

Heat Ranger saves more crop.

We add warm air.



Benefits:

- Our warm air at less than 30°C does not rise like "HOT AIR".
- Proven to reduce crop losses in frosts down to -3°C (tested over six years).
- New technology reduces risk and worry for growers, financiers and the added-value chain.
- One machine cost effectively covers up to 20 hectares with warm air.
- LPG is used as it is clean burning and economical- approx \$150 per hour.
- Fully portable (on wheels).
- Meets noise regulations, meaning no complaints from neighbours.
- No inversion layer needed, whereas wind machines and helicopters do.
- Two models available, both made with quality materials by Wyma Engineering Ltd in Christchurch, New Zealand.

Warm air has massive potential for your business.

Patent Pending

TM

HEAT RANGER

Enhancing Your Crop Climate



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Benefits Continued:

The Science. The science is that frost damage occurs when plant cells freeze and rupture. The protection from Heat Ranger is likely to be from a combination of factors including the increase in temperature, warming the atmosphere and plants, and the blanket of warm air over the crop every three minutes that swirls.

Waipara Frost Survey March 2016. Independent Horticultural Consultant, Jim Grierson surveyed 21 of 31 Waipara (Canterbury, New Zealand) winegrowers in March 2016, before the harvest. This followed a spring frost season in 2015 with two significant frost events; -2°C for four hours and the most severe being -3°C for seven hours on 5th November.

Reported crop loss from protection systems was:

- Water Sprinklers 0 to 5%
- Helicopters 5% to 30%
- Wind Machines 5 to 50%
- Tow & Blow 50%
- No Protection 50% to 100%
- Heat Ranger 0% loss

Heat Ranger had no crop damage (0% loss) as inspected by Jim Grierson and Ross Trowsdale (Fiddlers Green). Fred Phillips and Bruce Koller also observed the positive effect. Heat Ranger provides the same protection as water for a quarter of the cost. The warm air provided by Heat Ranger stays on the crop.

Tree Crops- Cherries- 2018. The intensive growing systems for tree crops and cherries with the buds and flowers exposed vertically (0.7 m to 2.6m) appear to suit the Heat Ranger warm air blanket effect. Our tests on cherries in Central Otago in 2018 have been encouraging, and out to 200 m which is 13 hectares, in severe winter frosts.

Helicopters and wind machines generally report 20% to 50% crop loss in severe events. With no inversion layer, helicopters and wind machines can blast freeze the crop, doing more harm than good.

Recent experience is that -3°C temperatures in the September to December period are increasingly common. This is also happening in the Northern Hemisphere with Bordeaux, France, and many other parts of Europe experiencing devastating frosts in April/May 2017.

The Economics:

Our proven warm air technology works and we are the most cost effective option for you.

With high value crops, a small amount of crop saved can pay for Heat Ranger in just one year.

With Heat Ranger you get a stress saving asset that will repeatedly cover up to 20 hectares and last for approximately 20 years.

The effective area covered with Heat Ranger seems to be up to 13 hectares for tree crops less than 2.6m high; and up to 20 hectares for low growing crops. The effective area for wind machines (with an inversion layer present) seems to be about 3 hectares in severe frosts.

Five wind machines equivalent= some \$ 280,000 plus GST

Heat Ranger = \$ 190,000 plus GST

And a quarter the cost of water, without the problems.

Investment Risk Management. To reduce the investment risk in high value crops, you need to ensure they are not exposed to wind, birds, hail and frost. Using nets or covers can help avoid damage from birds, wind and hail.

Heat Ranger gives a high level of frost protection under the nets.

The Heat Ranger is 5.0m tall meaning the nets need to be 6.0m tall. Ideally there would be a 2m space between the crop and the netting.



Above: Blueberry crop with netting to provide protection from birds, wind and hail.

To reduce stress and change your risk profile, contact us now! We will have a closer look at your property and future development plans. We will give you a proposal for the most cost effective cover for your site (vineyard, blackcurrants, blueberries, cherries, orchards, vegetables, etc) or any proposed development where you think Heat Ranger's warm air may help.

Noise. Heat Ranger is quiet (it doesn't pulsate) and meets all noise regulations at 130 metres.

Burner Technology. Our LPG burner technology is unique and very cost effective at \$150 per hour over large areas. **We can adapt for tunnel houses and other covered crops; so get in touch now!**

Leading the Revolution in Climate Management Systems