

Black Pepper

Black pepper called the "king of spices" is one of the oldest spices to mankind. It is a perennial vine grown for its berries extensively used as a spice and in medicine. India is one of the major producers, consumers, and exporters of black pepper in the world. Black pepper is cultivated to a large extent in Kerala, Karnataka, Tamil Nadu, and Maharashtra whereas Kerala and Karnataka account for a major portion of the production of black pepper in the country.



GROW WITH KNOWLEDGE

CLIMATE AND SOIL: Black pepper is a plant of humid tropics requiring high rainfall and humidity and it required a Hot & humid climate and temperatures are around 28°C is ideal for its cultivation the optimum soil temperature for root growth is 26 – 28°C and the annual rainfall of 1250-2000 mm is considered ideal for black pepper. Black pepper can be grown in a wide range of soils with a pH of 5.5 to 6.5, though in its natural habitat. Application of lime or dolomite @ 500 g/vine in April-May during alternate years is recommended under highly acid soil conditions.

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PLANTING: Pits of 50 cubic centimetres at a distance of 30 cm away from the base, on the north, the eastern, or north-eastern side of the supporting tree are taken with the onset of monsoon. The pits are filled with a mixture of topsoil, farmyard manure @ 5 kg/pit, and 150 g rock phosphate and Neem cake @ 1 kg, Trichoderma harzianum @ 50 g also can also be mixed at the time of planting. With the onset of the monsoon, 2-3 rooted cuttings of black pepper are planted individually in the pits. Adequate mulch with green leaf or organic matter should be applied towards the end of the northeast monsoon. The base of the vines should not be disturbed to avoid root damage.

PRUNING TRAINING & SHADE MANAGEMENT: The freshly emerging runner shoots should not be allowed to trail on the ground. They must either be tied back to the standard or pruned off. The young vines should be protected from the hot sun during summer by providing artificial shade. Regulation of shade by lopping the branches of standards is necessary for providing optimum light to the vines and for enabling the standards to grow straight. Lopping may be done twice (during June and September) in a year as Excessive shading during flowering and fruiting can encourage pest infestations.

IRRIGATION SCHEDULING: Irrigating black pepper vines during summer (March 15th to May 15th) at fortnightly intervals can enhance productivity by 90 to 100% compared to unirrigated crops. Vines should be irrigated at the basin through the pipe and approximately 50 litres per vine is recommended (15 years and above). This can be reduced to 40 litres per vine for the 11-15 years age group and 30 litres for vines aged between 5-10 years. It is noticed that the spiking remains uniform in the irrigated crop and Spike length is longer in the irrigated crop. As the crop is highly sensitive to waterlogging, adequate drainage should be provided to reduce water stagnation.



FERTILIZER SCHEDULING OF MOSAIC PRODUCTS



**CATKIN / SPIKE
INITIATION &
FLOWERING STAGE**

MAY - JUNE



Mosaic Liquid
Boron @ 2 mL/L

Mosaic Liquid
Boron @ 2 mL/L
+
Seaweed extract 3mL/L



**PRE-MONSOON
(FLOWERING & FRUIT
SETTING) STAGE**

MAY - JUNE



Mosaic DAP @ 45 g/vine

Mosaic MOP @ 100 g/vine

Mosaic K-Mag @ 100 g/vine

Mosaic Liquid Zinc @2 mL/L



**POST MONSOON
(FRUIT DEVELOPMENT &
MATURITY) STAGE**

AUGUST-SEPTEMBER



Mosaic DAP @ 45 g/vine

Mosaic MOP @ 100 g/vine

Mosaic K-Mag @ 100 g/vine

Mosaic Liquid Zinc @2 mL/L

BENEFITS

Boron supports in flowering
& berry setting

Healthy root and shoot growth,

Improves chlorophyll content
and photosynthesis,

Synthesis of fats and oils,

Improves the number of
spikes/vine and berries / spike

Maintains water balance

Translocation of photosynthates
from leaves

Helps in proper nutrient uptake.

Provides tolerance to pest,
disease and adverse climatic
conditions.

Improves protein, amino acid,
oleoresin, and piperine content.







Helps in proper berry development

Improves berry size,
yield, and quality.

Improves soil and plant health.

Along with the recommended chemical fertilizers, organic manures in the form of cattle manure or compost should be given @ 10 kg/vine during May. Neem cake @ 1 kg/vine should also be applied. Application of biofertilizers like Azospirillum @ 50g/vine can help in reducing the recommended dose of N by up to 50%.

NUTRIENT DEFICIENCY

Nutrients	Deficiency Symptoms	Affected Area	Nutrition Required
Phosphorus	Bronzing of older leaves accompanied by necrosis of leaf tips and margins	Stunted growth, reduced berry setting, and yield.	 <p>Apply a recommended dose of DAP during pre and post-monsoon fertilizer application.</p>
Potassium	Browning and necrosis of older leaf tips and margins, symptoms later spread to younger leaves.	Stunted growth, reduction in the number of spikes, berry weight, and spike yield.	 <p>Apply a recommended dose of MOP during pre and post-monsoon fertilizer application.</p>
Magnesium	Interveneal chlorosis of immature and recently matured leaves. Necrotic lesions develop within the chlorotic areas.	Stunted growth, leaf area, reduced number of spikes	 <p>Apply Mosaic K-Mag @ 50 g each at pre-and post-monsoon fertilizer application.</p>
Sulphur	Late-stage chlorosis in younger leaves, turning to bright yellow color in interveneal areas.	Premature leaves fall and dieback of growing tips.	 <p>Apply Mosaic K-Mag @ 50 g each at pre-and post-monsoon fertilizer application.</p>
Zinc	Interveneal chlorosis of younger leaves, leaf margins pucker.	Reduction in the petiole, leaf size, internodal distance especially on younger plants	 <p>Foliar application of Mosaic Liquid Zinc @ 2mL/L, repeat application at 15 days interval if required.</p>
Boron	Young leaves become small and malformed.	New shoot and root growth will be affected. Reduced number of spikes/plant.	 <p>Foliar application of Mosaic Liquid Boron @ 2mL/L, repeat application at 15 days interval if required.</p>