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Safe use of gas guns, gas cannons and pyrotechnic cartridges

This guide covers the use of explosive devices such as gas guns, gas cannons (also known as gas bangers) and pyrotechnic cartridges to scare and deter birds.

Gas guns and gas cannons create loud noises when propane gas and air are ignited to create small explosions. Pyrotechnic cartridges produce loud sounds when launched. These sounds include bangs, high-pitched screaming and screeching that may mimic predators, and whistles.

There are risks to workers and others from the use of explosive devices. The devices can injure people or animals, or harm property. Serious harm can be caused to eyes, ears, skin or other body parts – resulting in permanent damage. There is also risk from fires particularly in dry and windy areas.

The guide:

- is for businesses where birds gather – such as farms, vineyards, orchards or similar properties where crops are grown, and airports.
- provides advice on how a person conducting a business or undertaking (PCBU) can manage the risks arising from the use of explosive devices.

Before you read this guide you should read *Bird-scaring methods – an introduction to risk management* on our website. It covers your Health and Safety at Work 2015 (HSWA) duties and related information: worksafe.govt.nz

How you can manage risks

Managing risks related to shooting, handling and storage

If you cannot effectively manage the risks of using explosive devices, then WorkSafe recommends that you **consider alternative methods** of bird-scaring to eliminate the risk of harm.

If you are using explosive devices, this section outlines the control measures that you should consider to eliminate or minimise risks. Give preference to control measures that protect many workers at the same time.

There may be risks and hazards that are not identified in this guide. You should still identify and assess health and safety risks arising from your own work – and you must engage with workers (and their representatives) when you are doing this. Workers must have opportunities to make suggestions, ask questions or raise concerns.

WHAT COULD GO WRONG	CONTROL MEASURES
<p>Gas guns and gas cannons, and pyrotechnic cartridges</p> <p>Noise affects:</p> <ul style="list-style-type: none"> - operators - workers and other people nearby - neighbours - livestock 	<p>Note: Personal protective equipment (PPE) is the least effective control measure. It should not be the first or only control measure you consider.</p> <p>Keep devices a clearly-defined distance from workers and others.</p> <p>Ensure the device is directed away from people and animals.</p> <p>Limit or avoid sounds that mimic predatory bird calls – these can be distressing to people as well as non-target birds (pyrotechnic cartridges).</p> <p>Identify people and livestock in area.</p> <p>Let local people know what is happening.</p> <p>Restrict hours of use/operation.</p> <p>Limit the time workers are exposed to noise by rotating tasks or shifts.</p> <p>Provide ‘quiet areas’ for workers, away from noise.</p> <p>Restrict how close workers can get to noisy devices.</p> <p>Turn off the device when workers working nearby.</p> <p>Avoid launching/operating/positioning devices:</p> <ul style="list-style-type: none"> - in line with neighbouring properties - in areas where sound could echo. <p>Direct sound away from areas where people live or work.</p> <p>Wear hearing protection of the correct class.</p> <p>Comply with RMA noise level requirements.</p> <p>Comply with your local council rules and regulations. For example, limits relating to:</p> <ul style="list-style-type: none"> - hours of use - frequency of use - noise levels - distance from neighbouring properties. <p>Communicate clearly with neighbours:</p> <ul style="list-style-type: none"> - discuss and resolve issues together - try to understand their point of view - consider writing down any agreements reached, and sharing a copy with neighbours.
<p>Gas guns and gas cannons</p> <p>Fire – caused by:</p> <ul style="list-style-type: none"> - gas leak - sparks igniting dry material - stand falling over 	<p>Check the cylinder regularly – including soap test for gas leaks.</p> <p>Secure stand firmly – particularly in windy areas.</p> <p>Keep cylinder away from sources of heat and ignition such as sparks, open flames, hot surfaces, and cigarettes.</p> <p>Position equipment away from materials that could catch fire.</p> <p>Avoid use during high fire risk periods.</p> <p>Service and clean according to manufacturers’ instructions.</p>
<p>Pyrotechnic devices</p> <p>Fire – caused by cartridge landing on flammable material (such as dry grass)</p>	<p>Know where the cartridge will land – avoid areas that could catch on fire.</p> <p>Avoid using the cartridge system on windy day.</p>
<p>Pyrotechnic devices</p> <p>Unsuitable cartridge jams or damages device</p>	<p>Use only cartridges recommended by the manufacturer.</p>

