

Mungbean Sprout Production

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Introduction

Mungbean is an important legume crop extensively cultivated in many developing countries. The mungbean sprout is a popular vegetable in China and Southeast Asia and is often used in meals (Fig. 1). However, mungbean sprout is not well known in South Asia, Africa and most other mungbean-producing countries where a vast potential for its commercial production, consumption and export exists.



Fig. 1. Tasty sprouts

Mungbean sprout production is a simple germination process that requires neither sunlight nor soil; it has no season limitations. The process is completed in just 4 to 8 days. The sprout production is extremely inexpensive, requiring only mungbean seeds, sprouting containers and water as inputs. It can, therefore, be practiced even by poor farmers in augmenting their meager resources.

Mungbean sprouts serve as a good alternative vegetable and source of income. This is especially true during the hot wet summer and rainy seasons when there is acute shortage of fresh vegetables, or in the event of crop losses.

Seed Quality

Seed quality is important. Choose premium grade mungbean seeds of medium size and smooth seed

coats. Remove broken and shriveled seeds. Be sure that seeds are not treated with fungicides or insecticides.

Small hard-seeded mungbean often has poor germination and weak sprout growth. Large-seeded mungbean is also not so economical since they result in lesser sprouts.

Store seeds under cool and dry conditions to ensure high seed germination and sprout vigor. Beans stored under 0°C and 85% relative humidity produce good quality sprouts. Seeds with 15% moisture can be safely stored for one year at 10°C or below.

Washing

Wash the seeds in fresh water, stirring vigorously 3-4 times to allow the empty, broken and light seeds to float (Fig. 2). Remove the floating seeds and debris. Repeat washing using fresh water every time until the beans are thoroughly cleaned.

In Taiwan, earthenware and stone jars are used for sprouting seeds (Fig. 3). These containers have holes near the bottom to drain out excess water.



Fig 2. Washing seeds



Fig 3. Stone jars

For larger quantity of seeds, use germination tanks of convenient size, preferably lined with tiles (Fig. 4). Wash containers thoroughly with hot water (80°C) before use. Big plastic containers will also do.

Arrange and perform all sprouting operations in a sheltered place to protect the sprouts from light. Darkness ensures bright white and long mungbean sprouts. Moderate temperatures (23-28°C) and high humidity (85-90%) in the sprouting room help produce good quality crispy sprouts.

Soaking

After washing, soak the bean in tap water at room temperature for eight hours. In the cool season, use warm water (32°C) for soaking.

Put the soaked beans in containers. Do not fill the containers to more than 75% of their capacity to avoid overflowing when the seeds sprout.

Apply a fine water spray or mist uniformly over the seeds at 3-4 hour intervals during the hot season and 6-7 hours during the cool season. Apply just enough water to keep the sprouts continuously moist without drying. An overhead water pipe line fitted with taps and movable water pipe or an automatic sprinkler system connected to a timer is very convenient for watering (Fig. 4).



Fig. 4. Automatic sprinkler system with tile-lined germination tank

Sprouting

Beans begin to swell after eight hours and begin germinating after one day (Fig. 5). Seeds germinate fully 2-3 days after soaking with 1-2 cm long sprouts.



Fig. 5. Growth rate of sprouts

Sprouts attain a length of about 5 cm or more in 4-5 days of soaking. In most countries, the standard marketable sprouts are at least 5 cm long. Sprouts grow farther, reaching a length of 8-9 cm after 6-8 days of soaking.

Consumer preferences determine the size of sprouts produced. Relative sprout lengths at different stages provide a wide choice.

Harvesting

Transfer sprouts of marketable size from the sprouting containers to drums, troughs or buckets for washing (Fig. 6). Wash and pack sprouts during early morning to avoid spoilage by high temperature after sunrise. Remove all broken roots, sprout pieces and other debris while washing.

Wash with fresh cold water 3-4 times to separate the seed coats still attached to the sprouts (Fig. 7). Remove the sprouts from the drum using a basket or sieve.



Fig. 6 and 7. Sprouts are harvested and cleaned

Packing

Use plastic bags to pack the sprouts for the market (Fig. 8). A kilogram of dry seed yields around 8-9 kilograms of sprouts.

Vendors in the local market usually sell the sprouts in open containers, but sprouts kept this way are likely to deteriorate quickly. Well-developed market centers and supermarkets use special packages laminated with cellophane to prevent drying and quick deterioration (Fig. 9). To enhance shelf life, keep the sprouts refrigerated.



Fig. 8 and 9. Sprouts are packed for markets