

## Fact Sheet

### Insulate hot water supply and return piping for greenhouses.

#### Introduction

Greenhouses are typically heated using hot water produced by a gas boiler. This type of heating system is cost effective for large scale heating and is relatively easy to install. However, the hot water pipes should be insulated to maximise the effectiveness of the system. We observed that this is not regularly done.

#### Situation

Figures 1 & 2 below shows uninsulated piping underground where heat losses from the pipes are readily absorbed by the soil. While not noticeable with the naked eye, taking a thermal image of the area with an infrared camera we can see significant heat loss to the soil – Figure 2.

Figure 3 shows elevated and uninsulated hot water pipework (carrying water at 35°C) running from the boiler to the various greenhouses



Figure 1: Underground piping running alongside shed

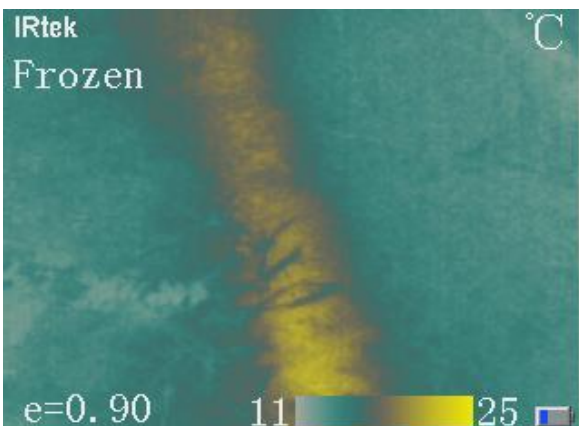


Figure 2: Buried hot water piping – Thermal image showing heat loss into soil



Figure 3: Elevated and uninsulated hot water pipework taking 35°C water from the boiler to the greenhouses

#### Potential savings

Insulating all pipework and elevating the underground pipes can save considerable amount of gas consumption and subsequent heating costs. In a recently assessed farm audit the following energy and cost savings were identified. The cost savings at this property represented from 7-10% of their gas bill.

Gas savings (MJ p.a.)	591,000
Cost savings (\$ p.a.)	\$9,460 (7-10%)
Estimated Capex (\$ ex GST)	\$10,000

#### Further information

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