

Audible Bird Scaring Devices

Overview of Audible Bird Scaring Devices

Audible Bird Scaring Devices (ABSD) are used on orchards to scare birds from kiwifruit, berry and cherry orchards mainly during bud break (generally September to October). Birds can destroy an entire crop if not managed. ABSD can also be used on some vegetable crops.

Horticulture is of economic value to New Zealand and profitability can be significantly affected by bird damage. Effective and acceptable bird control measures, including audible bird scaring devices, are required to avoid personal and community losses.

Bird management requires constantly adapted, integrated management techniques. Birds acclimatise easily to any one measure therefore a holistic approach is best.

Bird scarers are a necessary part of horticulture to protect the crop ready for harvest as birds can destroy an entire crop if not managed.

Types of Audible Bird Scaring Devices

The most common ABSD used in New Zealand is the gas gun. LPG is ignited in a blast tube to create a loud bang or boom and electronic controls are used to control run time, firing interval and number of shots per cycle. Some gas guns are stationary, ground-based models; others are portable and can be mounted on a vehicle. Commonly used are units on a tripod mount, that rotate with each blast.



Gas gun

Gas guns have been used for several decades and are the most common form of ABSD used in horticulture and are one of the easiest and more cost-effective ways of deterring birds from large open spaces. Initial shots startle birds and further shots send them flying out of the area and are an effective way of deterring most bird species from cropping

or orchard areas. During this time, the gas guns are moved regularly and shot firing intervals are randomised.

Noise levels of Audible Bird Scaring Devices

It is difficult to give exact decibel ratings that birds will be deterred at, as this can depend on a number of variables that can influence the effectiveness of ABSDs:

Bird species: Different bird species react differently to deterrents. No bird deterrent will have the same impact, effect, or potential coverage for all bird species. As a general guide, birds that move together in large flocks are often easier to deter than birds that move around individually or in small family groups. Flocks of birds can also be deterred more easily over larger distances than individual birds that tend to hide in the immediate area when frightened. Bird's diets can differ, which makes some crops more attractive to some species than others. This can also vary depending on the time of the year.

Bird pressure: Bird pressure involves the amount of bird activity in an area. Higher bird activity and presence in an area normally means birds will be harder to deter. Birds living in the immediate area will be more difficult to deter than flocks of birds that live some distance away. Bird habitat e.g. trees, other roosting spots and water sources will increase bird pressure.

Alternate food sources: Food sources attract birds to an area, but where alternate food sources are available, that are more attractive to birds, crops can sustain less bird damage. For example, sparrows will cause damage to kiwifruit at budburst however as they are grain and seed eating birds and if there is grass-seed nearby they will feed from this in the first instance, rather than causing damage to the kiwifruit buds. This can decrease reliance on deterrents.

Crop type: Different crops can have different levels of attractiveness to birds. Crops that are more attractive to birds (or form a main part of a certain bird species diet) will normally see increased bird pressure and crop damage, compared to crops that are less desirable (or don't form a main part of a birds diet). Crops that are more desirable to birds will need to have a greater reliance on bird deterrents, than those that are less attractive.

Canopy structure: Canopy structure or growing style can also influence how deterrents are used and in the case of ABSDs, the number of units required to cover a particular area. Crops with a higher density per hectare will normally require a greater level of deterrents and volume of sound to cover the area, as will taller trees or canopy structures.

Environmental conditions: Wind, rain and other environmental factors can influence the effectiveness of ABSDs. Strong wind and heavy rain can decrease range or coverage area.

Use of shelter: Shelter belts or use of artificial shelter will influence how deterrents can be used. In the case of ABSDs, both shelter and artificial shelter can reduce the volume of sound (this will depend on the density of the shelter used). For crops where shelter is used extensively, a greater number of ABSDs are normally required to cover an area effectively.

The greatest effectiveness of gas guns is within a range of 150 metres, with some effectiveness continuing out to a range of 250 metres. Decibel readings of greater than 90db to be required for the best level of effectiveness; and decibel readings of 85db and greater, for gas guns to be reasonably effective in deterring birds.

The effective number of shots per hour depends on the bird pressure and if the gas gun is the sole means of bird control or other measures are being used. To be effective, three shots per cycle with a random delay interval of 8 – 16 minutes - approx. 5 events/15 individual shots per hour. (If the gas gun is the main bird deterrent). If other bird deterrent measures are undertaken then the shots per hour would reduce.

Other bird deterrent measures

There are a range of non-audible bird scarer devices and/or mitigations growers can deploy:



Reflective tape, kites, balloons rely on the wind and sun to be effective. Birds find them scary and unsettling so keep away in the short term, but they do get used to this relatively quickly, therefore should be applied in conjunction with other measures



Intensive sward planting allows the grass sward to grow longer to retain the poa annua grass seed heads to provide a food source for birds on the orchard floor. This reduces the incidence of birds in the canopy looking for food as they are more likely to remain on the ground to feed – however this process may attract birds to the orchard



Ultrasonic high frequencies

(which the human ear cannot hear) to deter birds and other pests. When the birds or pests hear the sound being produced, they can become disoriented or irritated by the noise. These frequencies can also have an effect of dogs and cats



Laser bird scarers are used by some growers to prevent bird strike as they unsettle and annoy birds. There are several safety rules that may prevent lasers from being effective (inadvertently causing laser strike to aircraft and vehicles)



Bird repellents (agrichemicals) are not required to be included in the Agricultural Compounds and Veterinary Medicines register. One product currently listed as a bird repellent for kiwifruit growers is Flock Off. Flock Off works as a repellent by stimulating the 'trigeminal nerves' in the bird's beak, eyes and throat. Although most animals have these nerves, only birds react to Flock Off. Flock Off irritates a bird's sense of taste and smell.

Other ABSD that are less commonly used include:

Sonic (audible) sound equipment broadcasts a variety of naturally recorded bird distress signals, predator calls and harassment sounds that frighten, confuse and disorient pest birds, within the effective range)

Bioacoustic deterrents are electronic sound equipment playing through speakers. The sounds used can be a range of natural bird distress or alarm sounds, predator sounds or man-made harassment sounds. Units have electronic controls to set the overall run time, sounds played, delay interval between cycles and volume.

Pyrotechnics are non-lethal cartridges fired from a hand-held launcher, or in some cases a shotgun. The cartridges produce a sound to deter birds, a loud bang, screech or whistling sound similar to fireworks. These products are restricted to users 18 or over