pet sustainability coalition

AN INTRODUCTION TO

The 4-Factor Framework *for* Sustainable Protein Evaluation *in* Petfood

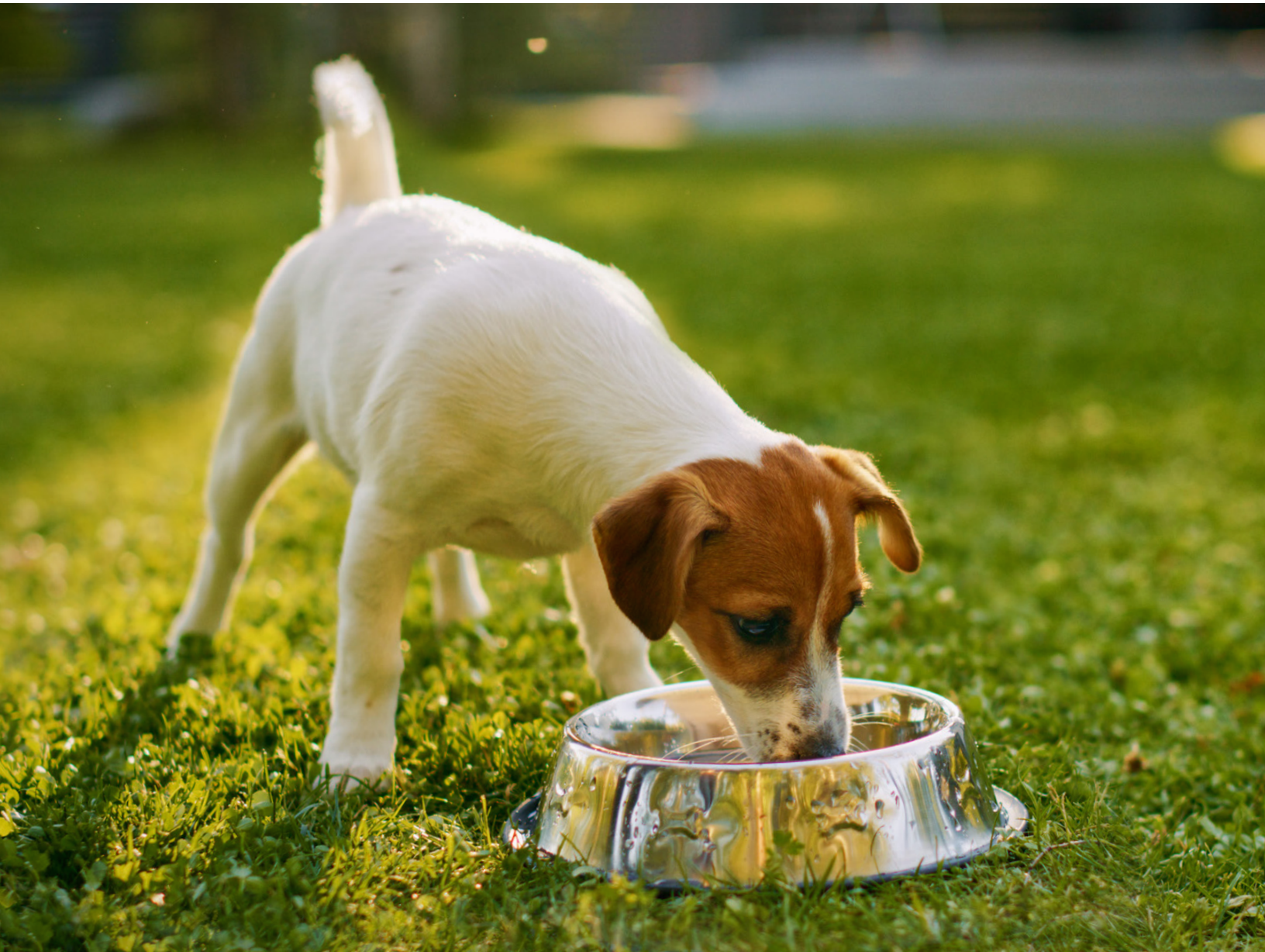
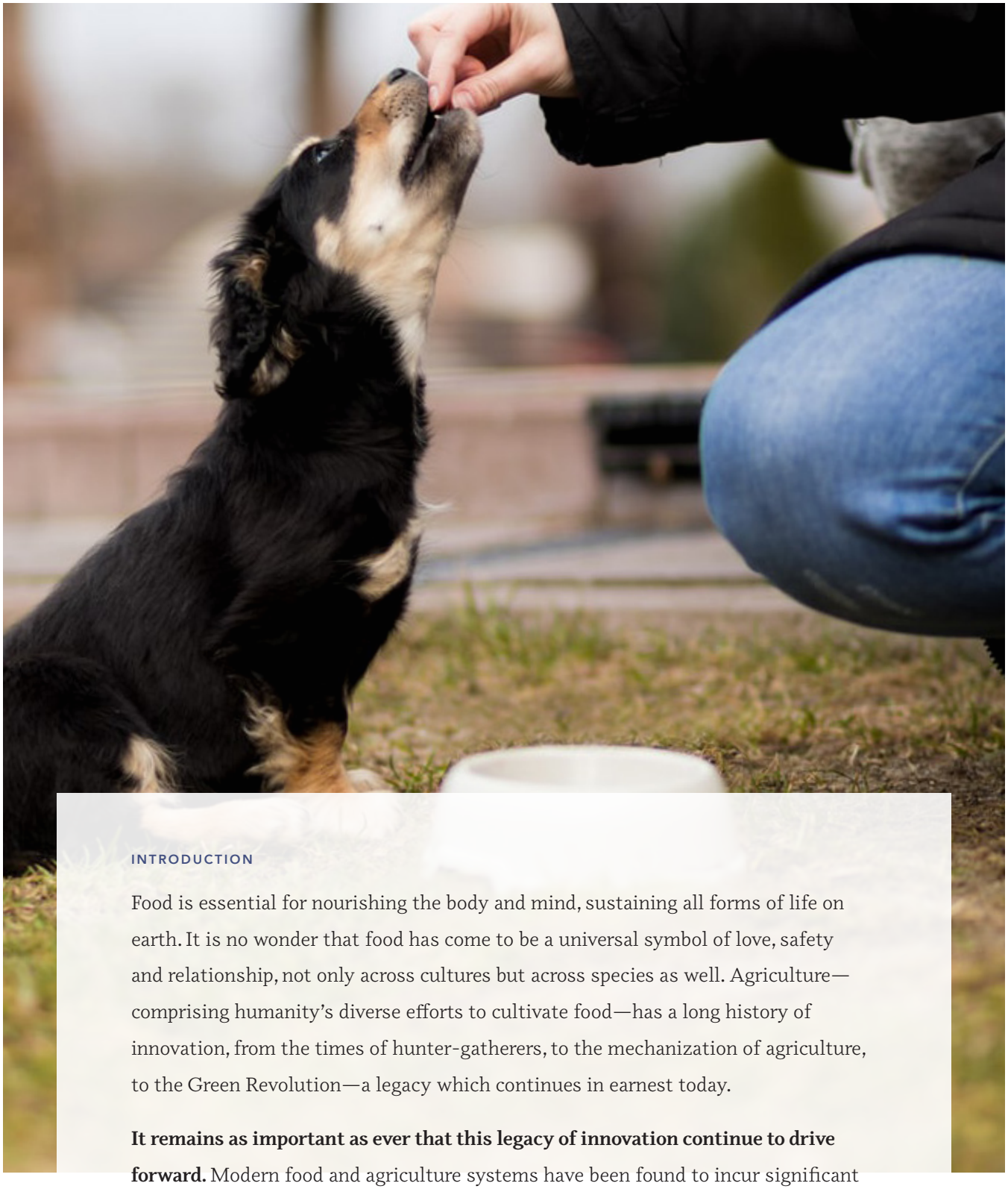


