

News Release
11 March 2003

Water Scheme Will Help Control Groundwater Nitrates Levels – says Proponent

Recent claims that large scale community water enhancement schemes threaten groundwater quality are wrong, says Central Plains Water chairman Doug Marsh. In fact, according to Mr Marsh, a recent Lincoln University study on nitrates in groundwater demonstrates that a surface water irrigation scheme can help address groundwater quality concerns.

The study, by Lincoln University Centre for Soil and Environmental Quality scientists Dr HJ Di and Professor Keith Cameron, concludes that all land use systems have the potential to leach nitrates to groundwater, but that the impact of this can be managed or eliminated by taking appropriate steps.

These findings refute recent claims that large scale irrigation will degrade Canterbury's environment, as has been reported in some instances overseas when land use has intensified. Rather, says Mr Marsh, the Lincoln University findings reflect a rational scientific approach to the situation in Canterbury and bring the Central Plains Water scheme, proposing to provide water for irrigation to 84,000 ha of Central Canterbury, one step closer.

“This work shows individual farmers have the capacity to manage the rate at which nitrates leach to groundwater. As a community project, any large scale surface water scheme will be able to make supply conditional on best management practices on farm. If farmers do not measure up, their water will be cut off.

“Land use intensification can pose problems associated with irrigation. By making best practice mandatory for farmers who seek to take water from the scheme, it will be possible to enhance the quality of our precious groundwater resource, rather than watch it decline,” he said.

Nitrates accumulate in the soil from farming activities such as fertiliser application, animal effluent and the growth of particular crops. Leaching to groundwater from soil with a high nitrate concentration can occur under particular conditions including high drainage or cultivation. Prolonged use of drinking water with high nitrate levels has been linked to health problems. In rivers, lakes and estuaries high levels of nitrates can lead to eutrophication, algal bloom and fish poisoning.

Dr Di and Professor Cameron's paper, published in an international Dutch academic journal late last year, concludes that an integrated approach, involving the development and adoption of best management practices is required to optimise the nitrogen use of plants while minimising nitrate leaching. These practices should aim to prevent the accumulation of mineral nitrogen in the soil in excess of plant demand, particularly before and during the drainage season.

Best management practices to control nitrate leaching include:

- Optimising the rate of application of nitrogen fertiliser and animal effluent to meet plant needs
- Synchronising the supply of nitrogen to its demand by crops
- Managing stock to take account of nitrate leaching
- Minimising use of nitrogen when drainage is high
- Growing suitable crops during autumn and winter rather than leaving ground as bare fallow
-

Potential impacts of intensive land use on groundwater has been an issue of concern for the Central Plains Water Steering Committee, said Mr Marsh.

“Central Plains Water is committed to the sustainable development of our abundant water resources. More intensive land use practices are an inevitable consequence of irrigation. If this leads to degradation of groundwater, it will compromise the sustainability threshold for the scheme proposals. We are aware of the risk for the scheme to increase levels of nitrates in groundwater between the Waimakariri and the Rakaia. From the work undertaken by Dr Di and Professor Cameron, it is now apparent that a community water scheme has the potential to help ease this problem, rather than exacerbate it.

“There are still a number of other important issues facing Central Plains Water before an impregnable case for a community water scheme can be demonstrated, but it seems the nitrates to groundwater issue is one where we can turn a potential negative into a positive,” he said.

Further information:

Doug Marsh, Central Plains Water, 03 358 9755

www.cpw.org.nz

Prof. Keith Cameron, Lincoln University Centre for Soil and Environmental Quality, 03 325 2811