

## Testing SUCCESS

A pioneer in the testing of enzymes, Megazyme develops innovative diagnostic technology for industries worldwide

**'In the past five years, we have developed 54 food test kits that have been a major improvement on similar products offered by major multinationals'**



Also shortlisted in the Innovator category

Dr Barry McCleary



**W**HEN your mother told you to eat your porridge, she was on to something. In the Eighties, Dr Barry McCleary, founder, CEO and technical director of research-based biochemical company Megazyme, developed a method to test for the presence of a polysaccharide called beta-glucan: the very chemical that makes oats a healthy foodstuff. His method is now the world standard.

Megazyme started life in two garages off the family home of McCleary, and a healthy appetite for innovation and growth brought it to Bray via Sydney in 1996.

The company now focuses on the development of pioneering test methods in kit form for the measurement of components that dictate food and beverage quality.

"In the past five years, we have developed, from first principles, 54 food test kits that have either been absolutely novel, or have been a major improvement on similar products offered by major multinationals.

"We are leading the world in methods development for measurement of dietary fibre and parameters that dictate wine and cereal quality.

"All of the major enzyme manufacturers turn to Megazyme for reagents for the standardisation of their commercial products and for enzyme discovery," says McCleary.

What drives this constant innovation push is both the desire to capture an all-important global market and the strategy of plighting back profits into new research. In the past four years, the company has grown by 20pc year on year.

"Export sales currently are running at 97pc of total sales. We attend international trade shows and scientific conferences, and we advertise in international journals. Currently, we are producing 'hands-on' training videos to assist our customers in the use of our products."

A quick response time to international customers is also key: Megazyme ships internationally with FedEx and can have products in many countries the next day. "The products we develop would be required and used internationally, so the marketing was focused that way," he says.

Recognising the value of research, McCleary says Megazyme has always invested 15-20pc of gross turnover into this area. "This has resulted in many innovative products, many of which have been adopted as international standards. Seven of our methods have been validated and adopted by the Association of Official Analytical Chemists, International and/or the American Association of Cereal Chemists."

These Megazyme-developed standards include methods for measuring dietary fibre and other components that dictate the quality of wheat and malt.

In 2002, the company established a molecular biology division to produce enzymes via genetic engineering and to develop test procedures for measuring the quality of wine, food and dairy products. To this end, €4m was invested into a new research facility, equipment and scientists.

"Within months, we were cloning genes and, within three years, we had produced a full range of advanced test kits for the wine, dairy and food industries.

"In this area, we compete with multinational companies, including Roche Diagnostics, and we have replaced them as the major supplier in several countries," adds McCleary.

"Among the many accounts we have won are such prestigious companies as Hardys' and Foster's wines in Australia and Moët & Chandon in France."

A molecular biology division was also established at Megazyme in 2003, with major investment in scientists, new research laboratories and equipment, partly supported by Enterprise Ireland through Research, Technology and Innovation funds and National Development Plan grants.

And, looking to the future, McCleary says Megazyme is investing in research into the biofuels area. "One potential source of liquid fuels will be from the conversion of woody materials to ethanol or butanol."

However, to have success, a research facility must have in-depth knowledge of polysaccharides and polysaccharide associations in wood, as well as the ability to develop enzymes able to convert these materials into fermentable sugars.

"We are currently developing research associations to assist us in developing a fungal enzyme expression system, which will allow us to produce and search for novel enzymes," says McCleary. "We are also improving our organic chemistry skills, so that we can develop improved enzyme screening procedures."

Megazyme's appetite to look at greener energy generation for a plant dependant on oil and coal could not have come at a better time.