Into the trenches - with pine chips

By Maureen Bishop

A waste product on many farms could be a tool to reduce high nitrate levels in drains and streams if tests in Mid Canterbury waterways prove its success.

Brandon Goeller, a PhD student at the School of Biological Sciences, at the University of Canterbury, is testing the possibility that untreated pine woodchips will reduce nitrate levels as well as improving the habitats for stream dwellers.

As part of a three year project, he has constructed woodchip-filled trenches called denitrification bioreactors and placed small string bags of the woodchips alongside, in or under waterways.

Mr Goeller's woodchip bioreactors are some of the first of their kind to be tested in agricultural waterways across New Zealand.

The woodchips have been placed in a low-lying wet area on land alongside a drain and in the flowing drain 800 metres downstream on Warren Harris' dairy farm at Coldstream. One site has tile drains, while the other does not.

Researcher Brandon Goeller checks one of the bags of woodchips he has installed in a Coldstream drain.

Another woodchip bioreactor is planned to intercept a tile drain on his brother Graeme's, neighbouring arable property.

The fourth trial is on a Methven dairy farm.

"Streams would often flow through native bush where leaves and branches would fall in them and decompose," Mr Goeller said. "On the farmland of the plains we are missing that carbon source."

Woodchips could be beneficial in two ways - by providing the energy for microbes, which could remove nitrate, and by improving the habitat for in-stream invertebrates and fish.

As a low-cost, low tech method, with little maintenance which would not interrupt farming activities, the woodchips could prove attractive to farmers, Mr Goeller believes.

With four 800m lengths of waterways to monitor on at least a monthly basis, he has spent a lot of time in water during the past two years and there is still a year of the project to run.

Water chemistry is monitored upstream, in the woodchip area and downstream, measuring changes in nutrients, carbon and invertebrate and fish abundance.

Experimental results from the North America and Europe indicate that the woodchips could remove up to 70 per cent of the nitrate, Mr Goeller said.

The project is another tool being trialled in the Canterbury Waterway Rehabilitation Experiment - CAREX - conducted by biologists at the University of Canterbury. They are testing practical tools to address aquatic weeds, sediment and nutrient management issues in lowland Canterbury waterways.

The project involves 23 landowners from Rangiora to Lowcliffe, 40 stakeholders and four councils, and covers nine kilometres of waterways across 14 farms.

The project is a collaboration with landowners, industry, government agencies and the community, with research funding coming from the Mackenzie Charitable Foundation.

Measures introduced have included the planting of thousands of native plants along waterways, adding rocks and logs to the water, trialling various methods of controlling aquatic weeds, sediment traps, and installing denitrification bioreactor sites.

Also on site last week were researchers from the University of Auckland who are looking at greenhouse gas emissions and riparian management.

Ballerina

Reviewed by Rowena Hart

The focus of this story is on Félicie, an ambitious yet rebellious orphan girl who dreams of becoming a dancer, constantly attempting to flee the

Column Seven

Goodness knows the difficulties the modern man and woman face to keep up appearances. There is the unseasonal wind and rain, the glare from mobile devices, not to mention that microbeads will be phased out. It was with this in mind that your correspondent cocked an ear when in a supermarket. There were two women, both well dressed, and the elder of the two was holding a small jar. They were, it must be said, in the isle specialising in creams, exfoliants, unguents and other applications. Our correspondent was not able to get a close look at the labelling but he did see "age defying" and immediately wondered if he too should consider a purchase. We digress. The older woman turned to the younger - a daughter, perhaps - and said: "I think I'll get some of this." The lips of the younger woman drew thin and she spat: "Oh, don't be ridiculous. It's far too late for that." Well, you could have knocked our man down with a jar of gel.

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A reader tells us he had a pair of trousers that actually attract dirt rather than encounter it. He says that in recent weeks the trousers have brought upon themselves car grease, mud, blood, peach juice and what appears to be a raspberry. Yes, because trousers are *always* out on their own, rubbing themselves in muck.