TABLE OF CONTENTS



INTRODUCTION

Food is essential for nourishing the body and mind, sustaining all forms of life on earth. It is no wonder that food has come to be a universal symbol of love, safety and relationship, not only across cultures but across species as well. Agriculture—comprising humanity's diverse efforts to cultivate food—has a long history of innovation, from the times of hunter-gatherers, to the mechanization of agriculture, to the Green Revolution—a legacy which continues in earnest today.

It remains as important as ever that this legacy of innovation continue to drive forward. Modern food and agriculture systems have been found to incur significant unintended consequences related to environmental degradation, the welfare of animals, the well-being of human communities, and pet and human health. Animal agricultural systems, which account for 78% of total agricultural land[1], make up a significant proportion of the food system's impacts—making protein the greatest opportunity to improve food and agricultural impacts related to pet food[2].

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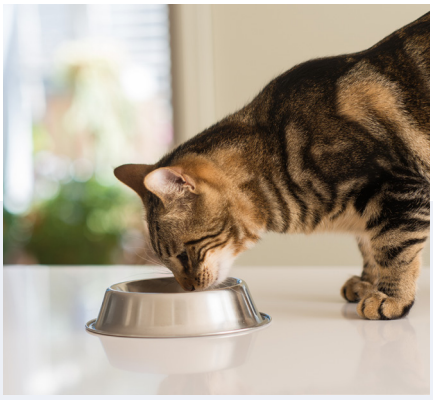
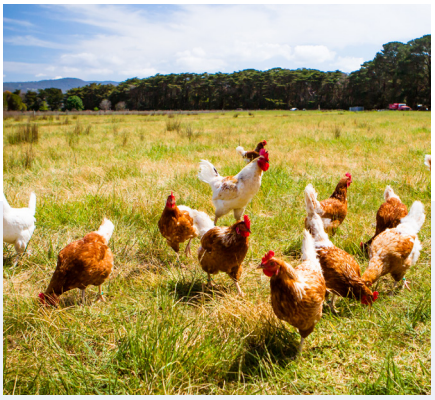
Producers, companies, and NGOs alike are hard at work to drive the improvement needed to alleviate these unintended consequences. While efforts are well underway to understand and address the sustainability impacts embedded in human food systems, the impacts associated with pet food supply chains have received much less attention to date. Considering that **cats and dogs consume ~25% of all animal-derived calories produced in the United States**[3], the pet food industry has a significant opportunity to leverage its market power to improve the sustainability performance of our food systems. At the same time, pet food supply chains bear significant risks as climate change, freshwater availability, and potential regulation threaten the future cost, quality and availability of pet food ingredients.

This introductory resource is for pet food manufacturers and other members of the supply chain to acquaint themselves with the new Four-Factor Framework developed by the Pet Sustainability Coalition to evaluate the sustainability performance of proteins used in pet foods. This report will outline foundational **concepts, key issues, and best practices** associated with pet protein sustainability.





ABOUT THE PET SUSTAINABILITY COALITION

The Pet Sustainability Coalition advances business through profitable environmental and social business practices. Founded in 2013 by eight companies who recognized a need for a collaborative platform to address increasing expectations for sustainable products, PSC now supports almost 200 pet companies to measure, improve, and celebrate their environmental and social performance. PSC also mobilizes its member community to advance sustainable proteins, sustainable packaging, and diversity, equity and inclusion. Learn more at **petsustainability.org**.

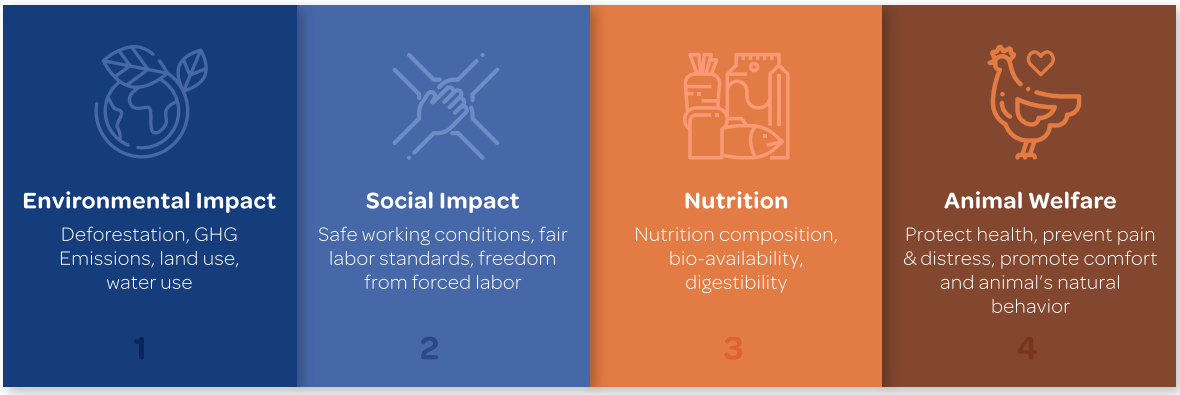
The 4-Factor Framework *of* Pet Protein Ingredient Sustainability

The 4-Factor Framework was developed to provide the pet industry with a common starting point for advancing sustainable protein sourcing practices. The Framework is a holistic model that can be used to describe and evaluate the overall sustainability performance of any protein type according to its **environmental impact, social impact, nutrition, and animal welfare** performance.

While each of the four factors can stand alone as distinct issues, they are also inextricably linked. For example, while GHG emissions are usually classified as an environmental impact, the consequences of GHG emissions including sea level rise, increased natural disasters, and variable weather patterns may have a disproportionate effect on human communities in rural, developing or impoverished settings, making it also a social issue. Similarly, while conventional fast-growing chicken breeds are rife with animal welfare issues[4], they are also known to have a higher fat content and lower iron and omega-3 fatty acids[5], resulting in lower nutritional value. Therefore, neglecting one category of sustainability may have undesirable impacts on other categories. **For this reason, it's important to carefully consider all four factors when making protein sourcing decisions.**

On the other hand, comparing impacts between the four factors can be like comparing apples to oranges. To achieve the highest sustainability performance, one should consider all four factors in any ingredient selection decision; however, it is up to pet food brands and manufacturers to decide how each of the four factors will be prioritized and valued. In the future, the Pet Sustainability Coalition will provide resources to evaluate pet ingredient impacts within and across factors, to help make impacts more comparable for pet industry stakeholders.

