

# Revolutionising Frost Protection

Spring is a promising time of the year. Vibrant blue sky, bright sunny days and new growth contribute to the promise of what is to come. As revitalising as all this is to most of us, it is a nerve racking time for viticulturists and crop growers.

During the spring time, growers experience large frost risk for their budding crops. A frost is small ice crystals which form on the ground and other surfaces when the temperature drops below 0°C. In the case of crops, frost damage occurs when ice forms in the plant tissue which in turn injures the cells of the plant. Damage can vary from a small part of the plant tissue to loss of the entire plant. Both have a devastating impact on growers from either reduced quality or lack of overall produce.

New growth in plants starts occurring early spring with the bud break. During this time, the new shoots are especially vulnerable to frost damage, therefore, it is essential that growers are best protected against potential crop loss.

Frosts generally occur on clear nights where there is no cloud cover and little to no wind. The sun warms the soil during the day, but with no cloud cover at night, the heat escapes into the atmosphere. With the right conditions an inversion layer can form between 15m - 30m which varies in temperature between 1°C to 4°C.

Common frost defence methods include helicopters and wind fans. Effectiveness depends on the warmth of the inversion layer and the degree of frost that is present. Generally, these methods work best in less severe frosts of -1° to -2°C for a short period of time before crop loss occurs (often up to 50%). Severe frosts are generally -2°C for four hours, or -3°C for two hours.

Although these options can help significantly, only water has proven to be 100% effective with a frost at -3°C. These options are costly to set up and maintain, especially when the protection of your crops is not guaranteed with a severe frost.



We add warm air.

In order to be fully protected, the area needs warm air to dry the crops. If there is no moisture, then there is nothing to freeze.

Until now, supplementary heat has been from diesel burners or LPG powered heaters, both with varying degrees of success. In reality, little has changed with frost protection over the past 40 years. However, recent ground breaking technology has meant there is another more effective option for heating crops.

Envisage one piece of equipment that can pump out LPG heated warm air to 20 hectares and is tested and proven to reduce crop losses in frosts down to -3°C without the need for an inversion layer. It is on wheels, fully portable and also features a hand held controller for operating and monitoring.

It meets noise regulations at 130m, so you can sleep soundly knowing your crops are protected rather than listening to the whirring of the helicopter blades or wind fans.

This revolutionary piece of equipment, Heat Ranger, was developed after the founders experienced a crippling season of -2°C and -3°C frosts.

This season wiped out their entire blackcurrant crop (despite three helicopters going).

The market needed a new method of frost protection, to which Heat Ranger delivered. This equipment is unique because it does not require an inversion layer as it creates its own. Standing proud at 5.3m, it operates from a fixed position and with a turret rotation management system to allow customisation for field shape and situation. It rotates approximately once every three minutes whilst continuously blowing out warm air at 30°C. The Heat Ranger is so effective that the warm air reaches out over a 250m radius, resulting in up to 20 hectares of protection per machine.

When the cost of frost damage is so high, it is essential to invest your money wisely.

Choose equipment that provides you with an efficient, cost effective solution to protect your crops from frost damage.

Are you ready to let Heat Ranger ease your nerves in frost season? Chat to the Heat Ranger team today.



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