

Integrated management of collar rot in apple -

A campaign and intervention popularized by KVK Shimla in apple growing areas

Introduction:

Collar rot caused by *Phytophthora cactorum* is a very serious problem in apple orchards of district Shimla. The disease causes severe losses to apple growers resulting in decreased productivity per unit area with poor quality of fruits. Its becoming a serious concern in almost all the apple growing areas of the district. Affected apple trees show sparse foliage, slow growth, bronzing and yellowing of leaves with browning of bark at collar region (Fig. 1). The incidence of the disease is sometimes upto 50 percent in many of the orchards especially, where the orchards are planted in heavy soils with low pH. Looking at the gravity of the problem, the scientists at KVK Shimla started a campaign to make the farmers aware of this problem and subsequently laid out on farm trials and demonstrations (Fig. 2) for the integrated management of this disease as per the recommendations by the Dr YSP UHF, Nauni, Solan and its Regional Horticultural Research Station Mashobra with some modifications as per the regional requirement to overcome this menace. In the process, the farmers are also being educated about the cause of the disease, symptomatology and specific management practices relating to the occurrence of this disease.



Fig. 1. Symptom of collar rot on apple tree



Fig. 2. Visit of DEE, Dr NB Singh to one of On Farm Trial site

Background about the case and problem:

The apple orchards are planted from sub-temperate to temperate region having different soil types i.e. sandy, loam and clay with soil pH towards acidic side. The early plantations by the farmers have been done just by doing a hole without proper pit formation. Due to this, the collar portions of the plants in most of the cases get covered under the soil, and further to collar region damage is through faulty cultural practices during basin preparation, fertilizer application, weeding etc. by the farmers. Secondly, farmers intercrop young orchards with potato and its intercultural operations also sometimes damage the collar region of the plant resulting in disease development.

KVK intervention:

The KVK intervened through organization of on and off -campus training camps and conducted on farm trials and demonstrations on their fields. The farmers were educated about the proper site selection, soil testing, symptomatology, cause of disease and integrated disease management practices to be adopted for the management of the disease. The farmers were also advised to improve cultural practices i.e. improvement in water drainage system in the tree basin, opening of collar region of the affected plants and removal of affected portion with the application of Chaubatia paste on open wounds (preferably in months of November & December). The drenching of Ridomil MZ @ 0.4% was given as and when symptoms were noticed, and three drenching in rainy season at 15 days intervals i.e. two drenching of Ridomil MZ @ 0.4% and one Bordeaux mixture @ 1.0 %. In addition to this, seedling rootstocks (4-5 per plant) were also grafted (Fig. 3) in the month of March and April through approach grafting technique to the infected plants from the affected side to provide additional support and nutrition (Fig. 4).



Figure 3. Plant showing a complete lesion healing caused due to collar rot after treatment with fungicides



Figure 4. Seedling rootstock grafted through approach grafting to collar rot infected plant supporting the damaged original stock of plant

Effect of technology:

- a) **Production:** Since, the production and quality of fruits in the affected orchards has heavily resulted in monetary losses to orchardists, the adoption of integrated disease management module, enable the farmers to recover the yield losses within two to three years.

- b) **Suitability and adoption in existing farming/ cropping system:** Himachal Pradesh is famous for its quality apple production, which has revolutionized the economy of the hilly state. The collar and root rot are the major disease problems in the apple orchards, mainly in orchards having heavy soils and where the intercropping with wrong cultural practices have been practiced. However, adoption of proper cultural practices and integrated disease management for collar rot has improved the productivity per unit of apple orchards along with good quality fruit production resulting in raising the farmers' income.

- c) **Acceptance of technology/ in terms of view of farmers and horizontal spread:**

In most of the apple growing areas, the collar rot and rrot rot diseases are becoming the main problems, resulting in poor economic returns. With the interventions of KVK, the farmers showed keen interest in adoption of technology. The impact of the traings and demonstrations are such, that technology which was demonstrated in 20-30 orchrds are now being adopted by most of the farmers having such problems in their orchrds.

d) Linkages with technology/ development organization:

The apple orchardists of apple growing area are in constant contact with the scientists of the KVK regarding different problems faced by them in their orchards and suggestions thereof. They are also linked with Dr YSP University of Horticulture & Forestry Nauni, Solan and Regional Research Stations.

e) Places and addresses of concerned farmers or persons who could be contacted

- | Name & address of the farmers | |
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| | • Yogeshwar Banshtu, Vill Dalgaon, PO Kutara, Rohru, Shimla |
| | • Dalip Singh Banshtu, Vill Dalgaon, PO Kutara, Rohru, Shimla |
| | • Naina Sharma, Vill Shari, PO Jubbal, Shimla |
| | • Mohan Lal Sharma Vill Kudu, Jubbal, Shimla |
| | • Ramesh Divanta, VPO Dhara, Rohru, Shimla |
| | • Rajkamal Zinta, Vill Saio, PO Pujarali 4, Rohru, Shimla |
| | • Pawan Bajrangi, Vill & PO Jagothi Nala, Rohru, Shimla |