Integrated Management Strategies for Tomato *Fusarium* Wilt

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著者情報

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抄録

*Fusarium* wilt is caused by the fungal pathogens, *Fusarium oxysporum* or *Fusarium solani*. It is a devastating disease that affects many important food and vegetable crops and a major source of loss to farmers worldwide. Initial strategies developed to combat this devastating plant disease include the use of cultural, physical and chemical control. None of these strategies have been able to give the best results of completely ameliorating the situation except for the cultural method which is mainly preventive. A good knowledge of the nature, behaviour and environmental conditions of growth of the disease agent is very important to controlling the disease development in that case. Biological control has been shown to be an environmentally friendly alternative. It makes use of rhizospheric and endophytic microorganisms that can survive and compete favourably well with the *Fusarium* wilt pathogen. They include plant growth-promoting rhizobacteria (PGPR) such as *Bacillus* spp. and *Pseudomonas* spp.. For PGPR to control or inhibit the growth of the *Fusarium* wilt pathogen, they make use of mechanisms such as indole acetic acid production, siderophore production, phosphate solubilization, systemic resistance induction and antifungal volatile production among others.
Figure 2. Wilted tomato plants infected with Fusarium crown rot fungus. Figure 3. Canker on stem at soil line. Figure 4. Internal discoloration of the crown and root rot.

6. Additional management strategies under investigation include the use of biological control, cover crops, and soil solarization alone or in combination with fumigants.

Figure 5. Lateral spread of Fusarium oxysporum f.sp. radicis-lycopersici within a planting bed. Integrated Management. At present, Fusarium crown and root rot is difficult to control in field-grown tomatoes because the pathogen rapidly colonizes sterilized soil and persists for long periods. However, an integration of the following management procedures may help to reduce the impact of crown and root rot: 1. Use disease-free