Categories

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

Sustainability Strategy Definition

Investing in Animal Stewardship

The supply chain ensures that animals are raised humanely and using production systems that minimize harm on human health and the environment

Impact Categories

Operational Efficiency (OE)

Benefits that...

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 Animal Stewardship

Overview of Sustainability Strategy and Relevant Impact Categories

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

Impact Categories continued

Stakeholder Engagement (SE)

Benefits that...

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 Humane Living Conditions, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Humane living conditions	Animals are raised in well-managed environments (including using regenerative agriculture)	AW-1	Avoided financial loss due to reduced disease incidence, leading to fewer livestock productivity losses (avoided mortality loss, reduced slaughter value), and fewer dairy farm productivity losses (avoided premature voluntary culling, milk loss)	OE, RM	Evaluate the reduction in disease incidence linked to new animal Stewardship management techniques (e.g. early detection of disease) and multiply by a probability factor. Evaluate the impact of the lower disease rate on livestock infection and recovery rates. Compare to historical data about disease incidence and calculate the avoided loss by measuring the reduced mortality loss and maintained slaughter/sale value. For mortality loss, calculate the extra production delivered by livestock due to the reduced mortality loss (multiply by market prices for milk, if dairy, and slaughter value). For improved slaughter value, calculate the discount value that would have occurred had livestock been infected. Multiply the number of livestock that are healthy by the market price delta between healthy and unhealthy livestock
		AW-2	Cost savings due to the reduction in disease incidence and related veterinary expenses (vaccination, medication, additional farm labour costs, etc.)	OE, RM	Evaluate the reduction in disease incidence linked to new animal Stewardship management techniques (e.g. early detection of disease) by a probability factor. Estimate reduced amount of livestock infected by disease, and calculate the veterinary expenses that would have been necessary to cure the disease. Include all expenses types such as: vaccination, medication, additional farm labor, etc.
		AW-3	Higher sales due to higher productivity (e.g. more animals and lbs of animal protein per acre in regenerative agriculture beef systems vs. conventional grazing).	OE	Ranchers can increase the productivity of their ranches through multi-paddock rotation and other practices. Calculate the herd size and weight after implementing regenerative practices vs. before and calculate the associated lbs per acre increase. Note that research shows that it may take 3-5 years to find the optimal rotational mix to achieve this higher productivity.

Investing in Humane Living Conditions, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Humane living conditions	Provide light and dark schedules to regulate normal sleep and wake cycles, and natural growth rates	AW-4	Increased milk production for dairy cows; improved growth cycles	SM	Calculate the average milk production per cow in lbs or gallons pre- and post-implementation of the optimized light/dark schedules. Multiply the difference by the market price for milk.
	Implement humane animal welfare practices and have them verified onsite	AW-5	Avoided losses due to providing shade to animals	OE, RM	Evaluate the reduction in livestock heat-induced mortality or morbidity risks. Calculate the number of saved and healthier livestock and calculate the related avoided losses (i.e. the slaughter value for the former; veterinary, medical expenses, and additional farm labor for the latter)
		AW-6	Avoided risk of margin degradation if inhumane activities are discovered	RM	Estimate the likelihood of a farm losing one or more of its customers because of bad livestock rearing practices. Calculate the costs for the farm of finding new customers (delays, administrative costs) and the impact on margins. Multiply these costs by the likelihood of such event occurring
		SS-1 and SS-2	Avoided risk of activity disruption by government regulatory action	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. Estimate the probability of losing a customer and the related loss in sales and/or deterioration of margin due to diversion to lower-margin sales channels. Calculate related friction costs (admin costs, extra storage costs, etc.)

Investing in Humane Living Conditions, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Humane living conditions	Onsite verification of humane animal welfare practices	AW-7	Higher sales margin due to market premium for better animal welfare practices	SM	Improved animal welfare can lead to a market premium paid by customers. Calculate the volume of livestock by the market premium offered by customers in recognition of animal welfare investments. Multiply by the price delta between the premium price and regular market price for slaughter value and/or dairy product value
		AW-8	Higher sales margin due to market premium for higher meat quality	SM	Improved animal welfare lead to a market premium paid by customers which can improve margins. Calculate the volume of livestock concerned by the market premium offered by customers in recognition of better meat quality linked to animal welfare investments. Multiply by the price delta between the premium price and regular market price for slaughter value and/or dairy product value. Costs may increase slightly upon implementation, but margins will improve after implementation.

