Sub-topic	Title	Link	Source	Year	Type	Key words	Summary
Nitrogen management	Nitrogen fertiliser	Click here	Dairy NZ	2012	Fact Sheet	"Nitrogen", "Fertiliser"	There are three main sources of nitrogen (N) in New Zealand clover-based pastures. There is the N that is fixed by clover plants, there is fertiliser N (see below) and there is the N which is brought onto farms as imported supplementary feeds. All contribute to the N cycle, pasture production and N leaching. Nitrate N leaches into the waterways, this is an environmental hazard.
Nitrogen management	Seasonal nitrogen use	Click here	Dairy NZ	2012	Fact Sheet	"Nitrogen", "Fertiliser", "Seasonal"	This Farmfact explains good practice N fertiliser use on a seasonal basis. For more information about optimising N fertiliser use, see Farmfact 7-10 Nitrogen fertiliser. For more information about mitigation strategies to reduce N losses from farms, see Farmfact 7-23 Minimising nitrogen loss.
Phosphorus management	Phosphorus fertiliser	Click here	Dairy NZ	2012	Fact Sheet	"Phosphorus", "Fertiliser", "Understanding", "Information sheet"	This Farmfact explains good practice N fertiliser use on a seasonal basis. For more information about optimising N fertiliser use, see Farmfact 7-10 Nitrogen fertiliser. For more information about mitigation strategies to reduce N losses from farms, see Farmfact 7-23 Minimising nitrogen loss.
	Potassium fertiliser	Click here	Dairy NZ	2012	Fact Sheet	"Potassium", "Fertiliser", "Information sheet"	Fact sheet on Potassium fertiliser
Nitrogen management	Nitrogen use going into summer	Click here	Dairy NZ	2012	Fact Sheet	"Nitrogen", "Nitrogen use", "Summer management"	Nitrogen application during December and January helps promote vegetative tiller growth.
Nitrogen management	Nitrogen use after a dry summer	Click here	Dairy NZ	2012	Fact Sheet	"Nitrogen", "Nitrogen use", "Dry Summer management"	Nitrogen after summer dry is likely to provide cost effective feed. Nitrogen helps pastures recover after a dry period by encouraging ryegrass to tiller. Apply N soon after significant rain at 30-40 kg N/ha.
Measuring nutrient losses	Nutrient budgeting	Click here	Dairy NZ	2012	Fact Sheet	"Nutrient budget", "Outputs", "Inputs"	An explanation of Nutrient budgets and how they work
Measuring nutrient losses	Nutrient management plans (NMPs)	Click here	Dairy NZ	2012	Fact Sheet	"Nutrient budget", "Nutrient management plan", "Outputs", "Inputs"	Nutrient budgets indicate how nutrients are coming onto the farm and where they are going (see Farmfact 7-20 Nutrient budgeting). However, they do not tell you what to do about it, and they do not link these nutrient inputs and outputs to your farm goals. That is the reason and purpose of a Nutrient management plan (NMP).
Nitrogen management	Minimising nitrogen loss	Click here	Dairy NZ	2012	Fact Sheet	"Minimsing", "Nitrogen loss", "Nutrient management", "waterways", "Leeching	The clover-based pastoral system is 'leaky'. Approximately only 30% of total nitrogen (N) going into a farm (i.e. fertiliser, clover N from the atmosphere and supplementary feed) is recovered in the farm products (milk and meat). A further 30% is retained in the soil as organic matter N. The balance (40%) is lost from the soil-pasture system (see Farmfact 7-20 Nutrient budgeting).
Phosphorus management	Minimising phosphorus losses	Click here	Dairy NZ	2012	Fact Sheet	"Phosphorus", "Minimising", "Losses"	Small amounts of P can have a large and detrimental effect on water quality by increasing the growth of nuisance weeds and algae growth. This can render the waterway hazardous for stock water, unsafe for recreational purposes, aesthetically unappealing and odorous. In extreme cases, death of aquatic life may occur.
Precision agriculture, Nitrogen management	Crop sensing for nitrogen management	Click here	Foundation for Arable Research	2013	Publication	"Precision agriculture", "Nitrogen", "Crop sensing", "Reflected light", "Biomass"	This Crop Sensing for Nitrogen Management project was set up to investigate whether fertiliser efficiency in wheat crops could be improved by the use of crop sensing technologies. The project had two distinct elements; one based on replicated trials examining how best to use the link between crop reflectance and nitrogen status of the crop canopy, and the other exploring how different manufactured sensors can be applied in the paddock for zonal management (e.g. variable rate fertiliser within the paddock).
