

Heat Ranger Ltd
40E Thackeray St
Hamilton 3204
New Zealand

ph 07 838 0477

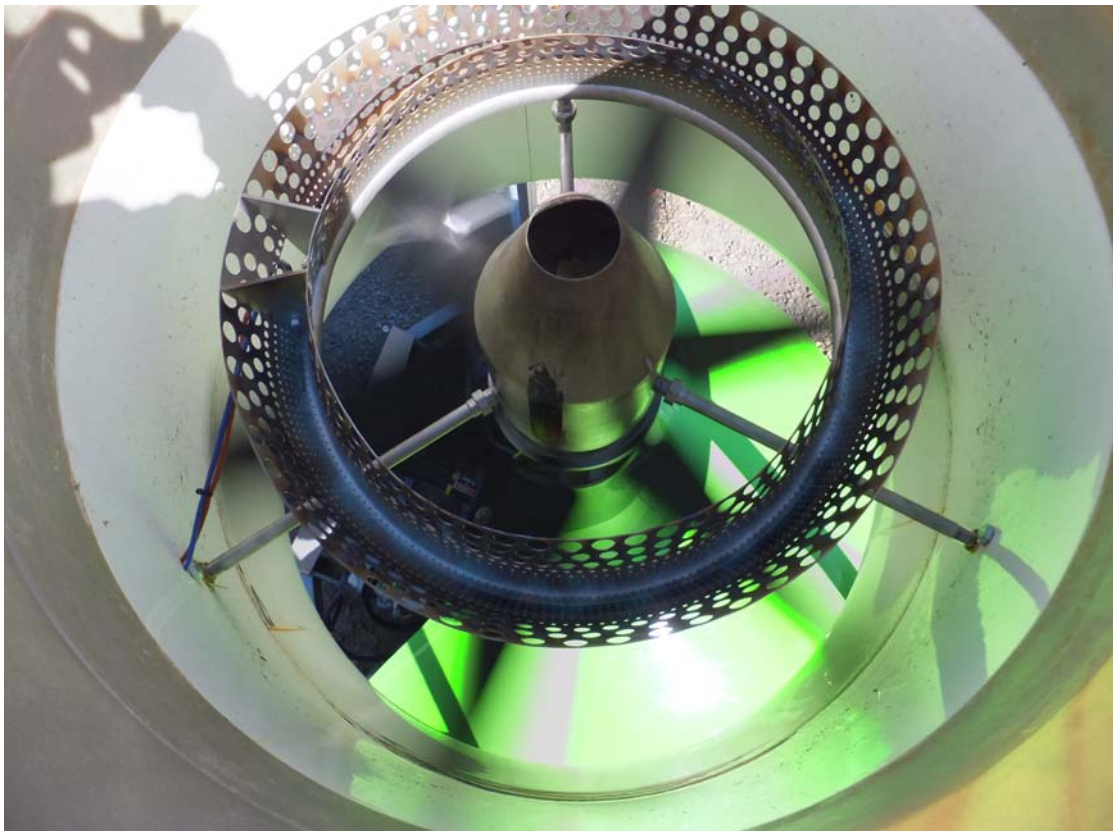
September 2013 update #3

We have had a pretty busy time over the last 6 weeks, going to the Hort NZ conference in Wellington to introduce Heat Ranger and advise interested growers about what we are trying to achieve. There has been significant interest and we have appreciated the comments and feed back.

We had hoped to be able to do some test runs under frost conditions but there have been almost no frosts in Canterbury so we have been concentrating on checking air and heat flows and fine tuning of our nozzle sizes and physical reliability issues.

This has included continuing work on the single nozzle unit which needs some different configuration in the burner size and the technology involved in being able to programme the tilting capability that we have built into it.

The picture shows the new burner which produces in excess of 1000kW of heat from the LPG Supply



Leading the Revolution in Climate Management Systems

10th September Canterbury Storm

Our other setback was the storm on the 10th September. Our 18m high freestanding masts did not handle the 113km/h wind and so we have been left with some debris to untangle. The good news is that the machine itself did not move although neighbouring centre pivot irrigation systems took a hammering. The storm was certainly one out of the box and some of the recorded ski-field winds, were extreme.

The importance of the wind and temperature monitoring masts was really brought home to us with some initial runs with the single nozzle in close to frost conditions. We had northerly breeze at 10m of 3kph which is enough to distort the pattern from Heat Ranger into a shape closer to an ellipse than a circle. This will not be news to people familiar with frost windmills, but it did reinforce to us how important it is to understand your local frost air flows so that you can correctly position Heat Ranger to maximise your crop protection.

Noise or rather lack of

Yes we have very good news on the noise front. The recommended compliance for frost fans is to have less than 60 decibels at a distance of 300m from the wind machine. Heat Ranger at 40m from the fan had a decibel reading of 61.5 decibels and was down to 49.7 at 300m

Distance m	0	40	100	120	150	200	300
decibels	86	61.5	52.5	52.0	51.6	50.0	49.7

This is remarkably quiet. For most people 50 decibels is below normal conversation levels. Most evening background noise levels from passing traffic 100m away is above 54 decibels.

Where are we at?

We are rebuilding our tall masts and putting in a lot more 5m masts for monitoring the machine performance regardless of the breeze direction. Unfortunately we still need frost conditions because that is when the winds are at their lowest, so we are just waiting out the current low pressure systems in Canterbury at the moment so we can gather reference data on the current prototype and make that information available as soon as we can.

It's not often that we are keen to see frosts and we do not wish any grower any ill will, but we sure could do with a week of cool still weather for our testing programme.

For those that expressed interest at the Hort NZ conference in Wellington we would like to say thank you and we will bring you our test results as soon as we can get some. For those who have been in touch and have been following this development, we hope to bring you more news just as soon as we can get it.



Fred Phillips
Project Manager
24 September 2013