The pages to follow provide a more detailed overview of each of the four factors, defining them as well as introducing the most current topics, debates and opportunities for improving pet protein sustainability.



1. Environmental Impact

A protein ingredient's environmental impact refers to the ingredient's influence on the quality and availability of scarce environmental resources that can be consumed and polluted, or recycled and restored as a consequence of producing, processing, storing, transporting, and consuming or discarding the protein ingredient. Environmental impact considerations typically include:

- **Greenhouse gas emissions (GHGs)** that are released into the atmosphere, contributing to climate change[6];
- **Water consumption**, especially in areas with increasing water scarcity[7];
- **Biodiversity impacts**, especially in areas with threatened or endangered species[8];
- **Deforestation**, which destroys habitats and further aggravates climate change;
- **Consumption of pesticides and fertilizers**, which can pollute waterways, harm wildlife, and degrade the quality of soil.

Presently, global food and agriculture systems are responsible for approximately 20-30% of human-made GHG emissions[9], 70% of freshwater withdrawals[10], and are the primary driver of biodiversity loss[11]. Agriculture already occupies 50% of the Earth's habitable land surface[12], and the continued expansion of agricultural land – largely related to beef production and feed – is the primary driver of deforestation[13]. Use of toxic pesticides and excessive fertilizers lead to soil degradation, eutrophication, and pollinator population collapse[14]. These impacts are very serious: researchers have identified that the collective environmental impacts of our agricultural system pose a significant threat to our ability to operate within safe planetary boundaries, outside of which the Earth may become inhospitable to human survival[15].

Research on the environmental impacts of pet diets has shown that American pets contribute significantly to these environmental challenges[16]. It is estimated that through their diets alone, cats and dogs account for 25-30% of the impacts from animal production in terms of land use, water consumption, GHG emissions, and other indicators. As pet populations continue to grow across the United States and the globe, finding solutions to minimize consumption of environmental resources will become increasingly important.

Fortunately, not all protein ingredients are equal in terms of their relative environmental impacts, which provides an opportunity for the industry to maximize the use of environmentally low-impact proteins currently in the market and alternative proteins that are quickly advancing. For example, one kilogram of beef produces an average of eight times the GHG emissions of a kilogram of farmed fish, which in turn has three times the GHG emissions of plant-based protein options such as soy[17]. Similarly, the freshwater withdrawals required for a kilogram of beef is more than double that of a kilogram of poultry, which in turn is more than four times the fresh water required for a kilogram of soy production[18]. In addition to cross-species comparisons, different protein ingredients derived from the same species can have vastly different environmental impacts. For example, protein ingredients that are considered to be byproducts of human-grade protein production, such as beef liver rather than beef tenderloin, ensure that no nutritious animal protein goes to waste and allows humans and pets to divide their environmental costs rather than competing or duplicating them. However, pet food products have tended to move away from animal byproducts in recent years, often vilifying the use of byproducts while also incorporating higher content of meat as a percentage of overall ingredients. The underlying causes of this trend are well intentioned as the pet industry seeks to ensure safety and nutrition of pets within a supply chain that does not currently offer traceability of ingredients from farm to bag. As will be discussed in the Nutrition section, novel solutions such as insect protein and cultured meats are being proposed to meet the nutritional needs of pets while minimizing environmental impacts.

The human food industry has made strides in advancing transparency and traceability through the use of tools, certifications and customized supply chain initiatives. Tools such as Monterey Bay Aquarium's Seafood Watch[19] and Panera's Cool Food Meals[20] inform customers about the relative impacts of their dietary choices. Certifications that

require a transparent chain of custody through the food production process have become a tool for brands, suppliers, and consumers alike as they seek out ingredients and products that align with their commitment to sustainability. Along the supply chain, food companies large and small have taken initiative to eliminate waste, help producers implement regenerative agriculture practices, expand plant-forward menu options and organic product offerings, and set science and set science-based targets (SBTs) to reduce greenhouse gas emissions in line with scientific recommendations to avoid the worst consequences of climate change[21]. **Pet food companies are invited to join the movement!**

Progress Highlight

CERTIFIED SUSTAINABLE SEAFOOD MSC www.msc.org

FARMED RESPONSIBLY asc CERTIFIED ASC-AQUA.ORG

PSC MEMBERS COMMIT TO SUSTAINABLE SEAFOOD WITH MSC CERTIFIED INGREDIENTS!

In 2010, MARS Petcare (home to brands including PSC member Royal Canin, Whskas, and Iams) became the first pet food company to commit to sourcing **100% sustainable seafood**. MARS works collaboratively by sourcing seafood through programs such as MSC and Monterey Bay Aquarium's Seafood Watch, and participating in partnerships such as WWF, the Seafood Task Force and the Consumer Goods Forum. See what MARS has to say about their progress:

" With rising demand and a finite supply, it is key that we protect an economical and sustainable seafood supply chain. At Mars Petcare, we are committed to sourcing all of our fish products in a responsible and sustainable manner. This is being accomplished by reducing the total volume of fish used, replacing vulnerable fish species with more sustainable alternatives, maximizing the procurement of by-product, and purchasing third-party recommended or certified fish products to reassure stakeholders of the responsibility, sustainability and traceability of Mars' product ingredients. All of these efforts already resulted in 76% of our fish and marine ingredients' volumes being sustainably sourced for our MARS factories in Europe by mid of 2019 and pave the path to reach our target of 100% sustainably sourced fish and marine ingredients globally by 2020."

- ***Marine Stewardship Council's Leaders for a Living Ocean program, 2019***

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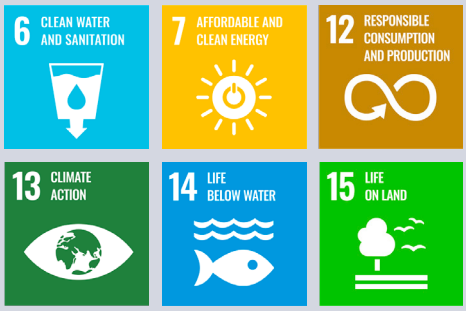
More PSC members, including **Petcurean** and **Annamaet**, have also used sustainable seafood as an innovation opportunity and released new pet food product lines in partnership with the Marine Stewardship Council. Hear it from Rick van Schagen, President of Petcurean:

" We know consumers are increasingly demanding sustainability, transparency and organic ingredients in their pet food, which is why we created GATHER to proactively meet that demand. As a company, we took our time to find the right partners who aligned with our own commitment to responsibility and accountability, and we are delighted that the MSC program exceeds this high standard."

- *Marine Stewardship Council's Petcurean* **press release**

Take Action Today!

SDG ACTION MANAGER



Measure your impact and create action plans with **PSC's SDG Action Manager Assessment**, based on the 17 social and environmental areas of the UN Global Compact's Sustainable Development Goals. Pet industry professionals have free access to the SDG Action Manager Assessment, and PSC member receive annual reviews & roadmaps to improve their performance.