Nutrient management plan		Click here	Fertiliser Association	2012	Image/Diagram	"Nutrient management plan", "Farm management system	Figure 1 sets out the steps involved in preparing and using the nutrient management plan template
Measuring nutrient losses	Nutrient management plan	Click here	Fertiliser Association	2012	Publication	Nutrient management plan, "Farm management system", "Audit"	This chapter explains how to create an individual nutrient management plan for a particular production system and location. A documented nutrient management plan may be required by Regional Councils, or a land manager's own interest. This Code sets out how this can be achieved. In practice most land managers will use the services of an agribusiness professional (e.g. their fertiliser company representative or farm consultant) to help with this but it is also important for the land manager to understand what is involved and how the steps fit together.
Measuring nutrient losses	Guiding Principles	Click here	Fertiliser Association	2012	Publication	"Nutrient management", "Guiding principles", "Risk", "Effective process", "Environmental objectives"	These guiding principles are built into the nutrient management approach in this Code. They are the underlying philosophies used in this Code that enable land managers to use this Code to manage nutrients practically and profitably in their production systems.
Precision Agriculture	Fertiliser Spreading	Click here	Fertiliser Association	2007	Fact Sheet	"Fertiliser", "Spreading"	Greater precision in fertiliser application is increasingly important if profits are to be lifted by more intensive farming. However, intensification also brings a greater risk of negative impacts on farm profits and on the environment through errors and inefficiencies in fertiliser application.
Nutrient management plan	Nutrient Management	Click here	Fertiliser Association	2007	Fact Sheet	"Nutrient Management"	To achieve the best results for farm production, individual land units need to be managed appropriately to ensure that the correct quantities and ratios of nutrients are available for optimum growth and minimum waste.
Fertiliser use	Fertiliser Use - potential impacts on surface and groundwater	Click here	Fertiliser Association	2007	Fact Sheet	"Fertiliser", "Potential Impacts", "Surface water", "Ground water", "Runoff", "Leeching", "Contaminants"	Potential impacts of fertiliser use on surface and ground water
Fertiliser use	Impact of Fertiliser on Greenhouse Gas Emissions	Click here	Fertiliser Association	2007	Fact Sheet	"Fertiliser", "Impact", "Greenhouse gases", "Emmisions"	Potential impacts of fertiliser use on greenhouse gas emissions
Nitrogen management	Nitrification Inhibitors	Click here	Fertiliser Association	2012	Fact Sheet	"Nitrification inhibitors", "Nitrogen", "Inhibitors", "	Nitrification inhibitors are a valuable means of reducing nitrogen losses associated with grazing livestock management, effluent and fertiliser. Nitrification inhibitors help by retaining that nitrogen for longer in soil, thereby contributing to increased plant uptake.
Phosphorus management	Phosphate Fertiliser Considerations	Click here	Fertiliser Association	2007	Fact Sheet	"Phosphate", "Fertiliser"	Things to consider when applying or thinking of applying phosphate fertiliser
Nutrient management plan	Nutrient Management Plan User Guide	Click here	Fertiliser Association	2007	Interactive PDF, Template	"Nutrient management plan", "User guide", "Interactive"	An interactive PDF version of the Nutrient Management Plan Template and User Guide. This document may be filled out using your computer and printed, or alternatively printed and filled out by hand.

