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An evaluation of the Land and Environment Planning toolkit for advancing soil and nutrient management in hill country and steepland farm systems

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Abstract

The Land and Environment Planning toolkit recently re-launched (December 2012) by Beef + Lamb NZ is a package developed to assist the sector with resource and business planning. The toolkit has three levels, from an introductory (Level 1) through to more advanced Levels 2 and 3, each providing a step-by-step guide to assess farmers' with on-farm land and environment issues and includes a framework to address the management of these issues. To date the evaluation of the toolkit has been very limited. It has not been critiqued as a tool for advancing sustainable nutrient management. In this study a multi-disciplinary approach was taken using both quantitative and qualitative methods, including a case study and interactive workshops, to determine the utility and value of each of the three levels of the Beef + Lamb NZ Land and Environment Planning Toolkit (LEP) for advancing nutrient management.

The research included a case study (farm interview) and interactive workshops, to determine the utility and efficacy of each of the three levels of the LEP toolkit and whether they progressively add the elements, flexibility and rigour necessary to address the current and future drivers that will shape sustainable nutrient management (SNM) for hill country and stepland farm systems. Primary data was collected during the fieldwork and interviews on the case farm, and during the LEP workshop meetings and immediately following through interviews. Data was analysed separately against each of the three key drivers identified in the literature review (freedom to operate, nutrient use efficiency and ability to demonstrate sustainability) using a framework developed as part of the study. Data collected as part of the analysis of the utility of each level of the toolkit was coded and grouped according to the degree the information obtained assisted in addressing the elements identified in each of the three driver identified for advancing soil nutrient management.

The research findings concluded that the introductory (1a and 1b) levels of the toolkit proved useful as a desktop investigation that allowed the identification of factors influencing environmental issues, but offered little assistance in developing tailored solutions. The research findings recommend that Level 1 is used as an introductory package, with a pathway to Level 2 built into the initial conversation. Levels 2 and 3 proved more useful in advancing nutrient management by assisting with resource mapping and planning, but it was Level 3 that provided the most utility for addressing all the drivers of sustainable nutrient management (i.e. Freedom to operate, nutrient use efficiency and demonstrated sustainability). This was largely through the use of a highly detailed and comprehensive analysis and review of the farm's resources, nutrient budgets, strengths and weakness analysis for the LUC classes identified for the farm and greater level of interaction between the farmer and the land use experts. Although it was highlighted that the Level 3 evaluation might not be comprehensive enough to achieve further growth or deal with the issues at hand, further investigation into the land resources and the linkages between nutrients and the landscape is required. The findings of this research will give an indication of the utility of the toolkit,

and identify, if necessary where modifications can be made to improve utility and reporting, not just for the farmer but also for the Sheep and Beef sector.

The findings from this research also supported the use of the LEP toolkit as a stepwise approach, and find that any programme (LEP Level 1, 2 and 3) needs to be simple enough for the lower end of farmers to buy in and not be intimidated, whilst providing a framework for a natural progression of stages for the farmers to continually improve through the completion for each level of the toolkit, as well as a final level that has sufficient rigour to produce a robust defensible nutrient management tool.

Several recommendations for the future development for the LEP toolkit are made. Investigate the possibility of combining Level 1 (1a and 1b) with Level 2 as a single exercise. Within the same workshop, Level 1 would be used as an introductory step to the completion of the Level 2 farm plan. Greater integration of the Level 3 with other farm planning tools has the potential to extract greater value from the information collected and analysis as part of the process of developing the plan, but also the opportunity to better integrate resource management into the business planning cycle. An integrated farm planning tool would increase the utility of the toolkit by allowing the SNM issues to be considered alongside all the other drivers influencing the business. The addition of these proposed modifications for the toolkit would not only be of benefit for the farmer undertaking the LEP toolkit evaluation but also for continuing to extend the overall knowledge of the industry and Sheep and Beef sector as we move into a more environmentally aware and agriculturally sustainable future.

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List of Acronyms

BMP – Best Management Practices
BNF – Biological Nitrogen Fixation
DM – Dry matter (per hectare)
EMS – Environmental Management systems
FARMS – Farmer Applied Resource Management Strategies
FCPNM – Fertiliser Code of Practice for Nutrient Management
FDE – Farm Dairy Effluent
GAP – Good Agricultural Practices
HEL – Highly Erodible Land
HRC – Horizons Regional Council
LEP – Land and Environment Planning tool kit
LMU – Land Management Unit
LUC – Land Use Capability
MAF – Ministry for Agriculture, Forestry and Fisheries
MfE – Ministry for the Environment
MPC – Maximum Permissible Concentration
MPI – Ministry for Primary Industries
NMP – Nutrient Management Plan
NPS – National Policy Statements
NZFLRC – New Zealand Fertiliser and Lime Research Centre
NZFSA – New Zealand Food Safety Association
NZLRI – New Zealand Land and Resource Inventory
OnePlan – Horizons Regional Council one plan document
PCE – Parliamentary Commission for the Environment
POP – Proposed OnePlan
PSWP – Primary Sector Water Partnership
RC – Regional Council
RMA – Resource Management Act (1991)
SLUI – Sustainable land Use Initiative
SNM – Soil and Nutrient Management
SUBS – Sustainable Land use Underpinning Business Success
SWOT – Strengths and Weaknesses, Opportunities and Threats analysis
WFP – Whole Farm Plan
WRC – Waikato Regional Council