2. Social Impact

A pet protein ingredient's social impact refers to the ingredient's influence on the safety and well-being of any human person affected in the process of producing, processing, storing, transporting, and manufacturing the ingredient. Social impact considerations typically include any human person's:

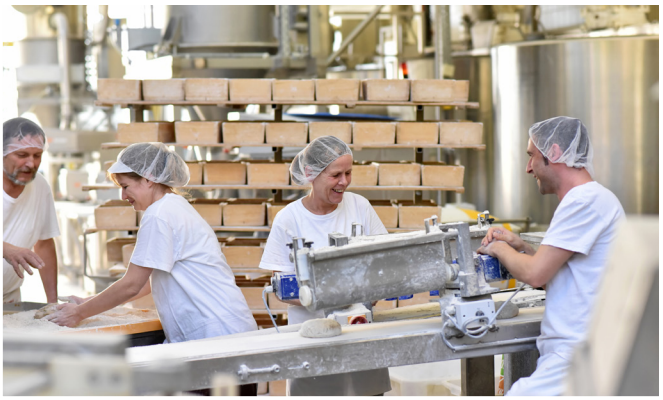
- **Physical safety** and well-being
- **Economic sustainability** and well-being
- **Psychological safety** and well-being
- **Cultural** integrity, community and quality of life

Agriculture and its related industries provide more than 10% of total U.S. employment[22], giving agricultural supply chains tremendous opportunity to touch the lives of 22.2 million individuals, plus their families, through the quality of their full- or part-time jobs. Further, since 68% of farm workers are currently made up of underrepresented minority groups[23], this represents a significant opportunity to address patterns of economic inequality and improve the livelihoods of marginalized communities.

While the United States agricultural systems are managed according to existing social and labor standards, significant negative impacts remain, the majority of which are suffered by front-line workers. Agriculture is one of the most dangerous sectors for workers by measure of worker fatalities, injuries, and diseases contracted at work[24], even though these occurrences often go underreported[25]. Injuries can be caused by accidents with farm machinery, or illnesses by continuous exposure to pesticides, agrochemicals, gases, and particulate matter which puts workers at risk of brain damage, heart problems, respiratory issues, and asphyxiation. It is estimated that up to 75% of workers in concentrated animal feeding units (CAFOs, or "factory farms") experience acute or chronic bronchitis as a result of dust, gases from manure pits, and endotoxin irritants that fill the air[26]. Meanwhile, meat packing and processing plants have some of the highest rates of occupational illness and injury, up to 5-10 times the national average[27], **many of which are easily preventable[28] and thereby present a strong opportunity for improvement.**

In addition to physical danger, agricultural workers are often vulnerable to unfair labor practices such as exploitation, discrimination and harassment. For example, farm laborers are currently exempt from national laws offering social protections such as minimum wage and overtime pay, often resulting in low pay, few benefits and little recourse for grievances[29]. Meatpacking and processing line-workers report humiliation and intimidation by their supervisors, such as being denied bathroom breaks[30] and COVID-19 social distancing measures[31]. In the wild-caught fish supply chain, instances of slavery and indentured labor have been discovered[32]. This remains an issue as the remote and isolated nature of deep-sea fishing vessels pose challenges for monitoring and enforcement.

However, progress is starting to surface. While social impacts have received less attention to date relative to other factors in the sustainability agenda[33], **top food and agriculture companies are recognizing the business case for worker equity, and implementing best practices to achieve it[34].** For example, buyers in the Florida tomato supply chain including McDonald's and Walmart enjoy lower reputational risk through their participation in the Fair Food Program[35], a widely praised[36] worker-driven program creating and enforcing fair labor standards in participating crop markets. This program has been suggested as a transferrable model to be used in other supply chains. In another example, a study[37] found that meatpacking companies who supported unions saw fewer meat recalls than nonunionized plants, because employees



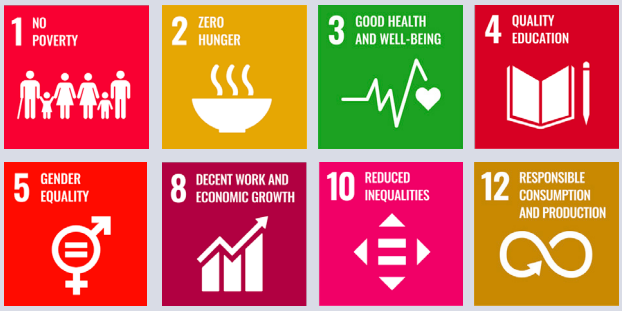
were more likely to recognize and speak up about food safety issues. And most recently, the past 5 years have seen unprecedented growth in the hiring of corporate Diversity, Equity and Inclusion (DEI) Officers[38], whose mandate is to ensure workers – both in their companies and their supply chains – are treated fairly, compensated fairly and equipped to thrive in their roles. As trends like these continue, best practices such as implementing and enforcing human rights policies and Codes of Conduct[39], creating anonymous hotlines for supply chain workers to report grievances, and reporting on worker equity outcomes will continue to rise.

Progress Highlight

PSC MEMBERS ACHIEVE B CORP CERTIFICATION

Several PSC Members including **West Paw**, **Only Natural Pet** and **Excel Packaging** are Certified B Corps, and a half-dozen additional PSC Members are actively pursuing the rigorous certification. B Corp certification rewards companies for going beyond current legal and market norms by adopting practices like paying a living wage (which is typically higher than the legal minimum wage), screening supply chains for negative and positive social practices, and creating in-depth hiring programs for marginalized or at-risk population groups. B Corp Certification also requires companies to evaluate their own negative social impacts and address any material effects before the certification can be achieved.

Take Action Today!



A Code of Conduct is a recognized best practice to ensure high standards of human rights, animal welfare and environmental impact in your supply chain. **Use PSC's template to create your own Code of Conduct.** Additional supply chain tools can be found in the Pet Sustainability Toolkit.

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3. Nutrition

A pet protein ingredient's nutritional impact refers to the ingredient's influence on pet health and longevity through its contribution to a healthy diet. A pet's diet plays a significant role in the prevention or cause of diseases, as well as his or her ability to thrive by affecting energy levels and cognitive function. A pet diet's nutritional impact can be understood as consisting of:

- **The presence** of appropriate levels of all necessary nutrients
- **The absence** of biological and chemical contaminants

Thanks to guidelines from the FDA[40] and AAFCO[41], the vast majority of commercial pet foods contain sufficient amounts of all necessary nutrients, based on the best available nutritional science. However, pet obesity is on the rise[42], driven largely by overfeeding, but also by a "race to the top" by pet food brands, who, in response to unwitting but well-intentioned consumer demand, market formulations containing protein in excess of pets' nutritional requirements[43]. Pet obesity reduces both the pet's quality and length of life, by affecting mobility and energy levels. It can also lead to diabetes, inflammatory conditions such as arthritis, and disease[44]. Excess-protein formulations not only contribute to pet obesity, but also raise costs, environmental impact, and reduce the efficiency of protein utilization[45]. While the solution to overfeeding seems to rest in the hands of pet parents, companies can educate their customers about the risks of overfeeding and the appropriate needs of their pets[46]. Through such education campaigns, companies can also curb the pressure to maximize protein content in their formulations.

