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Ways to Increase Energy Efficiency in Nurseries®

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INTRODUCTION

As we move into uncertain times concerning the use of energy, particularly as it relates to global warming, peak oil and rising costs, it is timely I believe that as an industry we should all be reviewing how each of our businesses can reduce our use of all of the forms of energy that we currently consume.

While many of us are locked into the use of electricity for instance, there are ways that we may be able to reduce our usage by partially supplementing this source of energy. I have attempted in this paper to explain a number of possibilities that I believe might be useful in reaching this goal.

The oil price shock of the 1970s gave the industry a wakeup call in regard to energy conservation, particularly to those that used heating oil exclusively to fire their boilers. As a direct result of this event, which probably now pales into insignificance with the more recent price rises for oil, many nurseries adopted at least some form of energy conservation and in many cases a switch from oil to gas.

Currently we face another challenge with global warming and the possibility of governments imposing either a carbon tax or an emissions trading scheme on industry. So with a combined onslaught of high oil prices as well the rising cost of gas and a carbon tax, there is no way that we can ignore any longer the need to be more conservative.

Many of us, particularly in warmer parts of the world, have been fairly slow to adopt any major change and it is fair to say that after the 1970s oil shock many nurseries failed to make continuing improvements to their structures and other areas of operation. There was a range of inefficient heating devices, thermally inefficient green house structures, inefficient lighting and inadequate or expensive cooling systems.

Lighting for instance in Denmark is an essential part of winter growing so in some cases large growers built their own generating plants, powered by oil and then sold excess electricity into the national grid. Some of these are struggling to stay viable because of the cost of oil and of course the downturn of the last few years in prices for green life. Infrared heating used in the USA in the 1980s is now used much less along with gas-fired heat exchangers.

Probably one of the better legacies from the 1970s was the use of double skinned greenhouses using polyethylene. This practice has continued, particularly with the advent of longer life UV treated polyethylene that has better light penetration and allows the option of using a thinner material as the second skin.

In those regions of the world that need cooling as well as heating, there have been many advances in the development of efficient materials that can be used to build wet walls. At Narromine Transplants we have used a wet wall designed by Munters and using their CELdek system which is as long as the as the propagating greenhouse, positioned at bench height with extraction fans three spans away. We have found great benefit in propagation from this system.