Software promises a bird-friendly solution for orchards

Orchardists have long been frustrated that current methods for scaring away fruit-eating birds are only effective in the short-term because birds learn to ignore the usual deterrents. Innovative bird-call recognition software might now solve the problem, with the potential to save fruit growers millions of dollars annually in crops lost to birds. There may also be wider uses for the program internationally.

Looking for a clever, sustained solution for orchardists, engineering researchers Melanie Symons and Chris Clark from the University of South Australia developed software that identifies bird species by performing digital signal processing on bird calls recorded live in orchards and comparing these to the characteristics of known calls stored in the computer's accompanying library. When a match is found, the program then commands playing of one of a range of scaring responses pre-determined as effective.

'Each time a problematic bird is detected the software chooses one of several different scaring techniques specific to that bird species. Some are general, such as loud music, while others are more species-specific, such as predator calls, and alarm or distress calls,' Symons said.

The researchers believe they have determined why traditional bird scaring methods such as scarecrows or air guns prove ineffective in the long run.

'Existing techniques fail because the birds become accustomed to them easily. Our research has suggested that scaring techniques need to be species-specific, and that more

Symons and Clark's prototype was encouragingly successful with the local Adelaide Rosella which frequents South Australian orchards.
Duncan MacKenzie

than one scaring technique is needed to maximise scaring efficiency. If you randomly combine auditory and visual scaring techniques the number of unique scaring combinations increases and the birds won't become accustomed to them as easily,' Clark said.

The study focussed mainly on the Adelaide Rosella, which is regarded by cherry farmers in South Australia as the greatest threat to crops. Even with existing bird scaring techniques in place, some farmers still experience a minimum 30 per cent damage to their crop by birds.

'With further work, it's possible that visual or other scaring deterrents could be added to the repertoire of effective scaring responses in order to increase the efficiency of the system and range of target species,' Symons said.

While the software development is only the first part of the project, both students believe that future research will enable it to be developed commercially into an affordable hardware unit that would become a permanent fixture in fruit orchards.

Symons agrees that wide use of such units would also be much better for birds. With reduced habitats and feeding sites, they are increasingly likely to feed in orchard areas.

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'The use of chemicals and baiting by orchardists to reduce bird numbers isn't great. Birds probably also get caught in protective netting over orchards. Hopefully the software solution will be better all round for everyone, saving both birds and money.'

'As far as we know, there's no other software around which does the same job,' she said. 'We're hoping that this is the first step towards developing a more flexible program with wider applications – possibly internationally'.

Symons and Clark's program has potential for other purposes. Clark says that it would be possible to adapt the system to, say, play attraction responses rather deterrents, bringing target species in for study, for pollination or to possibly repopulate rehabilitated habitat.

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