

Research Article

Influence of Organic Amendments and Soil pH on Management of Rhizome Rot of Ginger

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Abstract

Rhizome rot of ginger is the most serious disease of ginger which causes both quantitative as well as qualitative yield loss. The disease is soil borne in nature and soil pH as well as soil organic matter plays an important role on management of rhizome rot of ginger. The present study was conducted to find the effect of soil pH and soil amendment in the form of adding vermicompost on rhizome rot of ginger. An experiment was conducted with five levels of soil pH and three levels of vermicompost. From the study it was found that organic amendment and soil pH influence on disease incidence. It also revealed that the treatments with vermicompost as soil amendment @ 6 t ha⁻¹ and soil pH at 5.5 was found to be the most promising with highest average yield and lowest disease incidence of 28.33 per cent.

Key words: Ginger, management, rhizome rot, soil pH, vermicompost

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Ginger (*Zingiber officinale* Rosc) under the family Zingiberaceae is one of the important cash crop of the North Eastern region of India and supporting the livelihood and improving the economic status of many ginger growers of the region. Ginger is cultivated in almost all the states of North East India, but at present Assam is the largest producer among all the ginger growing states of India with a production of 122.31 thousand metric tonnes from an area of 15.68 thousand hectares (Annon 2014). The production of ginger, however, is largely affected by diseases caused by bacteria, fungi, viruses, mycoplasma and nematodes. Among diseases, rhizome rot of ginger has been considered as the most destructive disease of ginger.

It is one of the most important productions constrains of the crop in all the ginger growing countries worldwide (Dohroo 2005 and Stirling et al 2009). The disease is caused by a number of pathogens either alone or in combination(s). The major pathogens often associated with the disease complex are *Pythium* spp, *Fusarium* spp and *Ralstonia solanacearum* (Rajan et al 2002; Ekka et al 2009). In Assam crop loss due to rhizome rot has

been recorded up to 100 per cent in severe cases (Annon 2007). Rhizome rot of ginger is both seed and soil borne and soil properties like pH and organic carbon plays an important role in disease severity (Sharma et al 2010; Debnath et al 2011; Kim et al 2012). The disease can occur in any cultivated variety and in any ginger growing field throughout the world wherever ginger is grown. Chemical methods have been mostly used to control the disease which are not eco-friendly and in due course of time may cause hazards to the micro-ecology and biosphere. Therefore, integrated disease management strategies are gaining importance and cultural practices being an important part of IDM is gaining importance now a days. Keeping the following points in view an effort was made to manage the disease by cultural practices like amendment of soil with vermicompost and manipulation of soil pH. The interaction of three different levels of vermicompost and five different levels of soil pH on rhizome rot disease incidence were considered in the study.