



Wind Machine Safety



Wind machines are used to provide frost protection for orchards and vineyards. When an inversion layer forms above the plants, the temperature may be up to 5°C warmer 10 to 16 metres above the plants. Under these conditions, colder air becomes trapped below the inversion layer increasing the risk of frost damage at ground level. Wind machines can move warmer air from the inversion layer downward to prevent or minimise frost damage caused by colder air.

Like all machinery, wind machines have the potential to fail unless they are properly maintained and operated. There have been several machine failures to date and fortunately no one has been injured by these failures.

There are a number of requirements to be satisfied to safely operate wind machines in vineyards and orchards in New Zealand.



Fuels used in the machines need to be stored in accordance with requirements set out in the Hazardous Substances and New Organisms (HSNO) Act 1996 (Regulations and amendments) particularly if petrol is present in a quantity in excess of 100 litres.

DISTRICT COUNCIL REQUIREMENTS

To erect a wind machine building consents and in some instances resource consents are required. It is important to talk to the Council planners in the early stages find out if they require resource consent, and to ensure that the machines comply with the requirements of any Resource Management Plan.

Apart from the requirement to have consents, there are specific rules regarding noise levels and setbacks from zone boundaries that require investigation. It is simpler to work with the council and get advice before the job is started. When the erection of the machine is completed obtain a code of compliance certificate before operating the machine.

It is extremely difficult to accurately measure the distance a wind machine blade may travel, given all the variables, in the unlikely event of a mechanical failure. A manufacturer will usually recommend a safe distance to be maintained, and the Council may choose to take this recommendation into account when they are assessing a request for resource consent.

HEALTH AND SAFETY REQUIREMENTS

The Health and Safety in Employment Act 1992 and Regulations 1995 require employers to provide and maintain a safe work environment. Employers are also required to ensure that plant is designed, made and maintained to be safe. Employers must ensure that employees working with plant are either supervised or trained in the use of the plant so that they are not harmed by it.

WHAT CAN BE DONE TO ENSURE THE SAFE OPERATION OF WIND MACHINES?

- Thoroughly read and understand information provided in the wind machine operator's manual. Pay particular attention to descriptions of safety procedures.
- Before using the machine each frost season, always inspect for damage or disrepair and make sure that all drive train covers are securely in place. Always check gearbox oil levels prior to use and lubricate according to the manufacturer's instructions.
- If a wind machine fails the pre-use inspection, remove the equipment from service until repairs have been carried out using lockout procedures.
- Keep vineyard sprays from hitting wind machine engines and towers.
- Shield wind machine engines from irrigation sprinklers.
- Always stand outside of the plane of rotation of the fan blades. When near the wind machine, keep the wind machine tower between yourself and the fan shaft.
- Never operate a wind machine during foggy conditions.
- Only authorised and suitably trained people should climb wind machine towers. Where practicable, use an elevating work platform.
- Wind machine repairs and seasonal maintenance shall be performed by the vendor or vendor-approved contractor.
- Follow the manufacturer's advice regarding machine start-up and shut-down procedures.
- Never allow the fuel tank to run out of fuel when a wind machine is operating.
- Do not make adjustments, alterations or modifications to the machine without first consulting the supplier.