

AgResearch to commence DNA testing service for FE

New Zealand's leading DNA animal testing service, Genomnz, a service of AgResearch, is about to launch a DNA testing service for facial eczema (FE) that could save the dairy industry millions of dollars per year.

This DNA marker test, which can be applied to Holstein-Friesian or Jersey cattle will include microsatellite markers for both profiling and parentage testing as well as genetic markers that can estimate facial eczema resistance or susceptibility.

Dr Chris Morris, Senior Scientist, AgResearch said "FE resistance or susceptibility is a heritable trait, which can be a serious animal health problem for dairy cattle, in New Zealand. It is caused by the toxin, sporidesmin, produced by spores of a fungus, *Pithomyces chartarum*, found on many pastures in summer and autumn. The disease occurs mainly in the upper North Island and in Gisborne and Taranaki, but in years with serious outbreaks it can be much more widespread. In susceptible cows, sporidesmin causes liver injury, with deleterious effects on milk production and survival in the herd."

It's estimated that this disease costs the country \$9.9 million to \$110 million annually, depending on weather conditions and the geographical scale of the outbreak. The DNA marker test now available could save up to \$39 million of the total costs of FE in a serious-outbreak year, if all FE-prone herds were protected genetically.

"Thirty-six percent of the observed variation in FE susceptibility is genetic, meaning that this trait is more heritable than milk solids yield or mastitis. Genetic progress in selecting dairy cattle for FE resistance could be made with traditional breeding methods, as has already been applied with FE-resistance selection in the sheep industry over the past 25 years. "However, the use of genetic markers in a DNA test should appreciably shorten this time-scale, in allowing dairy farmers/breeders to identify resistant animals already in their herds; and also assisting them to make choices about the sires and dams of the next (more resistant) generation of progeny," says Dr Morris.

He says the test at this stage explains only part of the difference in FE genetics among dairy cattle and other FE resistant genes and more markers still remain to be identified through ongoing research. The research to date has been successful with investment from DairyNZ, Meat and Wool NZ, FRST and AgResearch's own internal investment.

The research is being done by AgResearch's Animal Genomics section and this test will be marketed commercially through the Institute's Genomnz testing service based at AgResearch's Invermay campus near Dunedin.