The changing nature of IPM in outdoor vegetables in New Zealand

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IPM programmes for outdoor vegetables have previously been successfully developed and implemented for processing tomatoes and vegetable brassicas in New Zealand. The success of these programmes was based on background research on developing cost-effective monitoring tools, successful classical biological control (CBC) programmes, registration of new selective insecticides, plus industry 'buy-in' of IRM and IPM strategies. However, these and other developing IPM programmes have recently come under threat from 1) new pest incursions including currant-lettuce aphid and tomato-potato psyllid, and 2) increasing insecticide resistance in key pests, for example diamondback moth and potato tuber moth. Underpinning research on biological control agents (BCAs) has switched from CBC programmes, previously focussing on introduction of specialist parasitic hymenoptera, to maximising the impacts of existing BCAs, in particular the generalist, foliage-dwelling predators such as brown lacewing and small hover fly. ERMA is reassessing a number of insecticides, with endosulfan now de-registered and a range of organo-phosphate products under review. The potential loss of broad-spectrum insecticide classes, combined with the fact that many key insect pests are now resistant to pyrethroids, provides a unique opportunity to emphasise the use of compatible controls, namely BCAs and selective insecticides. A real challenge is to maintain the activity of new valuable insecticide classes while managing pests that are already resistant to other insecticides. Other challenges include the development of IPM programmes for the large number of 'small' crops, disruptions to IPM stability by new pest incursions, plus the lack of intensive on-the-job training that is required for IPM implementation.