ARE COMMON CROP VIRUSES A THREAT TO NEW ZEALAND'S ONLY NATIVE CUCURBIT, *SICYOS AUSTRALIS*?

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Mawhai (*Sicyos australis*) is New Zealand's only native cucurbit, and a rare, endangered species. It has been suggested that viruses introduced with cucurbit crops have been a contributing factor to mawhai's decline over the last 50 years. *Cucumber mosaic virus* (CMV) and *Zucchini yellow mosaic virus* (ZYMV) are important viral diseases of cucurbit crops, and are present with their aphid vectors in New Zealand. Preliminary studies have shown that mawhai is susceptible to both CMV and ZYMV. The effects of ZYMV on mawhai include mild leaf distortion and yellowing as well as a slight growth reduction, but no observable reduction in flowering or seed production. The effect of CMV on mawhai include leaf distortion, yellowing of veins, reduced leaf size and reduced growth (>50%). There is also reduced flower and fruit production, with some CMV infected plants dying before producing mature seeds. This is an important finding as mawhai is an annual/biennial plant that relies on its seed stock for population survival. A preliminary survey of virus incidence in mawhai's remnant populations show an absence of CMV, low incidence of ZYMV and *Watermelon mosaic virus* (WMV), and high incidence of positive reactions from asymptomatic samples to a broad-spectrum *Potyvirus* antiserum.

POTATO VIRUSES IN NEW ZEALAND: DIFFERENCES IN CULTIVAR RESISTANCE

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Virus diseases are generally not a serious problem in potatoes because there is a sound high-health seed production programme. However, occasional outbreaks of *Potato leafroll virus* (PLRV) and *Potato virus Y* (PVY) still cause some concern. Following observations that cv. Red Rascal was tolerant to PLRV we have examined the effect of PLRV infections on several cultivars. Primary PLRV had little effect on yields of Desiree, Red Rascal and Shepody. However, for Ilam Hardy, Russet Burbank and Rua, PLRV infection reduced numbers of marketable tubers by 68% to 84%. With secondary PLRV infection Red Rascal showed the least yield difference from non-infected controls. Similarly, after the recent isolation of PVY^{NTN}, causing potato tuber necrosis ring-spot disease (PTNRD), from the NZ-bred cv. Rua we examined the response of our potato varieties to this damaging strain of PVY. Experiments with PVY^{NTN} demonstrated that Rua is most susceptible to PTNRD. Some cultivars were tolerant to PTNRD. For example, Russett Burbank was susceptible to infection but failed to develop significant tuber blistering. Kaimai and Ilam Hardy developed symptoms only after secondary infection. PVY^N and PVY^{NTN} also caused yield losses of between 4% and 38% in addition to the physical damage caused by PTNRD.