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Redefining Food and Agriculture

GROWING SEAWEEDS

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Seaweeds: An Introduction

Seaweeds are a group of edible algae. They are cholesterol-free, caffeine-free, low-fat, low-sugar foods that are rich in vitamins, minerals, protein and dietary fibers. Therefore, seaweeds are considered as superfoods.

What are Superfoods?

Superfoods are multifunctional foods that contribute towards consumer's health and wellness. They are rich in antioxidants and are consumed to prevent modern-day life style diseases such as heart attack, diabetes, cancer and osteoporosis. Seaweeds are rich in antioxidants that help us to stay fit and young. Antioxidants are present in seaweeds in the form of vitamins, minerals, enzymes and polyphenolic compounds.

Antioxidants in Seaweeds

Major antioxidant vitamins present in seaweeds are Vitamin C and Vitamin E. Major antioxidant minerals in seaweeds are Zinc, and Manganese. Manganese is required by the body as a co-factor for the antioxidant enzyme, superoxide dismutase.

Growing Seaweeds: An Introduction

Seaweeds are a group of marine algae that are grown in water. So the most essential requirement for seaweed cultivation is good quality water. Depending on the type of seaweeds, their cultivation requirements may differ up to some extent.

Types of Seaweeds

There are three types of Seaweeds:

1. Red Algae (Rhodophyta)
2. Brown Algae (Phaeophyta)
3. Green Algae (Chlorophyta)

However green algae are the most common seaweeds cultivated for edible purposes

Growing Green Seaweeds

Minimum Requirements: Green algae contain chlorophylls and require sun light for food synthesis. So for growing green seaweeds, sunny location may be preferred. Open cultivation is practiced for growing seaweeds on a large scale.

Major Producers of Seaweeds

Seaweed farming is common in many Southeast Asian countries, Canada, Spain, some European countries and the United States of America. Different methods of cultivation are practiced in different countries. Hang method of cultivation where seaweed cuttings are hanged into the water from a bamboo plot fixed above the seaweed farm is common in some South East Asian countries. Generally, net farming and rope farming methods of seaweed cultivation is practiced commercially.

Home Scale Growing of Seaweeds

Seaweeds may be grown naturally in shallow or deep water fields situated near the sea shores. Major advantage of this cultivation method is that naturally-existing seawater nutrients may be made available to the growing seaweeds by pumping the seawater into the farm. Seaweeds may also be grown in artificially created ponds or tanks. In fact, pond culture and tank cultivation are practiced for small scale or home scale growing of seaweeds.

Commercial Production of Seaweeds: Major Steps

- Selection of Farm Site
- Construction of Seaweed Farm
    1. Net Method
    2. Rope Method
- Planting Cuttings
- Care of Growing Seaweeds
- Harvesting

Selection of Farm Site

Seaweeds are delicate plant-like organisms and therefore, site for seaweed farming should be selected according to the nature of the seaweeds. Seaweed farm should have good quality water (with required water salinity), good water movement, and required depth of water. Saline sea water is the best suited for seaweed growing. Some seaweeds may be grown by using fresh water also. Optimum water temperature is between 25°C and 30°C. The site should be protected from strong winds and water currents. Areas with heavy water currents are not suitable for seaweed farming. Farm bottom should be clean, and free of other sea vegetation. Strong, stable, sandy farm bottom is preferred for seaweed cultivation.

Construction of Seaweed Farm by Using Nets

For constructing a small unit, first of all, four wooden stakes are installed into the farm bottom at the four corners of the farm. A polyethylene net of appropriate size is stretched tightly and each corner of which is tied to each of the stakes by using plastic ties. Net is fixed at least two feet above from the farm bottom horizontally. For constructing a large farm, such small units are replicated all over the site.

Construction of Seaweed Farm by Using Durable Ropes

Rows of wooden stakes are installed into the farm bottom at convenient length. Recommended spacing is one meter within the rows and 10 meter between the rows. Durable polyethylene ropes are tied to both ends of the wooden stakes. The rope should be fixed at least one meter above the farm bottom.

Planting Seaweeds Cuttings

Healthy cuttings are taken from the central part or the base of the mother seaweed. After cleaning the cuttings, they are introduced into farm by tying them on the nets/ ropes with soft plastic ties. One cutting is planted at each planting site of the ropes/ nets. In net method, each intersection of the net may be used as a planting site. In rope method, 20–25 cm space is left between two cuttings on the rope. After introducing the cuttings into the seaweed farm, they are left undisturbed to grow until ready to harvest. Seaweeds grow at a rapid rate and first crop can be harvested within two months of introducing the cuttings into the farm.

Care of Growing Seaweeds

Seaweeds are very easy to grow. Not much care is needed once cuttings are established in the farm. Water quality must be checked time to time to detect any indications of water pollution.

Harvesting

Multiple harvests are possible. Surface canopy of a full grown seaweed farm is harvested by using boats and seaweed-pulling equipments. Basal portion of the seaweeds is left for regrowth. Harvested seaweeds are cleaned thoroughly and dried in the sun for 2 to 3 days (depending on the climate). Spread the wet seaweeds in a clean, hygienic drying site to avoid contamination.

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