Nonetheless, ensuring high nutritional performance of a protein ingredient requires attention not only to protein quantity, but also protein quality. For this reason, nutritionists are increasingly advocating for standards to account for the bioavailability, digestibility, and amino acid content of the protein ingredient[47], and not only the raw amounts of necessary proteins. As the industry moves toward a standard based on protein quality, it is critical to examine and redefine the species-specific requirements of pets, and to select protein ingredients that meet these requirements.

Protein bioavailability and digestibility can be impacted by the nature of the protein ingredient, the ingredient's interactions within the pet's body, and also, the types of processing and manufacturing undertaken to transform the protein ingredient into a food or treat. This is important because if the protein in an ingredient is damaged or burned off during processing, or is naturally or otherwise bio-unavailable within the ingredient, the actual amount digested by the pet may be below his or her nutritional requirements.

Current regulations do not specify how nutrients should be sourced[48], nor does the industry have generally accepted traceability procedures. As a result, it can be difficult for pet food manufacturers and brands to ensure the absence of contaminants such as hormones[49], industrial chemicals[50], antibiotics[51], plastic residue[52], bacteria such as *listeria* and *salmonella*[53], and even euthanasia drugs[54] within pet food proteins. While the use of "4-D" meats (an acronym for meat from Dead, Dying, Disabled or Diseased animals) is a violation of federal law, the FDA only recently[55] revoked policy guidance that it would not enforce this law for pet food[56]. **Innovation related to sourcing standards could have a dramatic positive impact on pet nutrition.**

In the meantime, concern about protein safety and quality has given rise to a number of alternative movements, such as pet foods containing "human grade meat," "raw meat," and "premium" or "natural" ingredients, each with their own set of advantages and disadvantages. For example, human-grade meat adheres to stricter standards for ingredients, processing and handling[57], but is more expensive, comes at a higher environmental cost than animal byproducts, and may compete with human consumption needs. Raw meat diets boast shinier coats, cleaner teeth, and higher energy levels[58], but have been criticized for susceptibility to carrying bacteria such as *e.coli*, *listeria* and *salmonella*, putting both pets and their human families at risk[59]. Finally, label claims such as "premium" and "gourmet" do not currently have official FDA or AAFCO definitions[60], and while "natural" does have an AAFCO

definition, AAFCO acknowledges that it is a liberal term which cannot be interpreted as safer or healthier for pets[61].

Motivated by health and safety as well as environmental concerns, recent innovations in food technology have allowed a number of animal-free alternatives to emerge on the scene[62], such as "plant-based," "insect-based," and "cultured meat" alternatives. While the debate is hardly settled regarding the necessity of animal-meat protein for pets, especially cats; proponents of alternative protein sources argue that pets need specific *nutrients*, not specific *ingredients* – pointing out that commercial animal-meat pet foods already fortify their formulations with supplemental nutrients due to the use of low-quality meat, or the breakdown of nutrients during processing[63]. Each of the plant-based, insect-based and cultured meat alternatives boast impressive nutritional benefits, though challenges remain. While AAFCO has approved several "complete and balanced" plant-based diets for dogs, cats continue to be viewed as obligate carnivores due to their inability to synthesize certain amino acids and vitamins, particularly taurine[64]. Insect ingredients have been identified to meet feline taurine requirements[65], while also boasting a high protein content[66], dietary fat, fatty acids, minerals and vitamins[67], leading the FAO to describe the nutrition of insect protein as equal to "other meat sources such as chicken, beef, pork and fish,"[68] and leading AAFCO to recently approve two insect-based ingredients – black soldier fly larvae oil and meal – for use in adult dog food[69]. Challenges such as potential contamination[70], invasive species[71], scalability[72], and a lack of research[73] currently present barriers to rapid growth of the insect-based pet food market. Finally, cultured meats (also called "clean meat" or "cellular agriculture," referring to animal meat grown in a lab from animal stem cells) boast customizable nutritional profiles as well as negligible risk of contamination and no use of antibiotics or hormones[74], but are not expected to be market-ready for several more years[75]. In sum, **pet nutrition appears to be a promising area of improvement, with ongoing efforts to improve regulatory standards and develop alternative diets.**

Progress Highlight

PSC MEMBERS USE 3RD PARTY CERTIFICATIONS TO GUIDE NUTRITIONAL & ENVIRONMENTAL LEADERSHIP

PSC Members **Nature's Logic**, **InClover**, **NatrixOne** and **MeatMe Pet Food** have all met the **Non GMO Project Verified** certification requirements for their products, which certify that their products meet the organization's expectations for the avoidance of GMO ingredients. Additionally, **West Paw** sources beef from **American Grassfed** certified sources, to ensure that the product was born, raised, and processed in the USA; that the animals were treated humanely, and that they were grazed regeneratively.

Take Action Today!

SDG ACTION MANAGER

Double-check your formulations to ensure they **meet but don't exceed AAFCO's regulations** for protein content. This helps prevent pet obesity by making it easier for pets not to consume more protein than their bodies require, while also reducing input costs and environmental impact - **win-win!**

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AAFCO Association of American Feed Control Officials

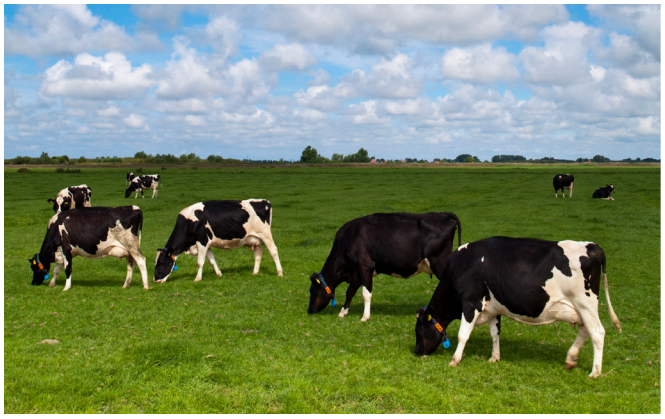
4. Animal Welfare

A pet protein's animal welfare impact refers to the ingredient's influence on the well-being of any animals, typically farm animals, directly affected as a consequence of producing the protein ingredient. While the specific welfare issues suffered by animals can differ based on species, breed, and production system; a set of principles called the **five freedoms of animal welfare**[76] often serves as the basis for animal welfare considerations:

- **Freedom from hunger and thirst**
- **Freedom from living in discomfort**
- **Freedom from pain, injury, and disease**
- **Freedom to express normal species behavior**
- **Freedom from fear and distress**

Unfortunately, practices associated with modern industrial agriculture routinely violate these five freedoms, treating animals as units of production rather than as sentient beings. Industrially raised animals are systemically subjected to inhumane treatment and living conditions, such as unnecessary amputations without any pain relief, being confined to cages too small to turn around or stretch their limbs, and receiving feed that is indigestible to their bodies[77]. In the United States, it is estimated that 99% of farm animals are raised in such industrial systems[78].