	Paddock recording sheet template for fertiliser applications	Click here	Fertiliser Association	2007	Template	"Nutrient application form", "Template"	The table shows one method of recording fertiliser application details on a paddock recording sheet
	Best management practices - improving nutrient efficency	Click here	Environment Waikato		Fact Sheet	"Wintering practices", "Nutrient Budgets", "Nutrient efficency", "Storing effluent", "Nutrient management plans", "Hotspots"	Ensuring nutrient levels don't increase in our region's waterbodies requires you, and other farmers in your area, to minimise nutrient run-off and leaching, and reduce the amount of sediment and bacteria running off paddocks. The following best management practices can help farmers achieve this, and put a nutrient management plan together
Nutrient management plan	Nutrient management - the need for managed nutrient use	Click here	Environment Waikato		Fact Sheet	"Nutrient Management", "nutrient budgets", "Best management practices"	Fact sheet on nutrient management
	Runoff Management on Pastures	Click here	BOPRC	2004	Fact Sheet	"Runoff", "Pasture mangement", "Nutrient Management", "Nutrient"	Fact sheet on runnoff management on pasture
	Efficient Fertiliser Use	Click here	BOPRC	2004	Fact Sheet	"Fertiliser", "Efficient fertiliser use"	Fact sheet on the efficient use of fertiliser
Phosphorus management	Connecting phosphorus loss from agricultural landscapes to surface water quality	Click here	Taylor and Francis Online Database	2003	Research Paper, Report	"Phosphorous", "Nutrient management", "Mitigation", "Nutrient", "P Loss", "Surface water", "Water quality"	The loss of phosphorous (P) from the landscape is commonly viewed as deleterious for surface water quality. However, the quantities lost and the impact this can have on surface waters depends on numerous mechanisms that occur whilst en route. The aim of this review is to give an outline of these mechanisms and thus how sources of P in the agricultural landscape are connected to the impairment of surface water quality. Processes are dealt with by examining the potential for P loss from the landscape and its availability to aquatic plants during flow overland and subsurface flow and once in streamflow or a lake or reservoir. By examining the connectivity between P loss and the impact on surface water quality, potential mitigation and management of P losses are discussed for various aquatic systems.
Phosphorus management	A Review of the Cost-Effectiveness and Suitability of Mitigation Strategies to Prevent Phosphorus Loss from Dairy Farms in New Zealand and Australia	Click here		2012	Research Paper, Report	Phosphorous, "Nutrient management", "Mitigation", "Nutrient", "P Loss", "Surface water", "Water quality", "cost effectiveness", "Mitigation strategies"	The loss of phosphorus (P) from land to water is detrimental to surface water quality in many parts of New Zealand and Australia. Farming, especially pasture-based dairying, can be a source of P loss, but preventing it requires a range of fully costed strategies because little or no subsidies are available and the effectiveness of mitigation strategies varies with different farm management systems, topography, stream density, and climate. This paper reviews the cost-effectiveness of mitigation strategies for New Zealand and Australian dairy farms, grouping strategies into (i) management (e.g., decreasing soil test P, fencing streams off from stock, or applying low-water-soluble P fertilizers), (ii) amendments (e.g., alum or red mud [Bauxite residue]), and (iii) edge-of-field mitigations (e.g., natural or constructed wetlands). In general, on-farm management strategies were the most cost-effective way of mitigating P exports (cost range, $0 to $200 per kg P conserved). Amendments, added to tile drains or directly to surface soil, were often constrained by supply or were labor intensive. Of the amendments examined, red mud was cost effective where cost was offset by improved soil physical properties. Edge-of-field strategies, which remove P from runoff (i.e., wetlands) or prevent runoff (i.e., irrigation runoff recycling systems), were generally the least cost effective, but their benefits in terms of improved overall resource efficiency, especially in times of drought, or their effect on other contaminants like N need to be considered. By presenting a wide range of fully costed strategies, and understanding their mechanisms, a farmer or farm advisor is able to choose those that suit their farm and maintain profitability. Further work should examine the potential for targeting strategies to areas that lose the most P in time and space to maximize the cost-effectiveness of mitigation strategies, quantify the benefits of multiple strategies, and identify changes to land use that optimize overall dairy production, but minimize catchment scale, as versus farm scale, nutrient exports.
