Abstract

Thrips-transmitted Iris yellow spot virus (IYSV) (Family Tospoviridae, Genus Orthotospovirus) is a major constraint to onion (Allium cepa L.) production in Kenya. Determining seasonal patterns of the vector and alternate hosts of the virus could help onion farmers plan Integrated Pest Management strategies; while allowing them to move away from calendar-based applications of insecticides. The objective of this study was to determine the distribution, seasonal variations and alternate hosts of vector and IYSV. For distribution, a survey was carried out on a network of farms in all onion growing areas in Kenya; while for seasonality, surveys were done in two areas; Loitoktok and Naivasha. Data were collected on IYSV incidence, thrips population and alternate hosts. Results showed IYSV was widely distributed in all onion growing areas; with incidence varying from 26 to 72%. Highest IYSV incidence was recorded during the cool-dry season, and varied from 56.5 to 71%; while lowest IYSV incidence in onions was observed during the cool and wet season (29.9 to 32.2%). Iris yellow spot disease incidence positively correlated with the number of onion thrips in Loitokitok ($r = 0.659$; $P<0.0001$) and Naivasha ($r = 0.623$; $P<0.0001$). Identified alternate hosts for IYSV were leeks, chives, shallots, lambsquarters, redroot pigweed, Chinese lantern and black nightshade.Occurrence of thrips on onions, which is grown all year round calls for urgent integrated pest management strategies that includes host plant resistance, field sanitation, forecasting and use of beneficial insects and parasitoids to reduce impact of the pest and disease. Plant health adherence through removal of alternate weeds hosts around the cultivated fields, would be useful in minimising IYSV incidence.