

Best Practices for Maintaining Quality in Seaweed

To effectively market seaweed products, producers will want to ensure they can provide buyers with a safe and high-quality product. While the regulations in place around seaweed processing and marketing address the safety concerns, they do not always address potential quality issues. While a high-quality product is always safe, a product that is safe for consumption may not necessarily be of the highest quality. This holds true for all food products. The following guide provides some best practices for handling seaweed products meant for human consumption to maintain quality. Note that the practices outlined are based on the experience of industry and early-stage research endeavors. Rigorous scientific evidence to support best practices are still being explored, and best practices may vary slightly for different species and final product forms.

Handling Seaweed

Temperature Controls - To prevent pathogen growth and deterioration of seaweeds, it is important to reduce its temperature to maintain product safe for consumption. It is best to harvest kelp when air temperatures are between 32°F and 50°F ([Maine Kelp Farming Manual](#)).

- » Cooling the seaweed too quickly can result in shock and mucus secretion in some species (i.e. sugar kelp).
- » When using ice, the ice should not come into direct contact with the seaweed.

Washing - Seaweed should be rinsed at harvest with filtered seawater to remove debris and marine life that could result in product deterioration.

Exposure - Seaweed should be covered to avoid excessive exposure to wind and sun to prevent premature drying, which could increase quality deterioration.

Storage/Transport - Seaweed should not be packed tightly into storage containers, but rather kept “fluffy” with room for air circulation. Keep in mind that the larger your storage containers, the more the weight of the kelp on top will compress the kelp on the bottom, which could result in quality deterioration.

Blanching - Seaweed should be stabilized by blanching or drying as soon as possible, ideally within 48 hours of harvest.



Photo Credit: The Moore Foundation - Lazy Pont Farms

Sanitation Practices

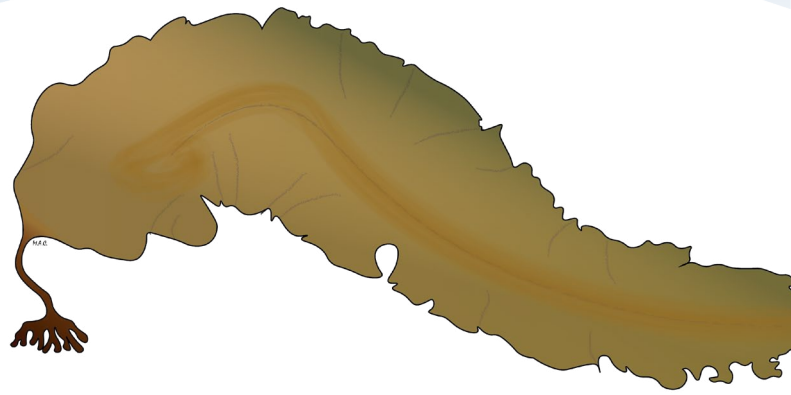
While Good Manufacturing Practices (GMP's) and Sanitation Control Procedures (SCP's) were developed and enforced in food production facilities to ensure safe production of foods, they can also play an important role in maintaining quality. Good sanitary practices will not only help to prevent growth and contamination of foods with harmful pathogens, but also help to control food spoilage organisms. These food spoilage organisms, while not harmful if consumed, can quickly degrade seaweed affecting the flavor and texture of the final product. Keep in mind that this is not always a bad thing and will depend on the specific products you are making. For example, fermented seaweed products may rely on the growth of lactic acid bacteria to grow and produce lactic acid as a means of preserving the product. Below are some sanitation practices to consider during seaweed production and harvest:

Sanitary Conditions

- » All post-harvest structures should be easy to clean and maintained in good sanitary condition. Easy to clean equipment is typically made of non-porous, corrosion resistant materials with limited cracks and crevices where bacteria can grow. All equipment and facilities should have good drainage to avoid standing water.
- » All post-harvest operations such as sorting, weighing, washing, draining, drying, and packing should be carried out in sanitary facilities that meet the GMP and sanitation requirements to prevent contamination. See [Seafood Guide #4](#).

Personnel Health and Hygiene

- » Personnel should be in good health when handling seaweed meant for human consumption. Personnel who are feeling ill and could potentially contaminate the product should not be handling the seaweed.
- » Personnel should maintain good hygiene while handling products and equipment and wash hands frequently.



Best Handling Practices for Safely Harvesting Seaweed as Food

1. Use clean gloves and utensils when harvesting.
2. Place seaweed in clean and sanitized food grade containers at harvest.
3. Place under refrigeration, $\leq 41^{\circ}\text{F}$, and ensure it is covered to prevent environmental contamination.
4. Practice Good Manufacturing Practices (GMP) guidelines in 21 CFR Part 117. See [Seafood Guide # 4](#) for more information.
5. Seaweed kept at $\leq 41^{\circ}\text{F}$ should be processed within 48 hours of harvest.
6. Seaweed kept at $\leq 38^{\circ}\text{F}$ should be processed within 72 hours of harvest.

The recommendations above are based on best available science and known practices for maintaining food safety, such as those outlined in the [FDA's Food Code](#).

Additional Resources

Additional resources on Seaweed food safety and handling are linked below:

- » [Seaweed Production and Processing in Connecticut](#)
- » [Seaweed Handling and Processing Guidelines for Alaska](#)