

ORGANIC GINGER



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Organic Ginger: An Introduction

Scientific name of Ginger is *Zingiber officinale*. Ginger is one of the important spice crops used for its aromatic and medicinal properties. It belongs to the Zingiberaceae family and believed to be a native of south-east Asia

Commercial Significance

Ginger is commercially sold in rhizome state. The different forms of ginger available in the market are raw ginger, dry ginger, ginger powder, ginger oil, ginger oleoresin, ginger candy, bleached dry ginger, ginger beer, brined ginger etc. Ginger is majorly produced by India, China, Nigeria, Thailand, Bangladesh, Indonesia etc. The United Kingdom, the United States of America, Saudi Arabia and Japan are mass importers of ginger. Australia is the world leader in value added production of ginger

Climate and Soil

Ginger requires warm and humid climate for growth. Moderate rainfall during sowing time till sprouting of rhizomes is essential for successful cultivation. Well drained, sandy or clay loam soils are best for ginger cultivation. Ginger is an exhaustive crop, thereby it cannot be grown in the same field continuously



Intercropping

Ginger is generally grown as an intercrop or mixed crop with shade giving plants like banana, pigeon pea, cluster bean etc. Mixed cropping of ginger is also done with coconut, coffee and oranges. High altitude regions of India practice intercropping of ginger with tomato and chili

Crop Rotation

Irrigated systems support crop rotation of ginger with plantain, turmeric, garlic, onion, chilies, sugarcane, ragi, groundnut etc. Rainfed conditions limit ginger cultivation to once in 4 years, in rotation with tapioca, sweet potato, yam, chili, dry paddy. Inclusion of a leguminous crop with ginger in rotation is required due to the crop's resource exhaustive nature. Two rotations recommended are:

- Ginger-banana-legume
- Ginger-vegetable-legume

Land Preparation

A buffer zone of 25-50 feet is needed separating conventional farms from the organic field. Minimal tillage operations are to be followed while preparing land for cultivation. Beds of 15 cm height, 1 m width and convenient length need to be prepared at 50 cm spacing. Solarization of the beds is essential as a preventive measure

Propagation

Rhizomes are used as propagation medium. Seed rhizomes from organically certified sources should be used for production. Care should be taken to identify disease free specimens. If possible, disease and pest free varieties or hardy varieties should be selected as mother stock. Chemical treatment of rhizomes is prohibited.

Varieties of Organic Ginger

Some of the best varieties suitable for organic farming are:

1. Rio-De Janeiro
2. Wynad Local
3. Maran
4. Narasapattam
5. Himachal
6. Ernad
7. Chemad



Planting

Neem cake (25g) should be applied to the seed beds before planting of rhizomes. Rhizome bits of 15 g weight should be planted at a spacing of 20cm x 20cm to 25cm x 25cm and a depth of 4-5 cm with at least one viable healthy bud facing upwards. About 600-1000 kg of seed-rhizomes are required for planting in 1 acre of land. Rhizomes should be treated on solution of Pseudomonas (20g/liter of water) for half an hour and shade dried before planting. Irrigation of the beds should immediately follow sowing. Mulching is done as protection against sun, heavy rains. FYM can be also used as a mulch. Cluster beans, pigeon pea or castor seeds are sown on the irrigation channels near the bed corners, for shade purpose.

Irrigation

Proper drainage, particularly for the inner rows is essential. The irrigation should be scheduled at 4-19 days duration, depending on soil requirements and climatic parameters

Cultural Practices

Mulching is an important operation in ginger production. Along with weed control, soil and water conservation, mulching also provides the necessary shade for the growing crop. Mulching with green leaves is done thrice, immediately after planting (4-5 t/acre), 40th day after planting (2 t/acre) and 90th day after planting (2 t/acre). The second and third time of mulching corresponds with the weeding, hoeing and earthing up schedule. Shoot borer control through use of Lantana camara and Vitex negundo leaves have been recorded

Manuring

Ginger, being an exhaustive crop demands heavy manuring. A basal dose of compost (2.5-3 t/acre) is recommend while planting of rhizomes in the pits. An additional application of neem cake (800 kg/acre) is also good for the crop

