

IRL technology enabling productivity and profitability gains in the primary sector

Collaboration leads to award winning dairy technology

A new drafting and teat-spraying system developed jointly by Rotorua company TechniPharm International Ltd and IRL offers farmers an easier and more effective means of handling and sanitising cows after milking through smart technology that senses an animal's walking speed.

Teat spraying with products that disinfect and condition after milking saves farmers on average around NZ\$12,000 a year through reduced exposure to mastitis. Nozzles mounted under the concrete floor of the race that channels stock out of the shed after milking automatically spray cows' teats, however cows move at different speeds and some of the teats can be missed.

The Seelect A Cow™ system incorporates unique software which detects each cow's position as the herd files out of the milking shed and adjusts teat spraying for maximum effect. The same technology has also been incorporated into drafting gates to improve animal handling.

Showcased at the 2008 Mystery Creek Fielddays in Hamilton, the system was awarded the Innovation Centre Equipment Entry of the Year title.



Automation technology to transform meat industry

The New Zealand sheep meat processing industry is set to benefit from a multimillion dollar investment in automation technology research and development.

Ovine Automation Ltd, a consortium that represents a significant majority of the New Zealand meat processing industry, and the Foundation for Research Science and Technology are funding a project that will improve productivity and profitability through the use of automation technologies.

The R&D programme is focused on the development of technologies that complement two recent IRL systems – gas de-pelting and a device known as the Intelligent Y-cutter – which focus on pelt removal in the forequarter region.

These breakthrough systems are expected to address the high incidence of repetitive strain injury in what is currently a manually intensive process. Improvements in hygiene with increased yields and product value are also expected.

The project is unique in that research, commercialisation and industry experts are working together and focussing collaboratively on outcome delivery.

Acoustic technology improves accuracy of timber classification

IRL-developed Hitman™ technology enables logging companies to extract greater value from their forests by accurately separating higher value structural-quality logs from those better suited for pulp processing. The technology saves the forestry industry millions of dollars each year by significantly reducing the amount of misclassified timber.

Hitman is an acoustic tool which uses soundwaves to assess the stiffness and fibre properties of tree stems and logs. Developed in a joint project by Industrial Research and Carter Holt Harvey, it is designed to help an operator determine where the cuts should be made on a stem to maximise the usefulness of each section. Hitman also more accurately identifies logs that will produce superior grades of paper.



The device, which can be hooked onto an operator's belt or clothing, comprises a small palm-sized calculator connected by a short cable to an acceleration sensor.

The operator sends a soundwave down the tree by hitting the cut end of the stem with a hammer. The soundwave bounces off the other end of the stem and the reverberation time is measured by the sensor.

Industry partners have gone on to develop and refine the technology – with input from IRL – and now produce and export a range of acoustic tools for the forestry and wood processing industries.

Orchid exports benefit from automated packing

IRL's automation technology is helping an Auckland orchid grower to develop a more high-tech and efficient orchid export industry for New Zealand.

Kumeu-based orchidist Ian Floyd of Airborne Cymbidiums worked with IRL to improve the packaging process for orchids destined for export. In the traditional manual packaging process, an orchid is handled four times. If a bloom is even slightly damaged it becomes worthless in the export market.

With the new IRL-designed sleeving, machine handling is reduced to two or three times, with far less likelihood of damage.

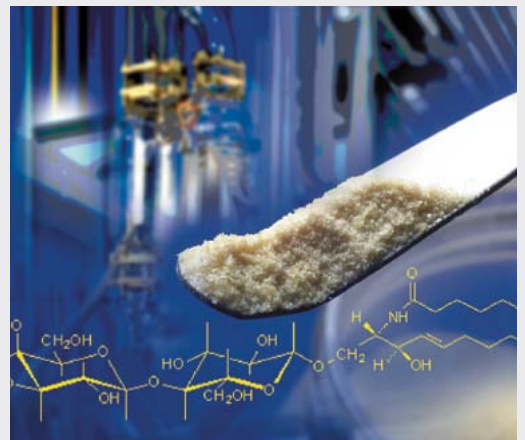
Lipids research into high-value products from primary raw materials

IRL's research into identifying, extracting and modifying lipids from primary produce raw materials in the dairy, agricultural and marine industries adds value to, and opens up new export markets for, high-value products derived from New Zealand's commodity, waste products and biotechnology industries.

Lipids are a large and diverse group of naturally occurring organic compounds that includes fatty acids and their derivatives and substances related biosynthetically or functionally to these compounds.

Isolating and amplifying such compounds can create products of significant value. For example, IRL's lipid chemistry team trialled a process which isolated the complex lipids that were present in minute quantities in raw milk and then concentrated them to 4,000 times their normal strength.

The resulting paste was used in the manufacture of dietetic and nutraceutical products as well as in high-value functional foods and sold for thousands of dollars per kilogram at the time the product was commercialised in 1998.



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