



# Healthy Farms Healthy Rivers

# NEWS

Drought hit hard this summer, and even though most of the region has recently had over 100mm of rain, the concern is that soil temperature may cool before pasture covers are high enough to get stock through to the spring.

In this issue we report on some of the seminars at the Mystery Creek Effluent Expo and turn our attention to the drystock sector and look at some of the environmental challenges they face.

## Healthy turnout to Mystery Creek Effluent Expo



Despite the pressures of the drought, there was a healthy turnout to the Effluent Expo at Mystery Creek in March, with around 500 farmers attending.

The expo brings together a number of suppliers under the same roof, making it easier for dairy farmers seeking more dairy shed effluent information and contacts.

This year's expo featured 44 exhibitors and a range of seminars, focusing on design and construction with the catchcry 'do it once, do it right'. We take a look at the seminars and some of the key points covered.

### Soil risk's importance

Soil risk and its importance in farm dairy effluent (FDE) design was the focus of AgResearch scientist Dave Houlbrooke's seminar. He noted FDE is worth about \$33/cow for a medium intensity farm and up to \$160/cow for a high intensity farm.

The challenge is to keep the nutrients in the root zone, where the biological activity is. Run off and drainage of FDE are major challenges especially on sloping land above 7° and on low permeability, high risk soils. For these high risk soils he recommended deferred irrigation with low application rates over a large coverage area.

### Couple upgrade farm dairy effluent system

Bruce and Donna Arnold from the Hauraki Plains upgraded their farm dairy effluent (FDE) system after attending the first Effluent Expo in 2011.

They milk 600 cows through a 50 bale rotary and sought help from Agvice for their design.

They now have a 7000m<sup>3</sup> lined and vented storage effluent pond, a solid separator and low rate skid pad irrigators.

*(continued overleaf)*

## Couple upgrade farm dairy effluent system (continued)



Construction of Bruce and Donna's lined and vented effluent pond

They decided to install the solid separator as they grow maize silage and feed it out on the feed pad. The solids are returned to the maize area and the nutrient captured for further maize production.

The water table is high, so low rate irrigators were required for the liquid portion which is irrigated to pasture. They

deliver 5mm/hour in spring and 10mm/hour in summer. Bruce is happy with the system as it is simple to run, and takes all of the stress out of managing his effluent, particularly in the busy times like spring.

Bruce said the system's capital cost was \$233,000 (including GST) and its monthly running costs are about \$1000.



Bruce and Donna opted for solid separation as they feed out significant quantities of maize silage and apply effluent to high risk soils.

## Drystock farm plans

Healthy Farms, Healthy Rivers: Actions for Change (formerly known as ICM) is turning its attention to the drystock sector. The purpose of this work is to help us to better understand drystock farm systems, where the opportunities exist to reduce their environmental effects, and help us better understand the challenges farmers face in making changes.

Healthy Farms is offering farm plans to Upper Waikato farmers with sheep, beef and deer units. This offer may extend to the Waipa catchment from July. Beef + Lamb New Zealand's Land and Environment Plans will form the basis for discussions.

Healthy Farms has had a strong dairy focus since starting in 2006. A few farm plans were completed on dairy support properties in the project's first phase, but this provided little understanding of the complexities of sheep and beef breeding on hill country.

## Upper Waikato drystock nutrient study



Photo: Beef + Lamb New Zealand.

In late 2012 Waikato Regional Council and Beef + Lamb New Zealand engaged Perrin Ag of Rotorua to consider financial implications of nitrogen and phosphorus mitigations on six drystock units in the Upper Waikato.

The study included finishing, dairy support and mixed sheep and beef breeding operations. Although the sample size was small, the study highlighted no single recipe exists for reducing nitrogen and phosphorus losses while optimising farm performance and profitability. It also

suggests an opportunity exists for drystock farmers to reduce nitrogen losses by between 5 and 10 per cent, with limited reduction in farm gate profitability.

Half of the livestock policy changes associated with mitigation practices suggested in this study showed an improvement in farm profitability.

While changes to operating policies tend to mitigate nitrogen losses, the risk of phosphorus run off tends to be linked to the physical soil properties of the farm, particularly contour, which cannot be altered.

This study acknowledges that controlling phosphorus loss on steep hill country is challenging, however soil conservation methods will reduce phosphorus loss. This is difficult at present to model but research work continues to improve our ability to

represent phosphorus loss at a farm scale. Lowering Olsen P levels to optimum is one option. The study recognised most sheep and beef farm phosphorus levels are below the biological optimum, giving farmers few options for phosphorus mitigation by lowering soil test levels.

However the study noted that partial afforestation, either native or exotic, led to meaningful impacts on both nitrogen and phosphorus, and could lift profitability per hectare if managed well.

Further work is planned to learn more about phosphorus movement on hill country.

The study follows a similar 2009 Upper Waikato nutrient efficiency study focussed on dairying.