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EFFECTS OF MULCHES ON THE ABUNDANCE OF  
APHIDS AND THE GREENHOUSE WHITEFLY,  
TRIALEURODES VAPORARIORUM (WESTWOOD)  
ON POTATOES

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## ABSTRACT

Field experiments indicated that reflective mulches reduced the numbers of migrant alate aphids as well as adults of the greenhouse whitefly, Trialeurodes vaporariorum. All tested mulches viz. aluminium foil, yellow plastic, transparent 'Xiro' sheet and green plastic, were found to be effective in reducing the colonisation rate of these insect vectors. Myzus persicae (Sulzer) is the most important insect vector of potato leaf roll virus (PLRV) and its migrant alatae were greatly reduced by these mulches.

The mulches however were found to be effective only against the migrating alate aphids but not against all forms of all species of aphids found on the plant. Later in the study period (1 June, 1984), green plastic and 'Xiro' sheet were found to enhance the build up of aphid populations particularly M. persicae which occurred on the plant.

Aluminium foil, green plastic and 'Xiro' sheet were found to have no favourable or deleterious effect on the height of the plant, numbers of leaves and total leaf area per plant. But yellow plastic enhanced the growth of potato plant by increasing the number of leaves and the total leaf area per plant.

The glasshouse experiment demonstrated that the order of the relative attractiveness of the reflective mulches to adult T. vaporariorum were as follows: yellow > green plastic > 'Xiro' sheet > aluminium foil = soil. The alighting response of whiteflies to green plastic, 'Xiro' sheet, aluminium foil and soil was considered negligible compared to yellow plastic.

*Other materials have also been suggested to be used as mulches. These are straw, sawdust, almond shell and husk, living weeds and other crop plants. Finally, the advantages of mulches other than reducing the colonisation rate of insect vectors and their potential as a means of manipulating the crop environment in the IPM programmes of potatoes were discussed.*

STATEMENT

This thesis contains no material which has been accepted for the award of any degree or diploma in any University and, to the best of my knowledge and belief, this thesis contains no material previously published or written by any other person, except where due reference is made in the text of this thesis.

MOHAMED RANI YUSOH

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