gaia
Underfloor Heating

Vineyard
Frost Protection System

> *At Winding Wood Vineyard we have decided upon a different frost protection system: heated wires*

At Gaia, we understand the importance placed on frost protection for a vineyard. Frosts can wreak havoc on tender buds when they are at their most vulnerable. In order to protect your crop, it is important to find a solution which can give you complete peace of mind that your crop is safe - "*it's not fun, growing a crop worth up to £100,000 and one night of neglect could destroy it*". With several alternatives available, it is important to choose a long-lasting and cost-effective option.

That's why Gaia have introduced a new solution which can protect your crop and it comes with a 20 year manufacturing warranty, for complete peace of mind. Our heated cable system effortlessly maintains warmth, and prevents frost from causing havoc - all without the need to spend thousands on oil burners and additional labour costs. Outlined is our solution in full, along with the results we've seen from other vineyards who have used our heating cable solution.

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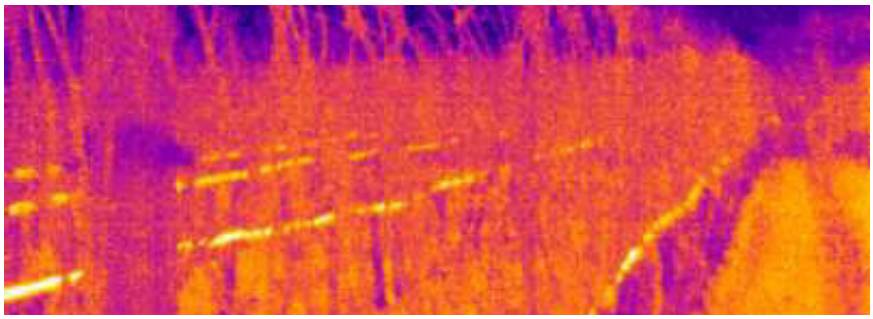
Gaia's Solution

We provide heating cables which wrap around the fruiting cane. The heat is conducted into the buds via the sap of the cane.

Most vineyards will be on frost alert during April and May. Our solution for protecting your crop is simple, and cost effective for years to come.
The cable is wrapped around the fruiting cane, and the heat is then conducted into the sap of the cane. Because sap is a good conductor of heat, it is able to evenly distribute this to the new growth internally; with similar cable systems used on Champagne, France.

Several years ago, Duncan Sangstar, Director of Designer Climate Solutions NZ, developed purpose built cables for frost protection trials in and around Cromwell, New Zealand.
For the past eight years, the system has been proven to be both successful and completely safe.
"The system is effective at very low temperatures compared to other forms of frost fighting, such as wind machines." - Duncan Sangstar



Gaia's heating cable wrapped to ensure heat is distributed to the fruiting cane.

The Products We Use

Our cables come with a market leading 20 year manufacturer warranty, giving you complete peace of mind.

Our heating cables are high quality, 360° fully screened twin conductor cables, with a tough black PVC outer sheath; Designed for outdoor applications, and UV protected. Simple to install, these heating cables are guaranteed to last, and are backed with a 20 year warranty for complete peace of mind.

The cables are controlled by a sophisticated thermostat which ensures heat is distributed when it is required; in order to maintain the crop at an ideal temperature.

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Install and Running Costs

At least **50%** savings over 20 years & installation payback in just 5 years.*

* 50% cost saving is based on a direct comparison of the running costs for disposable bougies used for 4 hours per night, for 3 nights per year, over the 20 year warranty period of our cables.

Gaia's cable frost protection system offers a simple and unobtrusive installation. It can be carried out either by a team of our skilled installers, or guidance can be given if you would like to oversee your own installation. The heating cables are fixed along your existing fruiting wires, so do not require any additional products. Ther cables can be termainated at the end of each row or routed between rows either overhead or within a trench (by others).

Gaia can also tailor designs to suit your vineyard loayout, allowing cables to be terminated at fixed positions. By doing so, we can ensure minimal connection points are required. A registered electrician will be necessary to fit the thermostat and to run a supply cable for the connection to the heating elements. Depending on your location Gaia can give recommendations on electricians who are experienced with our system.

Results and Reviews

WINDING WOOD VINEYARD

Winding Wood Vineyard were the first to adopt our system as their only form of frost protection. Being based in Berkshire, they were hit with the worse case scenario at the end of April 2017, of early shoots (an average of 3 leaves out), and 3 nights of -4.5°C conditions. Owner Christopher Cooke describing it as the "April Armageddon". Our system offered exceptional protection on the first 2 nights. The 3rd however was a perfect storm of hail and rain in the early evening with northerly winds, followed by -4.5°C temperatures overnight. Even so 30% of the crop was saved. Compared to other vineyards in this area, which employed no frost protection save spraying Frostec, were 100% wiped out.

> "They performed extremely well over two consecutive nights of - 4.5°C conditions with minimal damage"

RIDGEVIEW

The pioneers of our frost protection system back in 2013, their application includes 5 rows operating the system which are then boarded by 2 unprotected "control" rows, the rest of their rows use Bougies for frost protection. The frosts of late April of 2017 proved the merits of our system, results show that our system provided 100% protection, whereas the unprotected rows suffered a 30% drop in cluster count. These results were found at a minimum air temperature of -1.7°C (temperature recorded within an area that had active Bougies). In addition to frost protection Gaia's cables also prevented secondary damage through leaf scorching, which can occur when using Bougies.

> "The rows with electric cables worked as well as those protected with bougies"

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