Micro Greens: A Profitable Journey to Health and Nutrition

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Introduction

Micro greens are small, immature seedlings of vegetables and herbs, harvested when their cotyledons (seed leaves) are fully developed, and the first set of true leaves begins to emerge. Typically measuring between 1 to 3 inches (2.5–7.5 cm) in height, they are ready for harvest within 7 to 14 days after germination, depending on the crop variety and environmental conditions. Structurally, micro greens consist of three main parts: a central stem, two cotyledon leaves, and the initial pair of developing true leaves.

Popular micro greens include spinach, mustard, buckwheat, bull's blood beet, celery, cilantro, amaranth, golden pea, basil, mizuna, pepper cress, popcorn shoots, red mustard, red beet, red cabbage, sorrel, red sorrel, lettuce, kale and rapini. These micro greens are harvested by cutting along the stem with the attached cotyledons or seed leaves using scissors. If left unharvested for too long, they grow rapidly, losing their vibrant color and distinct flavor.

Micro greens differ from sprouts, as sprouts are consumed along with their germinated seeds and embryonic roots, whereas micro greens are harvested above the root. They are also distinct from baby greens, being much smaller in size and positioned between the sprouting and baby green stages in their growth cycle. Due to their vibrant appearance, micro greens are sometimes referred to as "vegetable confetti."

Nutritional Profile of Micro greens

Micro greens are packed with higher levels of micronutrients, particularly vitamins and minerals, compared to their fully grown counterparts. They are rich in essential minerals such as zinc (Zn), iron (Fe), calcium (Ca), phosphorus (P), and sulfur (S), as well as vitamins A, C, E, and K, though their exact composition varies by micro green type. Brightly colored micro greens tend to be more nutrient-dense than lighter ones. Additionally, they contain more protein, iron, and zinc than sprouts. Fascinatingly, Micro greens also have very low concentrations of anti-nutritional compounds like nitrate (NO_3^-) and nitrite (NO_2^-), making them a highly beneficial addition to the diet.

Growing condition of micro greens

It can be cultivated in both indoor and outdoor environments. However, the proper environmental conditions are necessary for outdoor cultivation. Micro greens may be better grown outside in a greenhouse, although this can be quite costly for a farmer. It is appropriate for growing under indoor cultivation.

Micro greens can be grown in different mediums like soil, tissue paper, hydroponics, etc. But generally, a mixture of Coco-peat, vermiculite and perlite can be used for growing micro greens in a 5:2:1 ratio respectively. Seeds can be sown around the year as per the consumer's requirement. For sowing of seeds special seed treatment is not necessary. The media should be used repeatedly for 3 to 4 times.

Harvesting and Packaging of micro greens

Micro greens can be harvested 7–14 days after germination in tropical climates, while in colder, temperate climates; they may take 14–28 days, depending on the crop and environmental conditions. They can be gathered by cutting along the stem with scissors, including the attached seed leaves. Micro greens are typically packed in breathable containers such as clamshell boxes, biodegradable trays, or perforated plastic bags to maintain freshness and prevent excess moisture buildup. It can also pack in eco-friendly packaging materials like compostable bags or paper-based containers to enhance sustainability.

Micro greens Business: A Profitable and Sustainable Opportunity

Growing micro greens as a business offers high profit potential with low startup costs, as they grow quickly (7–28 days) and require minimal space, making them ideal for urban farming. They can be cultivated year-round in controlled environments, ensuring a steady income. With increasing demand from restaurants, health-conscious consumers, and organic markets, micro greens provide a lucrative opportunity.

They are also sustainable, requiring less water and fewer resources than traditional crops. Their fast growth and high nutritional value make them a sought-after product, allowing small-scale growers to compete in the market effectively.

Table 1. Difference between micro green, sprouts and matured vegetables

Particulars	Micro greens	Sprouts	Matured vegetables
			
Harvesting time	less than 14 days	Germination after 2-3 days	Harvesting time (greater than 1 month)
Growing condition	Require sunlight and moisture	Grow in dark, moist and ventilated environmental condition	Require proper sunlight
Profile	Provide flavor and texture	No flavor and texture	Provide flavor and texture
Edible portion	Cotyledon, True leaves	Leaves, root, stem	Fruits, Leaves, root, stem
Status of Nutrients	Rich in vitamins C, E, K and antioxidants	Rich in nutrients	Low nutritional value compared to micro greens
Consumption type	consumed as raw	consumed as steamed	consumed as raw and cooked
Contaminants	Pesticide and Fertilizer free	Pesticide and Fertilizer free	Pesticide and Fertilizer used

Reference

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