Animal welfare is not only an altruistic concern for the animal's quality of life, it can also have significant implications for the animal's health, the quality of its derived meat products, and human health as well. For example, animals in confinement often live in close proximity to large quantities of their own manure, which emits gases that can be toxic to animals' and farm workers' health, causing respiratory ailments and skin diseases[79]. Chicken breeds engineered to grow rapidly to market weight have been found to produce lower-quality meat[80]. Lower-yielding, but healthier, dairy cows can mitigate heifer replacement costs and result in higher sale prices, improving farmer profitability[81]. Growth hormones fed to cattle have been linked with human reproductive abnormalities and certain kinds of cancer[82], and excessive use of antibiotics is leading to the evolution of antibiotic-resistant bacteria, increasing human vulnerability to future pandemics[83]. Overall, while the modern industrial system is designed to maximize short-term yield at all costs, it is increasingly evident that it comes with significant costs to the animal, the farmer, workers, and the consumer over both short and long-term time horizons.



Though the specific welfare considerations related to different animal species vary, comparisons can be made about the welfare status of different protein ingredients. For example, stocking density is a greater concern for poultry than for beef, since cattle generally spend the majority of their lives in pasture, while poultry birds are confined from one day old[84]. On the contrary, transportation-related concerns are more salient for beef than for poultry, since cattle are typically transported at least twice in the animal's lifetime[85]. Wild-caught fish face fewer welfare concerns than farmed fish[86], though both tend to suffer inhumane slaughter[87].

Significant pressure from NGOs and activist organizations has amassed critical attention around animal welfare issues, unlocking considerable progress in the industry. Management strategies, best practices, and consumer-facing certification schemes such as Global Animal Partnership (GAP)[88] and Animal Welfare Approved[89] have been developed to help producers transition to more humane animal practices. Similar standards, practices and certifications are under development for farmed fish[90], lagging due to a lack of existing research relative to

land animals. Further, momentum is building for state-level legislation on animal welfare, especially related to gestation crates for pregnant sows[91] and cage-free eggs[92].

Progress Highlight

PSC MEMBERS COMMIT TO SUSTAINABLE SEAFOOD WITH MSC CERTIFIED INGREDIENTS!

MeatMe Pet Food, **Tender & True** and **Open Farm** are just some of the PSC members who rely on Certified Humane® to help verify their animal welfare expectations. Open Farm, a Canadian-based pet food company, was one of the first to launch a Certified Humane® dog food product in Canada and the United States in 2015. A representative from Certified Humane said of the collaboration:

> " Pet owners have been clamoring for pet foods with meat and chicken that were Certified Humane®... [this product] will give U.S. pet owners the opportunity to purchase pet food that reflects their humane values."

- ***certifiedhumane.org***

Take Action Today!

Consider issuing a letter from the CEO, or a company leader, talking about your company's commitment to Animal Welfare. This public approach is open, honest, and communicates the values that underpin your company's decision to pursue sustainability in the first place. **PSC's Commitment Statement Template** provides examples and guidelines to help you create an ambitious and attainable sustainability commitment statement.

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What can pet food manufacturers do to improve pet protein sustainability?

Know what's in your supply chain

Constantly developing a better understanding of your supply chain is an essential component to improving the sustainability of your products. Knowing an ingredient's origin, the processes used to produce it, and the impacts they have enable you to compare it with other options, and also to motivate the supplier to move towards more sustainable production methods. Consider developing a supplier questionnaire, using existing supply chain tools (such as the PSC Code of Conduct Template or **Sedex**); meet directly with your suppliers to share your objectives, values and expectations; gather information, and assess alignment, performance, and compliance.

Identify your strengths and weaknesses within the 4-factor framework

Evaluate your current sourcing practices and/or product lines against each of the four factors (environmental, social, nutrition, and animal welfare) to determine where you have strengths and where you have opportunities for improvement. For each area identified for improvement, consider the steps and tools you could use to improve your performance – and how win-wins with your strength areas may help (for example, cases where higher animal welfare improves nutrition).

Eliminate protein overuse in formulations

Research has shown that many commercial pet foods are formulated to provide nutrients in excess of pets' needs, often based on consumer demand. Pet food manufacturers can demonstrate leadership by formulating products based on the latest science in pet nutrition, and shape demand by educating pet parents about the protein requirements of their pet.

Utilize the whole animal

While animal hearts and livers may not be attractive food for human consumption, they remain nutritious sources of protein and energy. Using animal byproduct as a source for pet food protein ingredients reduces waste from human meat consumption and helps keep valuable food out of the landfill. While regulation is necessary to prevent contaminated byproducts from entering the supply chain, transparent and judicious use of byproduct can be done sustainably and healthily.

Minimize waste in facilities

Possibly the most effective (and cost-effective!) way for manufacturers to reduce environmental, social, and animal welfare impacts is to make sure that no protein ingredients go to waste as a part of the manufacturing process. It is estimated that one-third of the global food supply goes to waste at various points along the supply chain. While no studies have been undertaken estimating food waste in pet food supply chains, manufacturers can proactively address this issue by (1) conducting a waste audit of their facilities and (2) taking action to improve the efficiency of their own unique processes.

Develop and maintain a Code of Conduct

Codes of Conduct convey a company's expectations for their suppliers' practices relating to labor, animal welfare, and environmental impact. A growing number of companies are articulating their values through Codes of Conduct and requiring all of their suppliers to sign the Code along with their new or ongoing contracts. The Pet Sustainability Coalition has created a Code of Conduct template as a resource for pet industry stakeholders – download it **here** to get started creating your Code of Conduct!

Educate customers about overfeeding

Overfeeding and pet obesity is an increasingly common issue, contributing to a double burden of compromised pet health as well as wasted food resources. Brands and manufacturers can leverage packaging, social media channels, newsletters, and other communications opportunities to educate pet parents about their companion's nutritional needs, and the risks to their pet's health associated with overfeeding.

