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Abstract: Rhizome rot disease of ginger was found to be prevalent in all the localities surveyed. The disease incidence varied from 15% to 30.37% in different locations during Kharif, 2003-04 and 2004-05 crop seasons. The disease normally appeared during last week of June or 1st week of July. Maximum number of infected plants were recorded during the month of August. The initial symptoms of rhizome rot were recorded on the above ground parts in the form of slight paleness at the tip of terminal leaves followed by yellowing of leaves. The infected leaves ultimately withered. The infected rhizomes became discoloured and later showed rooting. Laboratory in vitro evaluations showed efficacies of fungicides viz., Carbendazim, Mancozeb, Metalaxyl MZ, Copper oxychloride, Carbendazim 12% + Mancozeb 63% (Companion), Benomyl, the bio-agent, Trichoderma harzianum and the oil cake, Pongamia glabra and these were selected for field trials. The variety, Maran with disease incidence of 8.89% and 11.11% during the two years of trial showed Resistant (R) reaction. Soil solarization for a period of six weeks recorded 16.40% pre-emergence and 9.38% post-emergence rhizome rot as compared to 40.88% and 19.51% pre and post-emergence rhizome rot, respectively, in non-solarized plots. Soil amendment with P. glabra oil cake @ 20q/ha recorded 77.50% germination and 23.75% incidence of rhizome rot. The P. glabra cake recorded disease control of 54.4%, fresh rhizome yield of 90.83 q/ha and recorded 20.94% yield increase over control. Soil application of T. harzianum @ 5kg/ha was recorded to be the most

effective biocontrol agent with 77.50% germination and 27.50% rhizome rot incidence. *T. harzianum* provided 50.74% disease control and recorded fresh rhizome yield of 101.00 g/plant. Soil drenching of the fungicide, Metalaxyl MZ applied @ 0.02% recorded highest germination (76.04%). Metalaxyl MZ recorded 28.13% rhizome rot incidence with 47.05% disease control and fresh rhizome yield of 428.33 g/3 m row length. Mulching with *Eucalyptus citriodora* leaves @ 2.5kg/m² recorded pre-emergence and post-emergence rhizome rot of 7.50% and 8.19%, respectively. Mulching with *E. citriodora* recorded fresh rhizome yield of 2.81 kg/sq. m. Among fungicides, Metalaxyl MZ (0.15%) and copper oxychloride (0.3%) were recorded to be effective chemicals for seed rhizome treatment. Metalaxyl MZ (0.15%) afforded 39.63% disease control with 76.67% germination and 27.92% rhizome rot incidence at maturity. Seed rhizome treatment with Metalaxyl MZ (0.15%) recorded fresh rhizome yield of 83.49 q/ha with cost benefit ratio of 1:16.26. Copper oxychloride (0.3%) afforded 30.64% disease control with germination of 75.42% and rhizome rot incidence of 32.08% at maturity. Although seed rhizome treatment with copper oxychloride (0.3%) recorded a lower fresh rhizome yield of 74.31 q/ha, the cost benefit ratio was more favourable i.e. 1:18.05 in view of lower cost of the fungicide. Rhizome pelleting with *T. harzianum* recorded 75.82% germination, 35.83% rhizome rot incidence and recorded 31.75% disease control. Rhizome pelleting with *T. harzianum* recorded fresh rhizome yield of 81.38 g/plant. Integration of soil application of the bio-agent, *T. harzianum* @ 5 kg/ha, rhizome dip treatment with the fungicide, Copper oxychloride @ 0.3% followed by two soil drenchings with Metalaxyl MZ solution @ 0.02% recorded 73.87% germination and 23.34% rhizome rot incidence. The above treatment set afforded 46.82% disease control, recorded fresh rhizome yield of 90.36 q/ha. The cost benefit ratio worked out in the package was 1:7.54. Rhizome treatment with *T. harzianum* @ 6g/L+ soil amendment with *P. glabra* oil cake @ 20 q/ha + mulching with *E. citriodora* leaves @ 2.5 kg/m² which recorded 80.00% germination, 23.33 % disease incidence and afforded 43.89 % disease control. This package recorded highest fresh rhizome yield of 97.26 /ha with cost benefit ratio of 1:10.44. The ginger variety, Maran, pre-sowing rhizome treatment with Metalaxyl MZ @ 0.15%, recorded maximum germination of 84.02%, minimum disease incidence of 6.25% and highest fresh rhizome yield of 117.17 q/ha. Rhizome dip treatment with Metalaxyl MZ @ 0.15 % + two drenchings with Copper oxychloride @ 0.3% + soil application of the bioagent *T. harzianum* @ 5 kg/ha recorded 10.84% incidence and highest fresh rhizome yield of 110.34 q/ha. The above package was followed by treatments including rhizome dip treatment with Copper oxychloride @ 0.3% + two drenchings with Metalaxyl MZ@ 0.02% + soil application of *T. harzianum* @ 5 kg/ha. The package recorded 14.17% rhizome rot incidence and fresh rhizome yield of 105.57 q/ha. Considering the cost benefit ratio in solarized fields, the package, rhizome dip treatment with Metalaxyl MZ @ 0.15% + soil application of bleaching powder @ 15 kg/ha recorded highest cost benefit ratio of 1:3.03 followed by the package rhizome dip treatment with Copper oxychloride @ 0.3% + soil application of bleaching powder @ 15 kg/ha which recorded cost benefit ratio of 1:2.96. In case of non-solarized fields the package, rhizome dip treatment with Copper oxychloride @ 0.3% + soil application of bleaching powder @ 15kg/ha recorded highest cost benefit ratio of 1:14.07, followed by the package including rhizome dip treatment with Metalaxyl MZ @ 0.15 % + soil application of bleaching powder @ 15kg/ha which recorded cost benefit ratio of 1:8.80. The unfavourable cost benefit ratio in the package, rhizome dip treatment with Metalaxyl MZ @ 0.15 % + two drenchings with Copper oxychloride @ 0.3 % + soil application of *T. harzianum* @ 5kg/ha apparently was due to the cost of Copper oxychloride used.

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