ORGANIC PRODUCTION OF GINGER

Ginger (*Zingiber officinale*) is one of the oldiest spices with a distinct flavour and pungency. India is the largest grower of ginger and also the largest producer of dry ginger in the world. In India North Eastern states are important ginger growing states.

Climate and soil:

Ginger grows well in warm and humid climate. It is cultivated up to 1,500m above mean sea level. Moderate rainfall at sowing till the rhizomes sprout, fairly and well-distributed showers during the growing period and dry weather about one month before harvesting are optimum requirements for its successful cultivation. Early planting helps in better growth and development of rhizomes and higher yields.

A rich soil with good drainage and aeration is ideal for its cultivation. It grows well in sandy or clayey loam, red loam and lateritic loam soils. Drainage is absolutely necessary for the prevention of disease incidence. Ginger should not be grown in the same site year after year.

Varieties:

High yielding varieties like Nadia, Varada, Bholse, Gorubathan. Thinglaidon may be tried. Nadia variety is well adopted in most of the states.

Planting:

The land should be ploughed 4-5 times to bring the soil into fine tilth. Beds of 1m width, 15cm height and 3m length are prepared at 40cm spacing. About 2000nos.of beds of 3 m x 1m size are prepared in one hectare land. Being irrigated crops, ridges are formed 40cm apart. The optimum spacing is 30cm x 30cm under bed system of planting. A bed of 3m x 1m can accommodate 40 plants. Crop can be planted on the onset of monsoon i.e. April-May.

Plant nutrition:

No synthetic chemical fertilizers, pesticides or fungicides are allowed under organic farming. Farmyard manure may be applied @ 10-12 (fresh weight basis) t/ha along with vermicompost @ 5 t/ha and mulching with green leaves @ 12-15 t/ha at 45 days intervals. Supplementation of oil cakes like neem cake (2 t/ha), composted coir pith (5 t/ha) and suitable microbial cultures of *Azospirillum* and phosphate solubilizing bacteria will improve the fertility and yield. Application of about 2t neemcake/ ha is found to be beneficial.

Plant protection:

Within the row, seed rhizome (25-30 g) mixed with FYM/ Compost inoculated with *Trichoderma harzianum* @ 5-10 g/kg is planted in March-April. 100-200 kg of *Trichoderma/ ha* (2000 beds of 3x1 size) is the need for controlling softrot disease caused by *Pythium* sp.

Shoot borer is the major pest infesting Ginger. Integrated strategy involving pruning and destroying freshly infested shoots during July-August (at fortnightly intervals) and spraying Neemgold 0.5 % or neem oil 0.5 % during September-October (at 21 days intervals) or Dipel (formulation of *Bacillus thuringiensis*) 0.3% during July to October is effective against the shoot borer.

Rhizome rot disease is a major disease of Ginger. Selection of healthy rhizomes, soil solaraization and incorporation of *Trichoderma*, seed treatment and soil application of biocontrol agent like *Trichoderma* and *Pseudomonas* at the sowing time and at regular intervals keeps the disease in check.

To control other foliar diseases spraying of Bordeaux mixture 1 % may be done restricting the quantity to 8 kg/ ha.

Fig 1: Bacterial wilt in Ginger

Fig 2: Bacterial wilt in Ginger

Fig 3: Ginger soft rot and Leaf spot

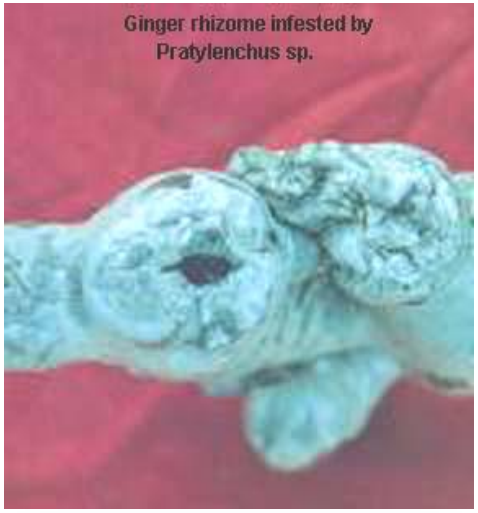
Harvesting and Yield:

It is ready for harvesting in about 8 months, depending on variety, when the leaves turn yellow and start drying. The average yield is 15-30 tonnes/ha. If the crop is for green ginger, it is harvested in 5-6 months. Rhizomes are washed thoroughly in water 2 or 3 times to remove the soil and dirt and sun-dried for a day.

Storage of Seed Rhizomes:

For this purpose, healthy and disease free clumps are marked in the field when the crop is 6-8 months old and still green. The seed are stored in pits of convenient size in sheds. The walls of the pit may be coated with cow dung paste. The seed rhizomes are placed in pits in layers along with well dried sand/ saw dust (put one layer of seed rhizomes, then put 2 cm thick layer of sand/ saw dust). Sufficient gap should be left at the top of the pits for adequate aeration. The pits can be covered with wooden planks with one or two small openings for aeration. The seed rhizomes in the pits may be checked once in about 21 days by removing the plank and shriveled and disease affected rhizomes are to be removed.

The seed rhizomes can be stored in pits dug in the ground under shade. Storage in saw dust + dried leaves of *Strychnos nuxvomica* also prevents infestation of rhizome scale.



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