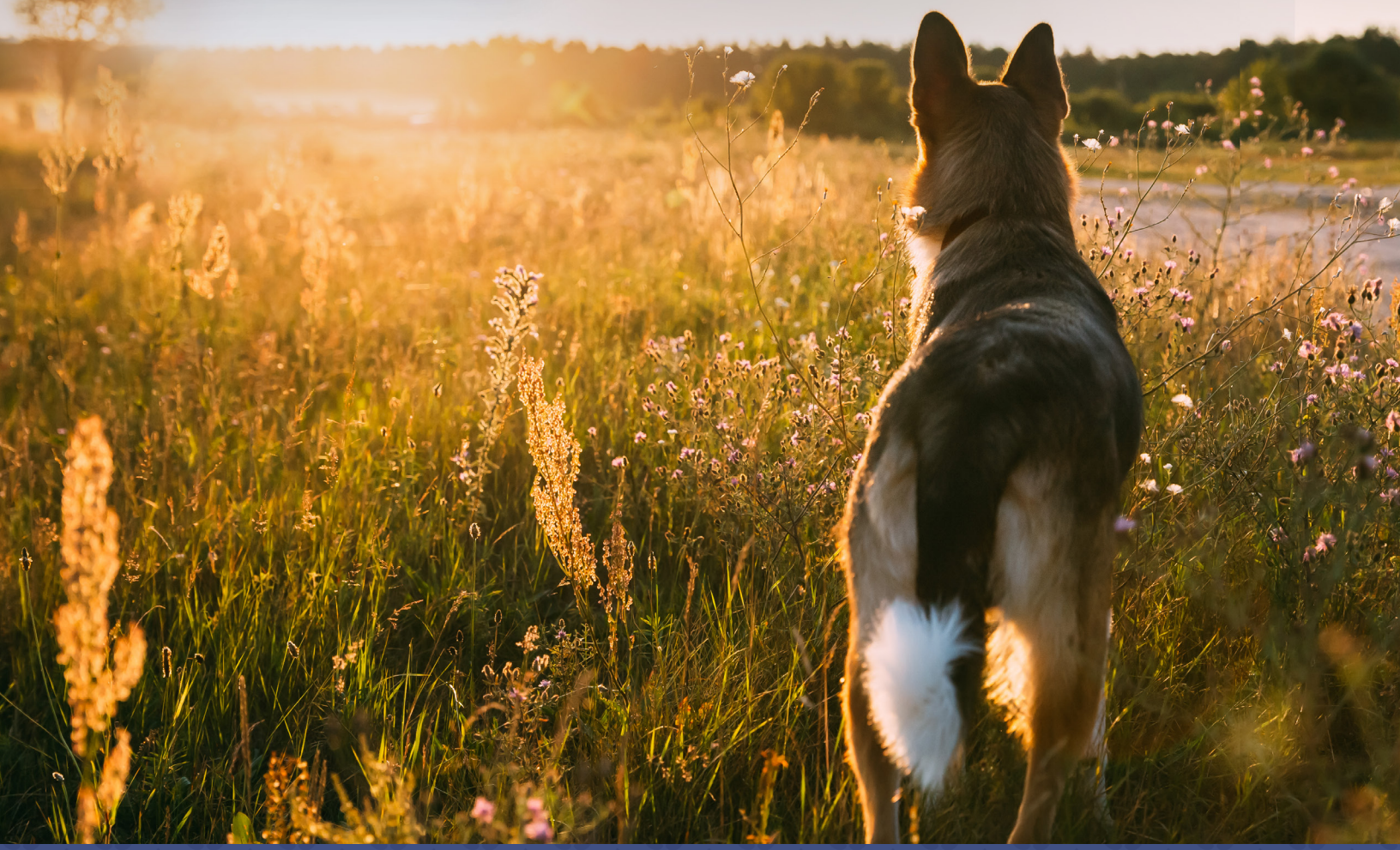
Buy certified ingredients where available

Third-party verification through certification schemes are an increasingly popular way to ensure that ingredients, products and supply chains are adhering to defined environmental, social and animal welfare standards; and also to communicate these standards to discerning consumers. Numerous certification options exist, varying widely on their goals, standards, costs, and market size. Use the certifications appendix in this Guide as a starting place to explore what certifications may be available for your protein ingredients!

CONCLUSION

At PSC, we believe in a future in which all pet food is produced with rich insights to maximize pet health, harmony with the environment and natural resources, and in a manner that respects the dignity and needs of workers, communities and farmed animals. As pet populations continue to grow, and as pets are increasingly treated as members of the family, the already significant potential for the pet food industry to influence food system-wide sustainability practices and standards will continue to be elevated. We look forward to working with innovative pet food brands and manufacturers who want to take a leadership role in the ongoing transition to a sustainable future.

This introductory report outlined the foundational concepts underlying each of the four factors to provide industry stakeholders with a common understanding of the overall status of pet protein sustainability. The report presented a snapshot of the current challenges of each factor, as well as the opportunities and best practices that can be actioned by pet food companies at any stage of their sustainability journey. This resource represents only the beginning of an exciting, collaborative journey between Pet Sustainability Coalition, ambitious member companies, and experts on the four factors to enhance sustainability practices and standards across the pet protein industry.



WHAT'S NEXT FOR THE PET SUSTAINABILITY COALITION?

As the leading coalition for sustainability in the pet industry, PSC will continue to bring education, tools, and collaborative solutions that drive improvement in areas of impact too large for a single company to solve on their own. As proteins are among the highest impact ingredients used in pet food today, PSC sees a strong opportunity to shift the industry to increase both the supply and use of high-performing sustainable protein ingredients across all four factors. At present, additional research is needed to understand how the four factors influence one another, highlight market forces that currently limit the supply or use of sustainable proteins, baseline the current performance of producers and suppliers, compare how existing and novel protein ingredients perform across the four-factor model, and importantly, identify the socio-political issues that may arise as part of a shift toward unprecedented traceability for ingredients, producers, and suppliers. PSC will continue its approach of bringing collaborative solutions to the forefront through scientific data, expert partners, and by leveraging our ambitious community of hundreds of pet companies committed to a more sustainable future.

STAY CONNECTED WITH US

JOIN OUR MAILING LIST

The best spot for up-to-date information, research, and tools regarding our work toward a sustainable pet food system.

EMAIL US

Have questions? Want to participate or contribute? Connect with us at **info@petsustainability.org**.

BECOME A MEMBER

Interested in integrating sustainable business practices at your company? Join the movement through a **PSC Membership**.

APPENDIX

Certification Schemes for All Four Factors

ALL FOUR FACTORS

Certified B Corporation

Certified B Corporations (commonly known as "B Corps") are businesses – not products – verified by the non-profit B Lab as meeting the highest standards of social and environmental performance as well as public transparency and legal accountability. The community of B Corps is dedicated to accelerating a global culture shift to redefine success in business and build a more inclusive and sustainable economy. To achieve B Corp certification, a company must achieve a minimum score on the rigorous B Impact Assessment, disclose and pass a confidential review of possible negative impacts, and amend their legal governing documents to require their board of directors to balance profit and purpose.

ENVIRONMENTAL

USDA Organic

USDA certified organic foods are grown and processed according to federal guidelines addressing, among many factors, soil quality, animal raising practices, pest and weed control, and the use of additives. Organic producers rely on natural substances and physical, mechanical or biologically based farming methods to the fullest extent possible. The National Organic Program (NOP) develops the rules & regulations for the production, handling, labeling, and enforcement of all USDA organic products.

Marine Stewardship Council (MSC) & Aquaculture Stewardship Council (ASC)

Wild-caught and farmed fish, respectively; seaweed

The Marine Stewardship Council (MSC) certifies wild fisheries across the globe as adhering to the MSC Fisheries Standard, which includes criteria relating to sustainable fish stocks, minimizing environmental impact, and effective fishery management. Products bearing the blue MSC label include only seafood from fisheries that have been certified to MSC's Standard. The MSC also provides a Chain of Custody Standard to ensure that MSC-certified fish are separated from non-certified fish along the supply chain. The MSC's sister organization, the Aquaculture Stewardship Council (ASC), certifies fish farms that demonstrate adherence to environmental as well as social standards.

Best Aquaculture Practices

Farmed Fish

Best Aquaculture Practices (BAP), provided by the Global Aquaculture Alliance (GAA), is an end-to-end certification covering each step in the farmed fish production chain. Their standards include food safety, environmental responsibility, social accountability, and animal health and welfare.

