Effects of kaolin clay, sulphur and fosetyl-aluminium on tomato-potato psyllid and 'zebra chip' in fried potato crisps

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Zebra chip (ZC) is mottled browning discolouration of cooked potato crisps caused by the bacterium *Candidatus* Liberibacter solanacearum (CLso). ZC has caused significant problems in the New Zealand potato industry. Tomato-potato psyllid (*Bactericera cockerelli*) (TPP) is a vector for CLso. Surround® WP, formulated from nontoxic kaolin clay and a spreader-sticker, is effective in protecting fruit trees from various insect pests. Sulphur has been widely used to control arthropod pests, especially mites. Fosetyl-aluminium has no bactericide properties as such, but can change the host susceptibility to some bacteria, such as fire blight (*Erwinia amylovora*). A field trial, conducted at Pukekohe to determine the effects of kaolin clay, sulphur, and fosetyl-aluminium applied as foliar sprays, on TPP, potato yields, tuber dry matter content and incidence of ZC, found that, while not reducing ZC, sulphur demonstrated potential for reducing TPP nymph numbers in the crop. Kaolin and fosetyl-aluminium were not effective in controlling either TPP or ZC.

Effects of garlic oil on tomato-potato psyllid

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Tomato-potato psyllid (*Bactericera cockerelli*) (TPP) is a vector for *Candidatus* Liberibacter solanacearum (CLso), a bacterium responsible for causing zebra chip (ZC), a mottled browning discolouration of cooked potato crisps. Organic gardeners have long relied on garlic as part of their pest-control arsenal. Garlic contains sulphur, which, besides being toxic to pests, is also an antibacterial and antifungal agent. BioRepel® (JH Biotech, Inc.) is a natural insect repellent made from garlic oil (10% garlic oil). BioRepel® has been reported to repel several plant insect pests including aphids, leaf hoppers, whiteflies and thrips. A field trial, conducted at Pukekohe to determine the effects of foliar applications of BioRepel® garlic oil on TPP nymphs in potato foliage, found that garlic oil significantly reduced TPP nymph populations. TPP nymph numbers in the unsprayed plots increased during the season from 0.06 nymphs per leaf on 5 January to 12.12 nymphs on 9 March 2010, while on that date the mean number of nymphs per leaf in the BioRepel® oil treatment was 3.05. Further research to determine effects of garlic oil on zebra chip of potato crisps is planned.