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Redefining Food and Agriculture

ORGANIC PRODUCTION OF BLACK PEPPER

INDEX

Organic Black Pepper: An Introduction

Scientific name of Black Pepper is Piper nigrum. Black pepper is one of the most important spice crops in the world. India, mainly in Kerala and other southern states of India, is the leading producer of black pepper in the world.

Isolation as Main Requirement

Organic cultivation focuses basically on isolation. Pepper, when grown as an intercrop should still follow the conventions. Therefore, a 25 m wide isolation belt is to be made around the conventional production area of the plantation. The produce from this isolated belt is not to be considered as 'organic'. In the case of sloppy terrain, care has to be taken to divert runoff water and drift from neighboring farms

Conversion Period Requirement

An existing plantation requires the standard 3 years conversion period before organic farming. In cases of replanted areas or newly planted areas, wherein no chemicals have been used in previous cropping, the first yield can be considered as 'organic'. In case of virgin lands or farms with documentation of zero chemical usage, the conversion period can be relaxed. It is always better to follow organic production in the entire farm, but it can be phased in case of huge tracts of land.

Planting Materials

Runner shoots or aerial shoots are used for propagation. They must be collected from organically grown mother vines. However, initially the cutting can be collected from conventional plantations in the absence of a purely organic source. All the root cutting management and nursery techniques should be of organic production standards. Rapid multiplication using bamboo splits or bed nursery techniques can be used for production of rooted planting material. Soil solarization should be followed, followed by inoculation of soil with cultures of VAM and Trichoderma (250 g media x 25kg compost). Vermiwash may be sprayed on the vines (50 ml per unit) for enhancing growth. On any sign of leaf rot (Rhizoctonia solani) or basal wilt (Sclerotium rolfsi), apply Bordeaux mixture 1% as preventive measure. Crushed neem can be used to prevent nematode problems

Land Preparation

Proper soil and water conservation practices are to be taken up at the time of land preparation itself. Care should be taken to not disturb the soil too deep

Planting

Living standards are to be chosen, with the intension of biodiversity. Also, it should not encourage more pests and diseases to the main crop. The use of Erythrina sp. is therefore not encouraged due to the possible presence of root knot nematodes in their growing regions. Two-three cuttings per pit is recommended. The application of 2kg compost or rotten cow dung mixed with 125 g rock phosphate can be used as a basal dose at the time of planting of cuttings

Cultural Practices

Tying of the cuttings to the standards have to be done in a way, providing protection from hot sun. Shade regulation by topping off is standard practice followed. Excessive shade during flowering and fruiting will likely encourage pest infestation. The lopping can be utilized for mulching purposes also. During any cultural activity, the base of the cuttings should not be disturbed. Cover crops like Mimosa invisa, Calapagonium mucunoides can be used to prevent soil erosion during the rainy seasons

Manuring

Compost can be applied at the rate of 20 kg/vine/year during May-June. This can also be partially substituted with vermicompost, which is required only in half the above mentioned quantity. Wood ash can be used in cases of potash deficiency. Crushed neem seed at the rate of 2 kg/vine/year can be applied in areas infested with nematodes. Compost application alternative to farm yard manure is recommended

Disease Management

Foot Rot (Phytophthora capsici)

- Regular adoption of phyto-sanitary measures is necessary
- Excessive soil disturbance through tillage operations is to be avoided.
- Proper drainage is to be ensured
- Application of Trichoderma at the rate of 500 g/vine/year is also recommended here

Pollu disease (Colletotrichum gloeosporioides)

- Restricted spraying of Bordeaux mixture 1% on site of infection is recommended

Slow wilt disease

- Application of crushed neem seed at the rate of 2 kg/vine/year is useful to control this disease

Pest Management

Pollu beetle (Longitarsus nigripennis)

- Spraying neem oil at the rate of 400 ml per 100 liters of water or any other neem preparations may help control this pest

Leaf gall thrips (Liothrips karnyl)

- Spraying neem oil at the rate of 400 ml per 100 liters of water or any other neem preparations is recommended

Scale insect

- Tobacco decoction may be used to control this pest

Nematodes

- Marigold (Tagetussp.) may be grown as a trap plant
- At the flowering stage, they can be uprooted and root portion burnt off

Harvest Operations

During harvest, the spikes are hand-picked when the color changes to bright orange red. During harvesting and processing also, no chemicals should be used. The separated berries are spread on a clean concrete floor and dried in sun for one week, till they become crispy. For preparation of black pepper, the spikes are harvested at greenish yellow color stage

Post Harvest Operations

After cleaning, harvested peppers are transferred to perforated aluminum vessels and dipped in boiling water for a minute. Then, it is dried and spread on the floor for sun -drying. The blanching process speeds up the drying of berries. It also results in uniform black coloration of dry pepper. For preparation of white pepper, well mature spikes (3-4 berries ripe) are harvested. The mature berries are covered in clean gunny bags and kept for 1-2 days in order to hasten the ripening process. Afterwards, the berries are separated from spikes. The berries are filled again into clean gunny bags of 50 kg capacity. Then, they are immersed in a canal with clean, uncontaminated water for 6-9 days till outer skin fermentation. Afterwards, the berries are emptied into a half filled tank. The skin is removed from the berries and damaged ones removed. The remaining berries are dried immediately. Once completely dried (uniformed), to a moisture level of 11%, it may be stored in clean bags or bins for future use.

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