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RESEARCH ARTICLE

Management of early blight (*Alternaria solani*) in tomato by integration of fungicides and cultural practices

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ABSTRACT

Tomato (*Lycopersicon esculentum* Mill.) is the most widely cultivated vegetable crop in the world and early blight caused by *Alternaria solani* (Ell. and Martin) Jones and Grout is one of the major constraints for deterioration of quality of the crop. The pathogen is responsible for reducing the seed quality parameters as well as the yield of fruits. Seed treatment with fungicides enhanced germination and reduced seedling infection and thiram was found to be the best for seed treatment as it enhanced the germination and reduced seedling infection. Fungicides, along with cultural practices (inter cropping with marigold, mulching and stacking) were evaluated to develop an effective management strategy for early blight of tomato. Cultural practices when integrated with fungicides reduced the per cent disease index and increased the yield.

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INTRODUCTION

Tomato (*Lycopersicon esculentum* Mill.) is one of the most popular and widely grown vegetables in the world. By virtues of its many attributes, wider adoptability and versatility, tomato is considered as a favourite crop for research. Diseases are one of the most limiting factors for production of tomato. It reduces the quantity as well as market value of the product. Fungal pathogens are often more wide spread and cause substantial damages. Alternaria blight of tomato, popularly known as early blight is caused by a fungus, *Alternaria solani* (Ell. and Martin) Jones and Grout. It is common disease wherever tomatoes are grown and is one of the most destructive diseases causing significant qualitative and quantitative losses at any stage of plant growth including fruit and seed production. The pathogen is also responsible for causing storage losses during transit. Disease is favoured by warm temperature and extended periods of leaf wetness from dew, rainfall and crowded plantation. The plants are more susceptible to infection by the disease during fruiting period (Momel and Pemezny, 2006). In India, the disease is more severe during June to July sown crop than in the winter crop (Datar and Mayee, 1985). The disease is equally serious in the hills as well as in the plains. Present investigation was carried out to develop an effective management strategy against early blight of tomato using fungicides along with cultural practices.

MATERIALS AND METHODS

Experiments were conducted at Department of Plant Pathology, Crop Research Centre and Vegetable Research Centre, G. B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand (India). The experiments were laid in conducted two crop seasons during year 2006-2007 and 2007-2008. Tomato plants along with fruits showing early blight symptoms were carried from the fields at Vegetable Research Centre to laboratory and the pathogen was isolated from the infected plant parts. The pathogen was identified as *Alternaria solani* on the basis of its morphological characters.

Fungicides were screened *in vitro* against the linear