Fungicides are Key for Apple Production in India

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Apple production in India increased dramatically in the past fifty years (Figure 1). India ranks 5th among apple-producing countries in terms of volume. Indian farmers produce 2.2 million tons of apples on 305,000 hectares annually. Only a small amount of apples are exported from India. Apples are grown primarily in the northwestern hill country where the climate is ideal for fruit growing. Most of the apples are grown by small farmers who grow apples to supplement income from their main crops. Normally, the small orchardists sell their expected crop at flowering to contractors who organize pesticide applications, picking and packaging of fruit. Apple cultivation has significantly improved the economic status of the population [2].

Apple scab is the most serious and damaging disease of apples in the world. The fungus overwinters in infected leaves on the orchard floor. Spring rains cause spores to be forcibly discharged. If the surface of apple tissue is wet and temperatures are suitable, the spores germinate and penetrate the cuticle causing an infection. The fungus grows beneath the cuticle and eventually ruptures it. Masses of spores are produced in the infected area and become detached during rain, leading to additional infections. Severe leaf infections can cause premature defoliation, which can reduce tree growth and yield for several years. In India, the total loss caused by apple scab may exceed that caused by all other pests and diseases combined [1]. In epidemic years, apple losses have been as high as 70% [4].

Following major outbreaks of apple scab in India in the late 1970s and early 1980s, a fungicide screening program was established [1]. Extensive trials were conducted from 1985 to 2005 [2]. Procedures were developed for fungicide application and evaluation based on disease incidence and severity [2].

A sound forecasting system has been developed in India for the prediction of apple scab and the timing of fungicide applications based on weather conditions, particularly temperature and leaf wetness [1]. Advisory services are provided on the control of scab, front line demonstration trials are regularly laid out and diagnostic visits by Department of Horticulture scientists are organized at the request of farmers [3].

Generally, 9-10 sprays are required to control the disease [2]. Apple scab in India can be managed very well with modern fungicides [2]. Apple growers and contractors have adopted the prescribed schedule of chemical sprays to control the disease. The chemical sprays have reduced the loss due to apple scab in India to a considerable extent. The use of fungicides in India to control apple scab is playing a significant role to improve productivity, sustain production and assure quality of harvest [2].

References