Investing in Humane Living Conditions, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Humane living conditions	Develop supply chain partnerships to improve animal welfare	SS-6	Reduced price volatility and reduced administrative costs of negotiating contracts	OE	Estimate the number of grievances/inquiries historically self-initiated or by NGOs, clients regarding compliance with sustainability standards. Estimate the average employee hours used to resolve requests. Estimate the impact of sustainability initiatives on the number of grievances/inquiries and hours spent to resolve capturing expected cost savings.
		SS-5	Ability to enter into long term contracts potentially at favorable pricing and/or payment terms	OE	Gather data on historical price distribution across both sustainable and non-sustainable focused buyers and measure price differentials. Estimate the potential shift away from lower value sales (in terms of price or payment terms) to quantify the benefit.

Investing in Regenerative Agriculture, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Regenerative Agriculture	Use of regenerative agricultural practices to improve land use and increase nutritional density	AW-7	Higher sales margin due to market premium for verified regenerative agricultural practices	SM	Verified regenerative agriculture can lead to a market premium paid by customers. Calculate the volume of livestock by the market premium offered by customers in recognition of animal Stewardship investments. Multiply by the price delta between the premium price and regular market price for slaughter value.
		AW-8	Higher sales margin due to market premium for higher quality and higher nutrient density of the animal protein linked to regenerative agriculture	SM	Verified regenerative agriculture can improve the quality and nutrient density of animal protein. Calculate the volume of livestock by the market premium offered by customers in recognition of better meat quality linked to regenerative agriculture investments. Multiply by the price delta between the premium price and regular market price for slaughter value. Costs may increase slightly upon implementation, but margins will improve after implementation.
		SS-5	Ability to enter into long-term contracts potentially at favorable pricing and/or payment terms	OE	Gather data on historical price distribution across both sustainable and non-sustainable focused buyers and measure price differentials. Estimate the potential shift away from lower value sales (in terms of price or payment terms) to quantify the benefit.
		CC-3	The use of regenerative agriculture practices can 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.

Investing in Healthy Diet and Animal Waste Mgmt, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Healthy/low emission diet	Animals are fed a diet free from animal by-products	AW-9	Lower risk of contaminated feed leading to a serious disease outbreak	RM	Investigate the occurrence of bacteria-related outbreaks in livestock and assign a probability factor of occurrence. Calculate the avoided costs of the loss of income from sales of livestock.
	Animal feed is optimized to reduce methane emissions	CC-1; CC-2	<p>Changed breeding practices to improve feed conversion improves livestock productivity and resilience.</p> <p>Changed breeding practices to improve feed conversion reduces GHG emissions</p>	OE, RM	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). 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.
Animal waste well-managed	Employ proper storage and composting of animal waste in compliance with state regulation	AW-10	Increased revenue from reselling animal waste to farmers who use it as fertilizer	SM	Calculate the volume of fertilizer sold and subtract the storage, composting and transportation costs
		WS-3	Reduced risk of future water use regulations	RM	Estimated probability of restrictions on water use occurring and the estimated the impact on yields. Multiply potential yield reduction by average price to calculate benefits of avoided costs

Investing in Waste, By-products and Hormone Mgmt, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Animal waste well-managed	Re-employ animal waste appropriately as natural fertilizer where possible to promote living soils	AW-11	Cost savings by replacing chemical fertilizer with self-produced natural fertilizer	OE	Calculate the volume of chemical fertilizer that can be replaced by on-farm production of animal waste. Multiply that volume of chemical fertilizer by purchase price to obtain the benefit
Animal processing by-products are well used	Develop partnerships which increase use of entire animal/ increase productive use of animal by-products	AW-12	Increased income from selling more of the animal	SM	Cattle example for regenerative hides: Agree on a price for the given by-product(s) with the partner that will purchase them from the slaughterhouse. Multiply this by the number of cattle that are delivered to the slaughterhouse.
Antibiotic and hormone use minimized	Reduce the need for/use of antimicrobials and eliminate the use of all growth promotants	AW-13	Cost reduction from reduced use of antimicrobials and growth promotants.	OE	Estimate the cost of use of antimicrobials and growth promotants before and after the implementation of reduction programs.
		SS-4	Price premium from "antibiotic free" certified product	SM, CL	Calculate 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. Note that there may be a lower volume produced after implementing the practices. Subtract the associated costs to obtain the net benefit.