WHAT COULD GO WRONG	CONTROL MEASURES
<p>Pyrotechnic devices</p> <p>Projectile or cartridge injures person or harms property</p> <p>Cartridge misfires</p> <ul style="list-style-type: none"> - burn in device - explode in hand 	<p>Note: Personal protective equipment (PPE) is the least effective control measure. It should not be the first or only control measure you consider.</p> <p>Provide adequate information, training, instruction and <u>supervision</u> for all operators:</p> <ul style="list-style-type: none"> - people with a firearms licence may need training in the safe use of pyrotechnic launcher systems and cartridges. - cartridges handle differently to other projectiles such as shot. <p>Provide appropriate safety glasses or goggles (see below).</p> <p>Share maps indicating where workers are active.</p> <p>Place bright cones at the end of crop or vine rows to warn that workers are in the area.</p> <p>Know and respect neighbouring boundaries.</p> <p>Ensure everyone knows cartridges are in use so the target area can be avoided.</p> <p>Aim above canopy height.</p> <p>Use only cartridges recommended by the manufacturer.</p>
<p>Pyrotechnic devices</p> <p>Eye/s damaged by projectile</p>	<p>Wear eye protection (goggles or glasses) with appropriate impact protection; check lens markings for impact resistance rating: worksafe.govt.nz</p>
<p>Pyrotechnic devices</p> <p>Explosive launched from moving vehicle – causes vehicle incident</p>	<p>Ensure the vehicle is completely stopped:</p> <ul style="list-style-type: none"> - when operating explosive devices - if the vehicle is being used as a mobile platform.
<p>Gas guns and gas cannons</p> <p>Liquid propane contacts skin causing freeze injury (burn)</p>	<p>Wear appropriate protective clothing when handling cylinders.</p> <p>Put first aid and other emergency procedures in place – make sure first aiders have training on dealing with burn injuries.</p>
<p>Gas guns and gas cannons</p> <p>Gas leak causes symptoms of carbon monoxide poisoning (for example, headache, shortness of breath, nausea)</p>	<p>Check equipment regularly, including pipes, gas cylinder, wiring.</p> <p>Sniff for gas smell before turning on gas-powered equipment.</p>
<p>Gas guns and gas cannons</p> <p>Equipment or device malfunctions – for example, light sensor fails and unit does not turn off at programmed time</p>	<p>Have an ongoing maintenance plan for equipment and devices.</p> <p>Check that equipment has a fail-safe mechanism.</p> <p>Check regularly that equipment is still turning on and off as scheduled.</p> <p>If repairs are needed, use only recommended parts.</p>
<p>Pyrotechnic devices</p> <p>Projectiles directed at areas where work is taking place</p>	<p>Place end row markers – for example, bright cones at the end of crop or vine rows to warn that workers are in the area.</p> <p>Share maps indicating where workers are active.</p>
<p>Gas guns and gas cannons, and pyrotechnic cartridges</p> <p>Workers and other people not aware that gas and pyrotechnic devices are in use</p>	<p>Have a checklist system alerting workers to gas gun and pyrotechnic use.</p> <p>Inform workers at toolbox talks.</p> <p>Put warning signs in place.</p> <p>Share maps indicating where workers are active.</p> <p>Place bright cones at end of crop or vine rows to warn that workers are in the area.</p>
<p>Gas guns and gas cannons</p> <p>Stand is damaged either accidentally or on purpose</p>	<p>Check the stand daily.</p> <p>Secure the area around stand to keep people and livestock away.</p>
<p>Gas guns and gas cannons, and pyrotechnic cartridges</p> <p>Worker health affected by noise</p>	<p>Carry out health monitoring where appropriate – for example, monitor workers' hearing to detect early hearing loss.</p>

More information

Other bird scaring guidance

[Introduction – general risk management](#)

[Firearms](#)

[Vehicles](#)

[Lasers](#)

[Drones](#)

[Netting](#)