Abstract:

The growth of the bulb onion is subject to significant stress and yield reduction caused by sap feeding onion thrips. In Kenya, the general control recommendation is to spray the crop with insecticides as soon as the pest appears and to continue thereafter, throughout the crop season. The practice is expensive and environmentally hazardous. Two field trials were conducted at the Kenya Agricultural Research Institute (KARI) Mwea-Tebere farm to identify the growth stages most susceptible to onion thrips infestation that would provide the highest economic benefits to the onion grower by managing thrips, with the aim of promoting need-based onion pesticide application. The trial design was randomized complete blocks of 16 treatments replicated three times. The treatments constituted insecticide treatments at different onion growth stages and frequencies. Thrips density/plant was estimated weekly through a destructive cutting and bagging method. Yield gains due to the application of the protection regimes were calculated and the marginal returns estimated as the income of yield gain divided by the cost of the control option. Thrips infestation was significantly ($p=0.05$) higher in the unprotected plots than all the protected plots in the first and second trial and resulted in significant yield losses of 59 and 29%, respectively. A significant onion yield response to thrips infestation was observed during the 2^{nd} month (bulb-formation) and 3^{rd} month (bulb-enlargement) after transplanting, but no significant response was observed in the 1^{st} month (pre-bulbing) and 4^{th} month (maturation) respectively. Onion protection only during the bulb-formation stage resulted in higher marginal returns than full season pesticide application. The studies suggested that control recommendations for onion thrips could be refined to optimize selective pesticide use in Kenya.