INSECT PESTS AND MITES OF STRAWBERRY (*Fragaria ananassa* Duchesne) IN UP-COUNTRY OF SRI LANKA; THEIR OCCURRENCE AND SEVERITY OF DAMAGE

By

MAHA LAKSHA MUDIYANSELAGE CHANDRIKA DISSANAYAKE

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ABSTRACT

Strawberry; *Fragaria ananass* Duchesne belongs to the family *Rosaceae*, genus *Fragaria,* and is the most widely consumed fruit throughout the world. In Sri Lanka during the last decade, strawberry has been cultivated commercially in several locations in the Up-country Wet Zone and Intermediate Zone. The crop has been badly affected by several pests with high variability in their occurrence and severity. Since strawberry is a newly introduced crop in Sri Lanka, there is no information available on insect pests, their morphology, symptoms of damage and phenology. Therefore, the objectives of this study were to identify the potential pests of strawberry in the Up-country Wet Zone and Up-country Intermediate Zone of Sri Lanka, to study the seasonal occurrence and the severity of damage of major pests.

The survey on insects and mites associated with strawberry cultivation was carried out in the main commercial strawberry growing areas at Nuwara Eliya (NE), Ohiya (OH) and Rahangala (RH) from February 2003 to September 2004. During this period insect pests and mites regularly associated with strawberry cultivations were collected by using different sampling methods. These insects were identified and severity of damage caused by them and seasonal occurrence of the major pests were studied.

Eleven species of insects and one mite species were found regularly associating with strawberry cultivation during this study period. Out of these 12 species, white grub , *Anomala walkeri* Arrow , *Leucopholis pinguis* Burmeister, flower thrip , *Franklinella* sp.

, two spotted spider mite, *Tetranychus telarius* Linnaeus populations exceeded the economic injury level. Hence these species can be considered as the major pests regularly associated with strawberry cultivation in Up-country Sri Lanka. Army worm, *Spodoptera litura* Fabricius, leaf roller, *Ancylis compatna* Frolich, lygus bugs, *Lygus* sp., leaf eating weevil, *Myllocerus curvicornis* Say, white-spotted leaf beetle, *Monolepta signata* Sahlb and Flea beetle, *Prodagricomela nigricollis* Chen are considered to be minor pests. According to present results aphids and whiteflies can not be considered as economically important pests of strawberry in Sri Lanka. Therefore further investigations on the occurrence and relative importance of aphids and whiteflies are required. Population fluctuation and severity of damage caused by three major pests, white grub, *A.walker*, Flower thrips, *Franklinella* sp. and two spotted spider mite, *T. telarius* were studied using field samples.

In strawberry fields, both young and mature plants were damaged by white grubs. Last instar larvae of the pest cut off the strawberry roots just below the crown and eventually killing the plants by depriving them of nutrients and water. White grub infestations started late July onwards and increased gradually until October when the maximum level of infestation observed. There was a slight damage during early November. There was no white grub damage from mid November until late March. There again white grub infestation was observed from late March to mid April. Further study of *L. pinguis* is required to draw a conclusion on the relative importance of this pest in strawberry fields.

Flower thrips feeding on strawberry blossoms led to stigma and anthers turning to brown colour and withering prematurely. As a result, crooked immature and ripen strawberry fruits were observed in all the flower thrip infested fields. Flower thrips commonly associated in strawberry cultivation in the Up-country Sri Lanka show slightly different population patterns according to the area. In Nuwara Eliya and Ohiya, flower thrips attacks were started in early March and gradually increased up to mid April followed by decrease, in late April towards the end of 1st fruiting season whereas in Rahangala it started in late March and gradually increased up to early May followed by a decrease in mid May towards the end of 1st fruiting season. Population gradually increased with commencement of 2nd blooming and a large peak of flower thrips population was observed in July.

Mites damage plants by sucking out the cell contents and as a result pale areas were observed in upper surface of the leaves. Seasonal abundance and population densities of mites varied in different growing areas. Therefore, seasonal population fluctuation of mites should be further studied in response to weather changes.