

**Louise Davison** from Morrinsville College.

Louise's project was entitled "*Take it To Where The Cows Drink*" and centre red on making a difference to milk production through clean trough water.

The first step in this project was solving the problem by creating a low cost, labour and time free method of cleaning and maintaining dairy animals drinking troughs. In a field situation the animal contact would increase the bacteria levels if the troughs were left exposed; thus using the method of constant exposure to sunlight is unpractical. Research into why bacteria levels were decreasing due to the sunlight exposure showed that it was the ultra violet light from the sun that was deactivating the bacteria so they could no longer reproduce. Many of these types of bacteria only lived for around 24hours; not being able to reproduce was reducing the population. A solution was developed by combining a UV light source, a power source and a method of covering the trough while still allowing cows to drink from the trough. Testing the LEDs in the lab confirmed they would reduce bacteria levels sufficiently as a UV light tube. The final product was a trough cover from Troff Tops with a Solar panel on the top and UV LEDs arranged on the base so they could be exposed to the water. To show that the UV light and trough cover combination worked, Louise had to find a method of testing.

The most cost effective way was to do the plating herself-learning another scientific skill!



After developing the product, the second step in Louise's project was to show farmers it was beneficial and that it was a product that they should invest their money in. After much thought and discussion, the best method to achieve this was to show how the UV Trough Cover increased water consumption in dairy animals. Increased water consumption in dairy animals, as with humans, has a direct link to improved health. Better health of a dairy animal improves the production of the animal which will lead to an increased payout for farmers. By using two statistically identical herds on the same farm, one herd with the UV trough cover and one with a regular untreated trough and by monitoring the amount of water and dry matter consumed by each herd, a trial was developed. The results showed that over the length the trial, the herd with the UV Trough Cover drank the most water.

Congratulations to Louise and her her supervising teacher, Dr Paul Lowe.

The photo shows Louise being presented her Gold CREST award by Mrs. Carol Pound, the national Gold CREST Assessor.