

years of age and more is 50:50:150 g NPK/vine/year in two split doses at the onset of South west and North East monsoon (Approximately 110 g urea, 250 g muriate of potash and 250 g. rock phosphate / vine/year). Give one third of the dose for 1 year old vines and two third for 2 year old vines.

In *Phytophthora* foot rot prone areas, soil drenching and prophylactic spraying of vines can be done using the biocontrol agent *Pseudomonas fluorescens* 2% (20 g /litre).

As a chemical control measure, after the receipt of a few showers, drench the base of vines using 5-10 litres of 0.2% (2g/ litre) COC in a radius of 50 cm around the vines. Spraying of vines may be done using 1% Bordeaux mixture after adding any sticker or 0.2 % COC. In the initial phase of an infection, use 0.3% of potassium phosphonate for drenching and spraying. Repeat the above operations before North East monsoon. The above plant protection operations will control anthracnose / fungal pollu disease also. In case of a severe foot rot epidemic, replanting has to be undertaken leaving one year interval after eradication of all the dead and infected vines through campaign and farmers participatory approach.

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**ICAR-ALL INDIA COORDINATED  
RESEARCH PROJECT ON SPICES**  
**KERALA AGRICULTURAL UNIVERSITY**



## **BLACK PEPPER - PLANTING AND PROTECTION DURING MONSOON**



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Black pepper is a crop which is usually grown in homesteads, arecanut & coconut gardens and in coffee plantations. Great care has to be given during the rainy monsoon which is the season for new planting and plant protection in established gardens.

## **NEW PLANTING**

Planting can be done from the onset of monsoon during June till July. Spacing is 3m x 3m on plain lands and 2m between plants and 4m between rows on sloppy lands. Trees available in homesteads or pole like cuttings of support trees (called standards) planted in narrow holes of 50 cm depth in plantations can be used to trail black pepper. Dig pits of size 50cm x 50cm x 50 cm at a distance of 15 cm from the base of standards. The pits are to be filled with a mixture of top soil and *Trichoderma* fortified compost @5 kg/pit. When new planting is done for gap filling in *Phytophthora* foot rot disease prone gardens, drench the pit with 0.2% (2g / litre of water) copper oxy chloride (COC) before planting. Grafts of suitable black pepper varieties on *Piper colubrinum* root stock are recommended in disease prone and waterlogged areas. Plant two rooted cuttings in pits at a distance of 30 cm away from the standard. Press the soil around the cuttings and form a small mound slopping outward and away from the cuttings to prevent water stagnation. The growing portions of cuttings are to be trailed and tied to the standard.

Keep a distance of one metre from the base of

standard while using arecanut as standard and 1.5 m while using coconut as standard. Trail the young vines on temporary stakes for 1-2 years. Once the vines attain sufficient length to reach standards, remove the stake and tie the pepper plant to the tree trunk. Provide shade and irrigation as and when needed if there is a prolonged dry period due to any break in rainfall.

## **PLANT PROTECTION DURING MONSOON**

In established black pepper gardens, at the onset of monsoon, remove and burn all the rotten and disease infected vines along with root system. Effective drainage has to be ensured. Runner shoots trailing on ground may be tied back to vines. Mulching materials or litter covering the base of the plant, if any, may be opened up and prevented from touching the stem. Branches of standards may be lopped off to allow penetration of sunlight and avoid build up of humidity which favours diseases. Mass multiply native isolates of the biocontrol agent *Trichoderma* in farm yard manure/compost/ vermicompost/coir pith/neem cake/decomposed coffee husk and apply 5kg of this manure in shallow basins of 50-75 cm radius taken around the plant and cover lightly with soil. Correction of acidity may be done in acidic soil areas using 500 g lime per vine during April-May once in two years. There should be sufficient moisture in the soil while applying lime.

The general fertilizer recommendation for vines of 3