

New biomass-fuelled boiler powers beautiful gerberas

The first Polytechnik biomass-fuelled boiler commissioned in the Southern Hemisphere is helping grow fantastic gerberas for Canterbury's K & L Nurseries.

With more than two decades of experience growing cut flowers under cover, Christchurch's Paul Loader has invested in an Austrian boiler now achieving 90% efficiency from forestry wood waste.

Formerly a market gardener and flower grower on a nearby block, Paul and his wife Lyn are in business with daughter Michelle and son-in-law Ian Kempthorne as K & L Nurseries and together the family team has 7900 m² of gerberas and roses under glass on Days Rd, Springston South.

Paul says they faced inconsistency of supply and cost with their coal-fired boiler. "So we realised we needed to update the boiler and wanted to go with a biomass option, capable of burning a range of fuels."

Trips to Europe and, in particular Holland, and considerable research led the Loaders to the Austrian company, Polytechnik, one of the world's leading suppliers of advanced combustion solutions, heat and power plants and emission control systems.

"We visited various sites with Polytechnik boilers in Austria and Germany and decided that was the option we wanted. They have biomass boilers all over the Northern Hemisphere, but this is the first in the Southern Hemisphere."



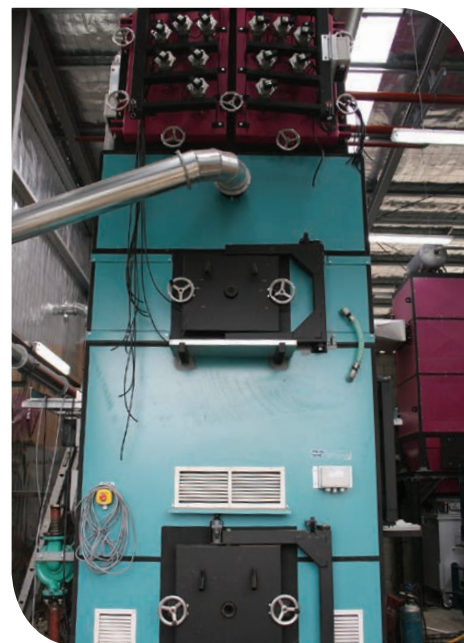
With the new boiler installed in April this year, Paul says it was ironic that they didn't have a particularly cold winter in Christchurch with such an efficient heating system in operation.

"However from installation to setup and operation, it's gone very well and we're very happy with it.

"The idea is that a biomass boiler has heat storage tank alongside, therefore you don't need a bigger boiler to cope with peak demand. While we need 2 MW of energy to produce heat for the whole property, we need only a 900 kW boiler. A boiler needs to be running all the time to work efficiently, so when glasshouses don't require the heat, it's building up in the 400,000-litre heat storage tank. When a bigger demand comes on than the boiler can supply, the computer controls draw from the tank as well as the boiler.

"It burns hog or chip wood – there's no issue with supply and there's considerable inbuilt flexibility provided by the boiler's hydraulic ram, automatic fuel-feeding system which means it can handle larger hog fuel that other boilers can't. The other unique feature is the ability to burn wet wood up to 60% moisture content and still achieves 90% efficiency. It recovers heat from flue gases and has a drying system to dry the wood before it fires it; with all this design technology it has incredible efficiency."

The sophisticated computer system managing the boiler and the heat feed to the glasshouses can be monitored and fine-tuned



Partway through its installation earlier this year, the 900kW capacity Polytechnik biomass boiler is first of its kind in the Southern Hemisphere

via the internet or phone by Polytechnik staff in Austria or the K & L Nurseries team.

Paul describes the new boiler system as one of the biggest investments made since establishing the original glasshouse and coal boiler.

"After filling in what seemed like a million forms, the Polytechnik unit was subsidised by the Energy Efficiency and Conservation Authority (EECA) because it was beneficial to showcase this new technology with a test site in New Zealand so people can see how it works. Several people have already been to see it and one was so impressed, even before it was fully operational, that he went away and ordered two."

With the new biomass boiler working perfectly, K & L Nurseries are progressing plans to add another 4,500 m² of glasshouse to expand their operation. Their Fruitfed Supplies horticultural sales representative Rob Wards will be on call to talk about additional Netafim fertigation system components as the expansion gets underway

"All the Yara soluble fertilisers and Netafim fertigation drippers and controllers come from Fruitfed," says Paul. "We also get any other sort of sprays we need through Fruitfed, although we are using more and more biological solutions for key issues such as mites." **F**

Far Left: A multitude of gerberas grown by K & L Nurseries in Christchurch

Middle: Cut gerberas ready for packing and the market auctions

Fruitfed Supplies

Facts is a monthly publication of Fruitfed Supplies, the horticultural division of PGG Wrightson Ltd. Feedback to the editor is welcome. Contact Kate Gordon-Smith (021 587 227 or kate@relishcomm.co.nz).

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