Investing in Humane Living Conditions, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Humane living conditions	Personnel employed for transporting animals must be trained and competent	AW-14	Avoid sales loss linked to the reduced likelihood of animal welfare-related reputation scandal	RM	Estimate the number of scandals and/or welfare standards non-compliance events resulting from handling livestock. Estimate the reduction in the number of such incidents following the implementation of training and the extent to which trainings are responsible for it (if necessary, use an attribution factor).
	Implement animal Stewardship practices to promote good welfare and submit to independent verification	SS-8	Avoid revenue loss from sustainability-focused scandals or lower sustainability rankings/ratings (customer driven)	RM	Estimate the likely decline in sales to top-sustainability customers and including how this might shift to other segments. Estimate either the change in mix or loss in revenue and multiply by profit margin (differentials or absolute) 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.
		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.

Investing in Humane Living Conditions, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Humane living conditions	Use consumer-facing labels to communicate certifications and verification to higher standards	SS-8	Avoid revenue loss from sustainability-focused scandals (reputation risk) or lower sustainability rankings/ratings (customer driven)	RM	Estimate the likely decline in sales to top-sustainability customers and including how this might shift to other segments. Estimate either the change in mix or loss in revenue and multiply by profit margin (differentials or absolute) 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.
		SS-10	Increased market share gained through marketing a sustainable product	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. Apply company estimate of profit margin earned to quantify the benefit of increased sales and deduct any incremental costs to quantify the net benefit.
		SS-11	Increased market share gained through selling at higher margin to sustainability-oriented customers	SM	Gather historical sales data (volume, average sale price and margins) for both sustainable and conventional 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 Regenerative Agriculture, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Regenerative Agriculture	Use of consumer-facing labels for animal protein produced using verified regenerative agriculture	SS-10	Increased market share gained through marketing a sustainable product	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. Apply company estimate of profit margin earned to quantify the benefit of increased sales and deduct any incremental costs to quantify the net benefit.
		SS-11	Increased market share gained through selling at higher margin to sustainability-oriented customers	SM	Gather historical sales data (volume, average sale price and margins) for both sustainable and conventional 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
		MC - 9	Increase in unpaid earned media	MC	Calculate cost per media exposure multiplied by # of unpaid media exposures (given promotion through product, campaigns, and customer experience) to achieve avoided cost savings

Investing in Human Slaughter Conditions, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Humane slaughter conditions	Use of low-stress handling techniques	AW-15	Avoid quality reduction from stress before slaughter, increasing the price/lb, particularly in Beef	SM	Estimate the price per pound to sell lower quality meat vs. price per pound for the higher quality meat. Multiply by the number of pounds.
	Put processes in place to identify and mitigate insensibility in handling	AW-14	Reduction in number of incidences which reduces mitigation costs over time	RM	Estimate the number of scandals and/or welfare standards non-compliance events resulting from handling livestock. Estimate the reduction in the number of such incidents following the implementation of training and the extent to which trainings are responsible for it (if necessary, use an attribution factor).

Investing in Diet, Responsible By-products and Hormone Use, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Healthy/ low emission diet	Sourcing from supply chains with traceability to animals with reduced GHG emissions	CC-27	Cost savings linked to avoided GHG	RM	Estimate the GHG reduction from sourcing lower methane emitting livestock for Scope 3 emissions calculations. Assign value by using the market price for carbon offsets, and the escalating carbon offset prices into the future.
Animal processing by-products are well used	Develop partnerships which increase use of entire animal/ increase productive use of animal by-products	AW-15	New revenue streams based on traceable by-products e.g. regenerative leather	SM	Estimate the price per pound to sell lower quality meat vs. price per pound for the higher quality meat. Multiply by the number of pounds.
Antibiotic and hormone use minimized	Use labels to communicate antibiotic- and/or hormone free	SS-10	Increased market share gained through marketing a sustainable product	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. Apply company estimate of profit margin earned to quantify the benefit of increased sales and deduct any incremental costs to quantify the net benefit.



Center for
Sustainable Business