

HEAT RANGER®

Enhancing Your Crop Climate

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New Zealand
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Capital Stringency with Heat Ranger Update #10

The aim for Heat Ranger since day one has been to be able to protect crops at frost intensities down to -3°C over 20 hectares, on a range of crops, and can now add capital stringency to the benefits.

A number of contributors to the Bragato Conference and the Winepress, are commenting on climate change, La Nina, earlier flowering, and late severe spring frosts (-3°C), can be very damaging to the industry. Prof Andrew Sturman at a conference in Bordeaux earlier in the year noted that the industry there was reeling from just such an event and not to be too complacent here in NZ as climate is changing.

The Heat Ranger team is only too well aware of this. Over the last 10 years with -3°C frosts in November from 2006 on (three years in a row wiped out Broadacres Blackcurrants), and again at Waipara last year where Heat Ranger performed very well in a 7 hour -3°C frost with no crop lost.

Testing in frosts is difficult, but essential to enable us to provide you with sound information for sensible capital investment. We have been able to access sites during the winter when there is no crop risk and this has been very important in enabling us to evaluate the effective area of coverage and to ensure that our mechanical and electronic systems are reliable and effective, especially for remote control options. This testing has shows we can effectively cover 20ha with one machine and meets our original objective.

For spring frosts we need to have test sites that do not have other frost protection mechanisms in place, as these could interfere with our testing results. This spring we did not get significant frost events in Waipara or the upper Wairau valley where we had hoped to measure the level of crop protection achieved and add to the impressive November 2105 results where Heat Ranger saved the total crop at Fiddlers Green.

Most of the low risk areas have already been planted and newer blocks are often on more challenging areas (-3°C frosts) for which Heat Ranger has been developed. If you are looking for frost protection on new plantings, we believe that you will find the capital investment and ongoing running costs very competitive on a per ha basis, for the level of protection provided. Call us for a no obligation site inspection and quote for your development project. Heat Ranger is price competitive, quiet, reliable, has a local service team and high quality New Zealand manufacturing based in Christchurch.

Because the machine is portable and self supporting, it can be easily relocated when frost duties are over, to warm the air for pollination enhancement for your different maturing varieties.

To encourage early adoption we have reduced the price for multiple orders by \$10,000 and a further \$10,000 if ordered by the end of February 2017. This enables us to manufacture over summer and have machines installed and ready before the frost season. This makes the motorised model \$180,000 plus GST (including the gas pallets and Harvest equipment), and \$ 165,000 plus GST for the tractor driven model. We can cover 20ha so you can work out the capital savings here, in a year when capital stringency is important!

Bruce Koller (021 458 029), Fred Phillips (0274829982)

Leading the Revolution in Climate Management Systems

Waipara Frost Survey March 2016

Jim Grierson (Independent Horticultural Consultant) surveyed 21 of the 31 Waipara winegrowers in March 2016 before harvest. This followed a spring frost season in 2015 with two significant frost events the most severe being **-3° C for 7 hours on 5th Nov.**

Reported crop lost from the following protection systems was:

- Water sprinklers 0 to 5 %;
- Helicopters 5% to 10%;
- Wind Machines 5% to 50%;
- Tow and Blow 50%;
- Non protection 50% to 100%;

Heat Ranger 0%, no crop damage as inspected by Jim Grierson and Ross Trowsdale (Fiddlers Green).

The observation by Fred Phillips and Bruce Koller was that the positive effect extended out beyond 300m; which is over 30 hectares.

Many crops can handle -1° C for short periods, but struggle at -2° C for 2hrs before crop is being lost and the longer the time period the more damage, as cells freeze in the plants.

Our experience with helicopters is that there is generally up to 20% lost in severe events.

If there is no inversion layer then helicopters and wind machines can do more harm than good.

Recent climate event experience is that -3° C temperatures in the Sept to Dec period are increasingly common. Flowering in grapes for example is 5 days earlier since 1990 (Trought), so potential damage is greater, and Heat Ranger is a combat tool that has been developed for these scenarios.

The basic economics are:

For a 3t crop loss per hectare @ \$2,000/t = \$6,000 and for 20 hectares = \$120,000.

Heat Ranger operating for 3 frosts has a fuel cost of about \$5,000 which means a net crop saved of \$115,000 for each year of significant frosts in a low yield area like Waipara.

In a higher yield area (Marlborough) with a potential crop loss of 5t, the value of crop saved is **\$195,000** and **pays for Heat Ranger in one year.**

To change your risk profile call us to have a closer look at your property and future development plans, so that we can set out a proposal that will give you the cover that is **most cost effective** for your existing vineyard, blackcurrants, blueberries, orchards or any proposed development of new areas or crops where you think Heat Ranger may help.

Economic comparison (best estimates) on 20 has protected and four events.

Heat Ranger; summer special price \$180,000 plus GST; operating per season \$8,000

Helicopters; no capital cost, and operating costs for four events per season **\$80,000**

Four wind machines; capital estimate **\$260,000**; operating costs per season **\$4,000**

Water; capital cost of **\$700,000** and operating cost estimate per season of **\$8,000**

Rabobank Finance over five years is about **\$46,000 per year**, and a lot less than relying on helicopters (\$80,000), and the stress involved with ordering them!

We are the only tested system that supplies warm air when you need it, so give us a call now.

The motorised model is now with Dr John Forrest; 1224 Kaituna –Taumarina Rd, lower Wairau.

Tractor driven model at Fiddlers Green, Waipara.