Pest Management: Shoot Borers

Control measures for Shoot borer (*Conogethes punctiferalis*/ *Dicrhosis punctiferalis*) are:

1. Regular field surveillance
2. Follow up of phyto-sanitary measures
3. Hand picking of caterpillars
4. Growing neem trees for its repellent effect
5. Mulching with *Lantana camara* leaves at time of planting

Pest Management: Nematodes

Control measures for Nematodes: Application of neem cake (1t/ha) twice, during planting and 45 days after planting

Pest Management: White Grubs

Control measures for White grub (*Holotrichia setticolis*)

1. Tillage of fields particularly during summer
2. Solarization of fields
3. Setting up of bird perches, other bird attractants
4. Setting up of light traps
5. Handpicking of infested leaves and grubs



Pest Management: Soft Rot

Control measures for Soft rot or rhizome rot (*Pythium aphanidermatum* and *Pythium myriotylum*)

1. Selection of seed-rhizomes from disease free areas
2. Ensure proper drainage of fields
3. Sterilization of the soil by solarization
4. Sanitation of fields by burning of infected plants
5. Removal of affected clumps with soil
6. Application of *Trichoderma viride* at the time of planting, mixed with FYM
7. Restricted use of Bordeaux mixture (1%) in disease prone areas



Disease Management: Bacterial Wilt

Control measures for Bacterial wilt (*Ralstonia solanacearum*/ *Pseudomonas solanacearum*)

1. Selection of disease free seed-rhizome
2. Crop rotation with maize, cotton, soybean

Harvesting

The crop matures for harvesting within 8-10 months, depending on the variety. The symptoms of maturity are the yellowing of leaves and drying up of pseudo stems. The harvested ginger is taken away for further processing. Here, the fibrous roots attached to the rhizomes are trimmed off and cleaned with water. Overnight soaking of the rhizomes is done before scrapping off outer skin of the rhizomes. Later, the skinned rhizomes are sun dried for a week during which time all outer skin is removed. This is called 'bleached ginger'

Yield: Average green ginger yield recorded is about 6-10 t/acre. The recovery rate for dry ginger is 16-25%

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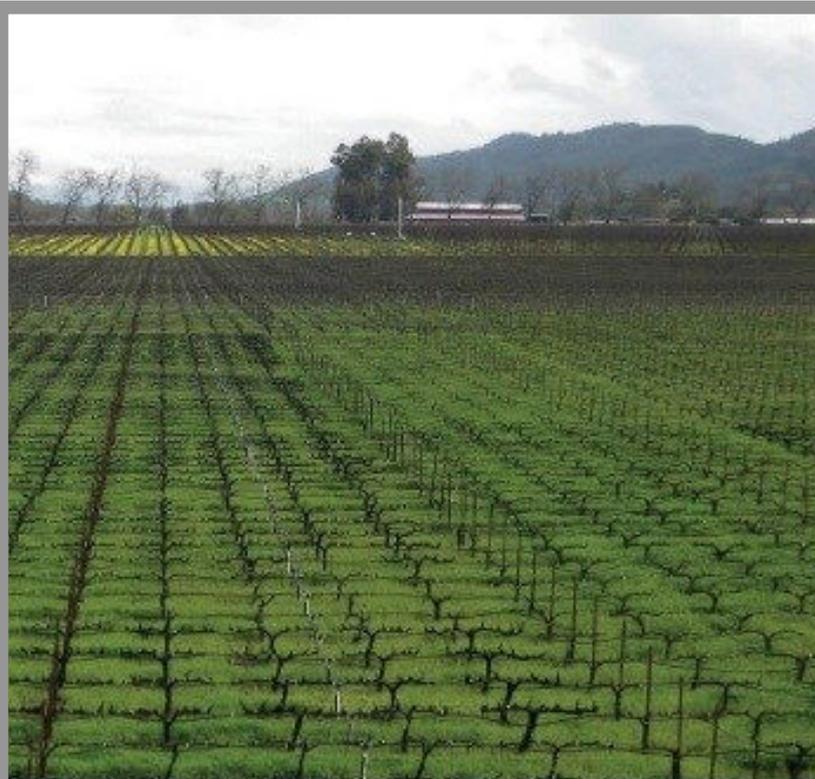
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