



### Product Description

CEA-grown fresh and fresh-frozen leaf vegetables typically prepared cooked or raw. Includes, but is not limited to, field-grown spinach, kale, collards, and chard. Does not include lettuce, salad greens, or packaged salads.

### Mission

The mission of The Sustainability Consortium (TSC) is to improve the sustainability of products when they are made, purchased, and used, with a focus on manufacturers and the retail buyers who decide what products to carry in stores. The information in this document is drawn from our detailed research on known and potential social and environmental impacts across product life cycles. TSC acknowledges that other issues exist, but we have included here those that are most relevant to the decision making of retail buying teams and manufacturers. The topics are listed alphabetically for ease of reading; the order does not represent prioritization or other criteria.



### Managing the Supply Chain

#### Biodiversity

Certain global pollinator populations, including honey bees, other managed bees, and wild bees, are experiencing increased health and population challenges due to a diverse mix of factors including parasites, pathogens, predators, exposure to crop and bee protection products, habitat loss, lack of nesting sites, poor-quality forage, and queen issues. Growers can help to reduce these impacts by using integrated pest management, planting pollinator habitat on marginal land, and maintaining natural habitat around the farm. Supply chain partners can conduct research on the causes of pollinator decline and invest in prevention and mitigation practices.

#### Climate and Energy

The production of crops requires significant amounts of energy. The burning of fossil fuels to produce this energy, as well as the production and use of fertilizers, results in greenhouse gas emissions. Growers can reduce these impacts by measuring and tracking energy use, performing preventative maintenance on equipment, and replacing inefficient equipment. Additionally, growers can minimize impacts by implementing a nutrient management plan, using precision agriculture, which applies only the amount of fertilizer needed, or low-energy irrigation, and optimizing the size and efficiency of farm vehicles.

#### Fertilizer and Nutrients

Improper management and use of fertilizers can lead to local water pollution and release greenhouse gases during production. Growers should use a nutrient management plan to improve the efficiency of fertilizer and manure use for production. Growers can use precision agriculture, which applies only the amount of fertilizer needed. Where appropriate, growers could plant vegetative buffer zones around streams to help prevent water pollution via nutrient runoff.

## **Pesticides**

Improper use of pesticides can impact workers and nearby ecosystems and communities. If growers use pesticides, they should read the label and follow usage directions exactly. Workers should be trained and provided with protective gear to prevent exposure to themselves and the environment during handling or application. Consultation with experts can help determine the appropriate selections, forms, timing, and amounts of pesticides for pest problems.

## **Supply Chain Transparency**

Addressing many of the environmental and social challenges within an agriculture supply chain requires cooperation among companies at different stages of the supply chain. Manufacturers should determine the locations of farms that produce their supply and engage in initiatives that improve transparency, communication, and data sharing. Suppliers can work together to address common issues, such as energy use, water availability and quality, chemical use, worker health and safety, and labor rights.



## **Use of Resources**

### **Packaging**

Packaging design should be optimized to ensure that packaging performs its essential functions of containment and protection while minimizing use of materials, energy resources, and environmental impacts across the life cycle of the packaged product. Under-packaging and over-packaging can both lead to increased impacts. These impacts may be mitigated by using more energy-efficient manufacturing, creating packaging materials from renewable resources, designing packaging to be recyclable, and encouraging consumer recycling.



## **Workers and Communities**

### **Forced or Child Labor**

In some areas, there is a risk of forced or child labor, characterized by actions such as trafficking, withholding wages or documents, and restricting workers to the work site. Manufacturers should determine if and where forced or child labor occurs, and work with supply chain partners and experts to address these issues to ensure all workers have fair working conditions.

### **Smallholder Farmers**

Growers on small farms, called smallholder farmers, may have limited access to information, technology, and resources. Manufacturers should determine where their crops are grown, understand if they source from small farms, and work with organizations that help smallholder farmers overcome challenges and achieve greater and more sustainable results.

### **Workers**

Farm workers, especially women and migrants, may face unfair pay, discrimination, and limited freedoms. They may also be exposed to chemicals, dust, or other hazards. Manufacturers can implement programs to ensure they are sourcing from growers who protect labor rights and ensure the health and safety of their workers.