Control of Scale Insects on Pepper

Scale insects are common on pepper. They suck the sap from the branches, shoots, leaves and berries. When infestations occur on the under surface of leaves, light yellow discoloration on the upper surface is seen.

There are three common types of scale insects on pepper. They are *Pinnaspis strachini*, *Unapsis* sp. and *Paralecanium* sp. *P. strachini* or commonly known as pinnaspis scale is most damaging among them, as it has a symbiotic relationship with a fungus, *Septobasidium* sp., the causal agent of the velvet blight disease. Seriously affected stems and lateral branches would fall off from the vines. Yield losses are incurred when the stems and lateral branches are laden with the fruits.

Unapsis sp. on berries and underside of leaf

Paralecanium sp. on underside of leaf

Berries and branches infected by velvet blight disease

Colony of pinnaspis scale under fungal mat of velvet blight disease

Close-up of pinnaspis nymphs

Biology of pinnaspis scale

This scale insect is found under the fungal mat of the velvet blight disease on the branches and the fruit spikes. These insects are very small. They could only be observed when the fungal mat is scraped off. The females are pear-shaped, membranous, filmy, grey brown and measure 1.5 to 2 mm long, while the males are white and bear three distinct ridges. The eggs are laid in clusters under the fungal mat. The insects and the fungi live in a mutual relationship, at the expense of the host plant. The fungi provide a protective home for the scale insects, whereas the scale insects act as a source of food and a means of distribution for the fungi. The nymphs are parasitised by the fungi for food and water. In cases of severe infestation, the affected branches, leaves and fruit spikes would wilt and fall off from the vines.

Control of pinnaspis scale

Trials to assess the different control measures were carried out at Simunjan, Sematan, Simuti and Samarahan from 2005 to 2008. We have found that the use of table salt at 160-200gm per 18litres of water was effective in reducing the scale insect population. There was a decrease in the adult, nymph, and egg counts after three months of treatment. The treatments did not cause any phytotoxic effects, such as dropping of leaves and branches on the vines. Higher salt concentrations were found to cause dropping of lateral branches and leaves.

The use of table salt disrupted the growth of the fungal mat, thereby affected the protective cover for the scale insects. The scale insects under the fungal mat are soft-bodied and thus could also be affected by the saltiness of the treatments. Table salt is very cheap and readily available. It could reduce the use of synthetic insecticides in pepper farms. Spraying was more effective during the early growth stages of the velvet blight infection and dry weather condition. The different forms of table salt, coarse or fine type, also affected the effectiveness of the spraying. The coarse salt resulted in better results. It is also advised that the use of table salt be carried out during early fruiting period. Two to three rounds of treatment are sufficient to contain the spread of the scale insects.

Disrupted growth of fungal mat

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