

United Fisheries, Seafood Innovation Ltd and Lincoln University Fish Silage Project

In 2009 United Fisheries began a joint project with Lincoln University to research the potential for fisheries by-products to be used in the New Zealand pastoral industries. This work built on the international scientific literature that demonstrated fish oils and proteins reduced rumen methanogenesis, reduced internal parasite burdens, increased the content of the valuable Omega group fats in milk and meat products, and are a rich source of trace elements.

In 2010 Seafood Innovation Ltd joint funded with United Fisheries a larger project with Lincoln University to investigate the use in the sheep and dairy industries of a novel '**Bio Marinus**' fish silage produced from fishery by-products. This opportunity arose because of an important advance in low energy input silage production pioneered by United Fisheries that significantly increased the potential output of the feed, and there was no available New Zealand research in these fields, the considerable volumes of high biological value by-products from New Zealand's expanding fisheries industry were effectively being wasted.

The Fish Silage project began robust scientific assessments of the effects of a new generation of low input fishery by-products on rumen methanogenesis in dairy cattle, nematode burdens in sheep and calves, and omega enrichment of milk and meat products. The work has also developed practical and effective on farm systems of delivering fish silage to the target livestock groups.

The initial project results have demonstrated that the use of fish by-products in New Zealand pasture based livestock has a strongly similar effect to the positive results reported from other livestock industries overseas. The first trials with these New Zealand fish by-products have demonstrated:

- A reduction of peak rumen methanogenesis in the daily feeding cycle of more than 33%.
- A reduction of faecal egg counts of internal parasites in ruminants of more than 50%.
- An increase in omega fatty acid content in milk, almost tenfold in certain groups, in dairy cows.

Further, more extensive trials are underway to continue the research into the efficacy and practicality of fish silage in pastoral livestock in these areas of ruminant science. The work to date has demonstrated the potential value of these fish by-products to ruminants, and if current research confirms and expands these initial promising results, this will be a valuable bridge building exercise between two important New Zealand primary industries.

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