Spatial arrangement of maize as border crop to manage aphids and aphid-transmitted viruses in potato

Abstract:

Field experiments were conducted over two growing seasons to determine the effect of spatial arrangement of maize as border crop to manage aphid infestation and aphid-transmitted virus diseases in potato (Solanum tuberosum L.). Maize was planted at a distance of 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 m from the potato crop. Aphid infestation and incidence of virus infection was monitored over the growth period of potato. Aphids were recorded on potato leaves and in water pan traps while virus infection was determined by visual symptoms on the potato plant. At harvest, potato tubers were graded into ware, seed, and chatts and weighed. The results show that placement of maize border up to 0.5 m and 1.0 m reduced aphid population and virus disease incidence by up to 48%. The maize borders had no effect on the yield of seed potato grade but only on the ware. Placing maize border at 0.5m had the greatest reduction of ware potato yield by 48%. Maize borders placed up to 1m from the potato crop would be effective in the management of potato aphids and aphid-transmitted virus diseases. This study shows that the technology would be ideal for propagation plots in small scale seed potato production.