

ABSTRACT

In Kenya, dry onion, *Allium cepa* L., is among the most important vegetable crops for domestic market. However, records indicate that onion production does not meet the local market demand resulting to imports. To identify onion production constraints experienced by onion growing farmers, a field survey was conducted in Kirinyaga District of Central Kenya, an area where commercial production of onions was promoted since 1950s. Insect pests were significantly rated as the most limiting factor in production of onions followed by diseases, lack of capital, unreliable onion market, weed control and inadequate supply of water for irrigation in that order. The findings of the present study were expected to provide baseline information upon which solutions to the many problems affecting onion production would be addressed. The second part of this study involved evaluation of the level of susceptibility of onion varieties to attack by onion thrips (*Thrips tabaci* Lind.). Field trials were conducted at the Kenya Agricultural Research Institute (KARI) centres at Mwea and Thika. Results indicated that different onion varieties available in Kenya had different levels of susceptibility to attack by onion thrips. BSS 230 Hybrid and Red Comet onion varieties significantly harboured the highest and the lowest number of onion thrips respectively. Red Creole, Bombay Red and Texas Grano had medium levels of susceptibility. Highly leafy onion varieties tended to harbour a higher number of thrips compared to the less leafy ones. Infestations of onion varieties by large number of onion thrips adversely affected the growth of onion crop. Red xxi Comet although significantly harbouring the least number of onion thrips displayed the highest loss of growth and was, therefore, the least tolerant to damage by thrips. Onion varieties grown in Kenya had the capacities of producing over 30 t/ha. Texas Grano onion variety significantly produced higher yield than all other varieties tested. BSS 230 Hybrid was also high yielding despite the high number of thrips harboured by the variety. Red Creole and Bombay Red had moderate yield capacities. Red Comet significantly produced the lowest yield. Increased thrip load led to increased yield loss for all the varieties. However, Red Comet onion variety recorded the lowest thrip load but had the highest percent yield loss implying that it was least tolerant to damage by onion thrips. Infestations of various onion varieties by thrips were found to peak three months after transplanting. High temperatures and low rainfall tended to encourage higher levels of onion thrips on onion plants. It was revealed that the damage of onion leaves by onion thrips depended on their numbers. BSS 230 Hybrid and Bombay Red onion varieties were found to significantly show the highest foliar damage score compared to the rest of the varieties. There were no significant differences in the mean frequencies of onion foliar disease incidences among the varieties. However, infestations by onion thrips had the potential of increasing incidences of onion foliar diseases. Results indicated that Texas Grano and Red Comet onion varieties significantly produced the highest and the lowest quality onion bulbs respectively. Arising from the above findings, it could be recommended that regular outreach programmes should be conducted in the onion growing area by relevant stakeholders to address the identified production xxii constraints. The present study should closely be followed by another survey to evaluate the impacts of the implementation of intervention strategies. On the other hand, Texas Grano could be recommended as an important variety to be grown in Kenya for markets where pungency was not an important quality factor. BSS 230 Hybrid, Red Creole and Bombay Red could also be recommended to farmers in Kenya. BSS 230 Hybrid and Red Comet required improvements through plant breeding programmes.