

Management of Root and Stem Rot in Vanilla

MOHAMMED FAISAL PEERAN, S.J. ANKEGOWDA, M. ALAGUPALAMUTHIRSO LAI,
NARENDRA CHAUDHARY, H.J. AKSHITHA

ICAR-Indian Institute of Spices Research, Regional Station
Appangala, Madikeri, Karnataka, Pin: 571 201



The vine ceases to grow and sends out numerous aerial roots. The aerial roots die before entering the soil or after coming into contact with the soil, resulting in flaccidity and shrivelling of the stem and leaves. Yellowing of leaves and stems also occurs. Finally, the vine displays the characteristic drooping.

Vanilla plantations have witnessed considerable damage to the beans or to the whole plant resulting in heavy crop losses due to fungal and viral diseases. The crop production is diminished by diseases notably root and stem rot caused by *Fusarium oxysporum f sp. vanillae* (Fov).

In plantations, where mono-cropping is adopted, this disease could spread widely; symptoms on the plant may worsen and the soil microbial community structure become out of balance. Most of the farmers had abandoned the cultivation of vanilla due to the loss incurred

by Fov. Adoption of intensive crop production technologies by the farmers have resulted in usage of large quantities of insecticides and fungicides to control the pests, diseases and nematodes which lead to the evolution of new resistant strains demanding more quantity of pesticides or fungicides.

The symptoms of Fov appear in the form of browning and death of underground and aerial roots. The vine ceases to grow and sends out numerous aerial roots. The aerial roots die before entering the soil or after coming into contact with the soil, resulting in flaccidity and

shrivelling of the stem and leaves. Yellowing of leaves and stems also occurs. Finally, the vine displays the characteristic drooping.

Cultural Management

Cultural management can include reducing the amount of initial inoculums, reducing the rate of spread of an established disease, or planting a crop at a site that is not favourable to pathogens in consideration of altitude, temperature, or water availability. Some of the cultural operations to be followed for vanilla are given below.



Chemical Methods

The use of various fungicides and chemicals are also employed in controlling the stem and root rot disease of vanilla. The fungicides containing Mancozeb and Carbendazim have been used in Bali and Indonesia against *Fusarium* stem rot. Fungicides containing Phosetyl-Aluminium, Carbendazim and Prochloraz are also recommended fungicides

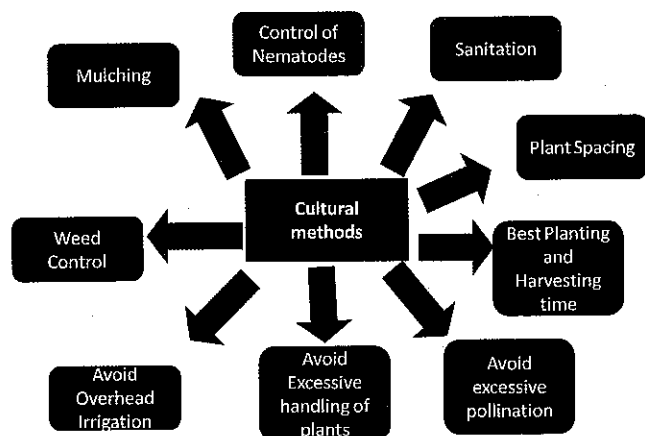
Various biological agents like *T. harzianum*, *T. virens*, *P. fluorescens*, *P. putida*, *Paecilomyces sp* and *B. subtilis* were tested in in-vitro, pot and field conditions and were reported to be effective against *Fusarium* disease.

against root and stem rot. However, there are no fungicides reported which can effectively tackle the rot. The practice of using fungicides is declining due to its hazardous nature, restrictions from government agencies and their limited efficiency.

Biological Methods

Biological control is nothing but the ecological management of the community of organisms. It involves harnessing disease-suppressive microorganisms to improve plant health. Disease suppression by use of biological agents is the sustained manifestation of interactions among the plant (host), the pathogen, the bio-control agent (antagonist), the microbial community on and around the plant and the physical environment.

Biological control agents are reported to be used as a control measure in vanilla plantations in a few countries. Bio-control agents could be considered as an alternative for the chemical fungicides considering the concerns for



environmental protection and cost. Various biological agents like *T. harzianum*, *T. virens*, *P. fluorescens*, *P. putida*, *Paecilomyces sp* and *B. subtilis* were tested in in-vitro, pot and field conditions and were reported to be effective against Fusarium disease. Combined treatment of *T. harzianum* and *P. fluorescens* through soil mixing also enhanced the vegetative growth of vanilla apart from serving the primary function of disease control.

The use of non-pathogenic *F. oxysporum* was also proposed in controlling the root and stem rot in Indonesia.



BSM in Kota Demands Quality Production of Garlic

DR. N.M. USMAN

Assistant Director, Spices Board, Kota

A Buyer Seller Meet (BSM) on garlic held at Kota in Rajasthan in May, 2017



The Buyer-seller meet organised by Spices Board at Kota has helped the garlic farmers to have an insight about the quality parameters to be followed and the export potential.

Dr. Prabhu Lal Saini, Minister of Agriculture and Animal Husbandry, Govt. of Rajasthan inaugurated the meet on May 12, 2017. He advised the farmers for quality production of

garlic by adopting innovative good agricultural and organic practices. He asked the farmers to avoid indiscriminate use of insecticides and pesticides and stressed for maximum production and productivity, keeping eyes on quality parameters to boost up export. He requested the state and central agencies for setting up exclusive export zone in the growing areas with modern processing unit, value addition facilities for garlic.