



POLLINATION REQUIREMENTS OF WATERMELON (*Citrullus lanatus*) IN SRI LANKA

Chithrananda K.H.¹, Yakandawala K.^{1*} and Karunaratne W.A.I.P.²

¹Department of Horticulture and Landscape Gardening,
Faculty of Agriculture and Plantation Management,
Wayamba University of Sri Lanka

²Department of Zoology, Faculty of Science, University of Peradeniya,
Sri Lanka
hiranchithrananda@gmail.com

Abstract

Watermelon (*Citrullus lanatus*) is a popular home garden crop among rural farmers as with a less investment and a more profit. Hence, it is considered as an economically important fruit crop, which completely depends on the insect pollination. The low abundance of pollinators is a major cause for the insufficient pollination resulting a low yield. Therefore, the present study was conducted to evaluate the effect of wild bee pollination and hand pollination on fruit set and quality of watermelon. The experiment was carried out at the Wayamba University at Makandura, where three plots were established (20 plants per plot) for two pollination trials. Two sets of flower buds (n=10) were tagged in each trial for five days. One set was kept for the natural pollination by wild bee visits and another set was pollinated by hand and covered with a fine mesh bag. Pollinators were observed daily for 14 days. *Apis cerana* and *Tetragonula iridipennis* carried pollen and nectar, while *A. florea* and *A. dorsata* visited flowers to collect only nectar. The period of pollen availability and stigma receptivity coincided with the highest activity of *A. florea* from 7.00 a.m. to 12.20 p.m. Hand pollinated fruits showed the highest percentage of fruit set (62%) compared to the natural pollinated fruits (40%). In addition, the results obtained from the two-sample t test indicated the highest significant mean values of weight, length, circumference, number of seeds and the total weight of seeds in hand pollinated fruits over the natural pollinated fruits. The study provided evidence that hand pollination is more effective to enhance fruit set and to produce quality fruits of watermelon.

Keywords: *Apis florea*, Pollen, Pollination, *Tetragonula irridipennis*, Watermelon