Nutrient management plan	The BMP Toolbox – selecting the right best management practice for mitigating farming impacts on water quality. In: Nutrient management in a rapidly changing world.	Click here	Massey University	2009	Research Paper, Report	"BMP toolbox", "Nutrient mitigation", "Phosphorus", "Mitigation practices", "cost-effectiveness",	Implementing mitigation measures to decrease the environmental footprint of pastoral farms is complex due to the variety of potential impacts, the varied potential sources of pollutants on farm, and the range of management options that could mitigate these sources. Given that farms are operational businesses with a finite budget available for environmental measures, it is important that policy and farmer decision-making is guided to ensure the best return on investment. Research by social scientists has informed us that (i) the provision of economic information is equally important as knowledge about how effective mitigation strategies are, and (ii) farmers have shown a strong preference for selecting from a range of mitigation options available to them, as opposed to more prescriptive approaches. Accordingly, the BMP Toolbox (BMP = Best Management Practices) has been developed to help identify the mitigation measures that are most relevant and cost-effective for an individual farm. The Toolbox provides a list of mitigation practices relevant to the issue that the user identifies when entering information about a farm's physical attributes (resource risk) and its management (management risk). The Toolbox estimates the effectiveness, cost and cost-effectiveness of each mitigation option, the latter metric helping to identify which management practice will provide most benefit for least cost i.e. the "biggest bang for buck". In this paper we outline the range of mitigation measures currently contained within the BMP Toolbox and some of the cost and effectiveness assumptions used for each option. A case study example based upon a typical dairy farm within the Bog Burn catchment (Southland) is presented to demonstrate how this tool has been used to guide farm planning initiatives within this catchment
Nutrient management plan	Nutrient Management Approaches for the Tukituki Catchment.	Click here	HBRC		Research Paper, Report	"Nutrient loads", "Regional councils", "Nutrient management", "Intensification", "Regional plan change"	This report reviews the approaches adopted by regional councils and industry bodies in New Zealand to manage nutrient loads associated with farming land use activities. It provides an overview of the established industry initiatives and protocols and good management practices emerging in the rural production and processing sectors; and discusses the intended nutrient management framework for the Tukituki Catchment in Hawke's Bay, where land use intensification issues are being investigated in the context of a pending Regional Plan Change and the potential Ruataniwha Water Storage Scheme (RWSS) in Central Hawke's Bay.
Nitrogen management, Sediment Management	Stocktake of diffuse pollution attenuation tools for New Zealand pastoral farming systems	Click here	NIWA	2007	Research Paper, Report	"Tools", "Framework", "Sediment", "nutrient", "Nutirent mitigation",	This report summarises the current state of knowledge on attenuation tools and provides a framework for evaluating where each tool may help improve water quality. In a paddock, nutrients and sediment are perceived as a resource promoting plant productivity, but downstream they can become pollutants. In addition to nutrient and grazing management, a range of tools are available to permanently remove or temporarily store pollutants once with are transported by water. The current suite of tools available has been reviewed by NIWA, AgResearch and Landcare Research scientists, in consultation with regional council, industry and university colleagues. This report summarises the current state of knowledge on attenuation tools and provides a framework for evaluating where each tool may help improve water quality. The tools include: reducing hydrologic connectivity, wetlands, Riparian and Wetland Management, drainage manipulation, sediment traps, and reactive filters such as denitrification walls.

	Literature survey of Nitrogen and Phosphorus loss from land to water in the Waikato.	Click here	Environment Waikato	2011	Research Paper, Report	"Nitrogen", "Phosphorus", "Nutrient loss", "Leaching", "runoff", "	This report provides a summary of published literature on nitrogen (N) and phosphorus (P) losses from land to water that was carried out in the Waikato region or of relevance to it. It was based on a literature search of science publication databases, selected publications not available to web searches and AgResearch reports. An end-note library of references is provided with the report. In addition, a summary is provided of relevant on-going research projects and programmes such as from the Ministry of Science and Innovation (MSI), MAF Sustainable Farming Fund (SFF), University of Waikato and PhD studies. Research was grouped according to Sources and Pathways, and Mitigations. Studies on key N and P loss processes and sources were summarised, recognising the significant contribution of critical source areas, erosion and sediment losses, and animal excreta. A tabulated summary of individual research papers, their objectives, key findings and the magnitude of reduction of N and P losses from management or mitigation practices are presented. These covered effluent management, retired areas (wetlands, Riparian and Wetland Management, fencing waterways, filter strips), fertiliser management (fertiliser use, fertiliser form, optimal soil P), nitrogen inhibitors, animal related issues (pugging, stock management, restricted grazing), land management (irrigation, sorbents, pasture, races, retention dams) and crop use (crop management, supplementary feeds).
Phosphorus management	Challenges and opportunities to decrease phosphorous losses from land to water	Click here	AgResearch	2012	Research Paper, Report	"Phosphorus", "Nutrient management", "Runoff", "Leaching", "	Phosphorus (P) loss from land can impair water quality. However, there is concern that we may not be able to decrease current losses, let alone mitigate greater losses due to intensification. Research over the past three decades has revealed the soil and climatic factors and management practices that affect P loss. Put simply, the quantity of P lost is a function of surface runoff or sub-surface drainage and availability, which is affected by inputs and the ability of the soil to retain P. Losses are exacerbated if surface runoff or drainage occurs soon after P inputs (e.g. fertiliser and/or manure and dung). Strategies to decrease P losses depend on the farm. Providing a range of fully costed options gives flexibility when matching strategies to a farm system. