

## Management of *Phytophthora* foot rot and nematode diseases in black pepper (*Piper nigrum* L.)

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### ABSTRACT

*Phytophthora* foot rot and nematode diseases of black pepper were managed effectively by following cultural practices; neem cake and phorate application; spraying, drenching and pasting of Bordeaux mixture (1%) before onset of monsoon and Akomin (0.04%) and Ridomil MZ - 72 WP (100 ppm) as spraying and drenching during second week of July and September, respectively, as second and third round application.

Key words: black pepper, management, *Phytophthora* foot rot, *Piper nigrum*.

Multistoreyed cropping system is a common feature in Uttara Kannada District of Karnataka wherein black pepper is cultivated as an intercrop along with arecanut, cocoa, cardamom, coffee and banana; black pepper vines are trailed on arecanut. The area receives an annual rainfall of 2500 mm which is very favourable for cultivation of black pepper under multistoreyed cropping system and occurrence of *Phytophthora* diseases (Sastry 1982; Santhakumari 1987). The disease appears during July-September and spreads to almost all the gardens of black pepper leading to total destruction of black pepper vines. Therefore the present investigation was undertaken to find out the efficacy of fungicides in combination with nematicide, organic amendments and cultural practices for management

of *Phytophthora* foot rot disease.

The trial was laid out in a Randomised Block Design with 3 replications and 8 treatments with 10 vines in each treatment in existing gardens of the Panniyur - 1 variety trailed on arecanut in Yedahalli Village of Sirsi Taluk of Uttara Kannada District for three years (1991-92 to 1993-94). The fungicides used were Bordeaux mixture (1%), Akomin (0.04%), copper oxychloride (0.2%), Ridomil MZ 72 WP (100 ppm), nematicide (phorate 3 g ai) and organic amendment (neem cake). The first round of application of neem cake was done before onset of monsoon (May - June). Bordeaux paste was applied to the vines from ground level to 100 cm height during first round application. The second and third rounds were applied

Table 1 . Management of *Phytophthora* foot rot disease of black pepper

Treatment	% disease* incidence
T <sub>1</sub> Absolute control without cultural practices	41.11
T <sub>2</sub> Cultural practices + 1 kg neem cake + 3 g a.i. Phorate (30g/vine) soil application	37.77
T <sub>3</sub> Cultural practices + Bordeaux mixture (1%) spray + Bordeaux paste application + Soil drench with copper oxychloride (0.2%) first round + Spray and drench Ridomil MZ-72 WP (200 ppm) as second round	19.99
T <sub>4</sub> T <sub>2</sub> + Ridomil MZ - 72 WP (100 ppm) spray and drench first round + Bordeaux mixture spray second round	25.55
T <sub>5</sub> T <sub>2</sub> + Akomin (0.04%) spray and drench first round + Bordeaux mixture spray second round	21.10
T <sub>6</sub> T <sub>2</sub> + Bordeaux mixture spray and drench + Application of Bordeaux paste first round + Akomin spray and drench second round	12.22
T <sub>7</sub> T <sub>2</sub> + Bordeaux mixture spray + copper oxychloride drench two rounds + Bordeaux paste application first round	15.55
T <sub>8</sub> T <sub>2</sub> + Bordeaux mixture spray and drench first round + Bordeaux paste application + Akomin spray and drench second round + Ridomil MZ - 72 WP spray and drench, third round	7.77

\* Mean of 3 years

during second week of July and September, respectively. The spraying and drenching of fungicides were done @ 3l and 5 l respectively, per vine two or three times depending upon the treatments.

The incidence of *Phytophthora* foot rot was reduced in all the treatments as compared to untreated control. The disease incidence was minimum (7.77 per cent) in treatment combination of all cultural practices + soil application of phorate + neem cake + four rounds of Bordeaux mixture (spray and drench) + application of Bordeaux paste + second round of Akomin (spray and drench) and third round of Ridomil MZ 72 WP (spray and drench) confirming the results of Melebennur, Gangadharappa & Hegde 1991 (Table 1).

## References

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