Food Alliance

Crops, livestock, shellfish

Food Alliance certifies agricultural operations, food processors and distributors that meet certain criteria relating to working conditions, animal welfare, pesticide use, habitat and biodiversity, supply chain transparency, GMO, and management practices.

USDA Process Verified Program

Dairy, Fruits, Vegetables, Livestock, Poultry

The USDA Process Verified Program (PVP) is a third-party verification service run through the AMS that allows companies to demonstrate adherence to a wide variety of processes including production practices, services and quality factors such as size, breed, age and more. Applicants choose which process points to adhere to, allowing them to assure their customers of their ability to provide consistent quality products that meet specific internal, industry, or customer requirements.

Regenerative Organic Alliance

Regenerative Organic Certified (ROC) is a revolutionary new label for food, fiber and botanical ingredients based on three pillars: healthy soil, pasture-based animal welfare, and fairness for farmers and workers. ROC was established by a group of founding members including the Rodale Institute, Patagonia, Dr. Bronner's, Compassion in World Farming and others, and is overseen by the nonprofit Regenerative Organic Alliance (ROA), a group of experts in farming, ranching, soil health, animal welfare, and farmer and worker fairness.

Rainforest Alliance

The Rainforest Alliance Certified™ seal ensures that a product comes from a farm or forest operation that meets comprehensive standards that protect the environment and promote the rights and well-being of workers, their families and communities. Products that carry the green frog seal include coffee, tea, chocolate, fruit, ready to drink beverages and juices, flowers, paper and tissue products, furniture and more.

EU Organic Label

Organic farming is an agricultural method that aims to produce food using natural substances and processes. European Union regulations on organic farming are designed to provide a clear structure for the production of organic goods across the whole of the EU. The organic product label indicates that the product has been grown within sustainable cultivation systems. Foods may only be marked as "organic" if at least 95% of their agricultural ingredients are organic.

The Roundtable for Sustainable Palm Oil

The Roundtable for Sustainable Palm Oil unites stakeholders from of the palm oil industry to develop and implement global standards for sustainable palm oil. The RSPO has developed a set of environmental and social criteria which companies must comply with in order to produce Certified Sustainable Palm Oil (CSPO). These criteria can help to minimize the negative impact of palm oil cultivation on the environment and communities in palm oil-producing regions.

Savory Institute

The Savory Institute's Ecological Outcome Verification™ (EOV™) is a protocol for monitoring land health, giving a holistic look at both leading and lagging indicators. EOV measures key indicators of ecosystem function. In addition to providing an outcome-based verification of the health of the land base, EOV also provides critical intelligence to the farmer as a steward and manager of the land.

Fairtrade International

Vegetables, Fruit, Cereals

The Fairtrade Standards are designed to tackle poverty and empower producers in the poorest countries in the world. The standards apply to both producers and traders and include a range of economic, environmental and social criteria that must be met by producers and traders in order to acquire or retain certification. Fairtrade America is the US member organization of Fairtrade International, and shares a commitment to a global system backed by credible, internationally agreed Fairtrade Standards and certification.

Food Justice Certified

Food Justice Certified is run by the Agricultural Justice Project (AJP), an organization dedicated to empowerment, justice and fairness for all who labor from farm to retail. Central to their mission are the principles that all humans deserve respect, the freedom to live with dignity and nurture community, and share responsibility for preserving the earth's resources for future generations. Food Justice Certified uses a 3-tiered labeling system to distinguish certification along different links in the supply chain.

Equitable Food Initiative

The Equitable Food Initiative (EFI) cultivates a healthier, safer and more sustainable produce supply chain by combining the fair treatment of workers, food safety, and pesticide management under one certification. EFI's coalition of growers, retailers, unions, NGOs, and consumer rights groups developed the EFI Standards, which include indicators for responsible labor and environmental practices, and increased worker involvement in food safety management. EFI certification requires the training of farmworkers, an annual third-party audit, and ongoing worker-led verification of compliance with EFI Standards.

Sedex

Sedex provides a platform for companies to manage and improve working conditions in global supply chains, through practical tools, services and a community network to help companies improve their responsible and sustainable business practices, and source responsibly. Their SMETA (Sedex Members Ethical Trade Audit) is one of the most widely used social audits in the world.

International Organization for Standardization

The International Organization for Standardization is an independent, non-governmental organization, the members of which are the standards organizations of the 165 member countries. It is the world's largest developer of voluntary international standards and it facilitates world trade by providing common standards among nations. They have a number of environmental and social standards related to both manufacturing and sourcing.

Fair for Life

"Fair for life" is a brand neutral third party certification program for social accountability and fair trade in agricultural, manufacturing and trading operations. The program complements existing fair trade certification systems

NUTRITIONAL

Non-GMO Project

The Non-GMO Project is the market leader for GMO avoidance and one of the fastest growing labels in the retail sector. The mission of the Non-GMO Project is to build and protect a non-GMO food supply. Certification by Non-GMO Project means that the product has been verified by a technical administrator and meets the organization's Standard for avoiding GMO ingredients.

American Grassfed

Beef, bison, lamb, goat, pork, poultry, eggs and dairy

American Grassfed certification ensures that the product was born, raised, and processed in the USA, that the animals were treated humanely, and that they were grazed regeneratively. The certification ensures that animals have eaten nothing but their mother's milk and fresh grass or grass-type hay from birth to harvest – all their lives.

ANIMAL WELFARE

Animal Welfare Approved

Dairy, eggs, chicken, turkey, goose, duck, beef, bison, lamb, goat, pork, rabbit

Animal Welfare Approved (AWA) is a food label for meat and dairy products that come from farm animals raised to the highest animal welfare and environmental standards. The program was founded in 2006 as a market-based solution to the growing consumer demand for meat, eggs and dairy products from animals treated with high welfare and managed with the environment in mind. The program is accredited to ISO guideline 17065.

Global Animal Partnership

Chicken, turkey, beef, bison, lamb, goat, pork; eggs

Global Animal Partnership (GAP) is an international, nonprofit, charitable organization founded in 2008, bringing together farmers and ranchers, animal welfare advocacy organizations, scientists, and retailers. The 5-Step® Animal Welfare Rating Program recognizes the welfare practices of producers who are certified by independent third-party certifiers; promotes continuous improvement through its unique, multi-tiered design; enables retailers and foodservice channels to market a selection of animal welfare labeled products; and informs consumers about the way animals are raised.

American Humane Certified

Dairy, eggs, chicken, turkey, beef, pork

American Humane Association created the first welfare certification program in the United States to ensure the humane treatment of farm animals. The American Humane Certified™ program provides third-party, independent verification that certified producers' care and handling of farm animals meet the science-based animal welfare standards of American Humane Association. The program provides ongoing outreach to farmers in the implementation of the best humane practices for animals.

Certified Humane

Dairy, eggs, chicken, turkey, beef, veal, lamb, goat, pork, bison, red deer

Certified Humane is a third-party welfare certification program administered by the nonprofit Humane Farm Animal Care, which is an international nonprofit certification organization dedicated to improving the lives of farm animals in food production from birth through slaughter. The program requires producers to meet detailed animal care standards set by a 43-member scientific committee.

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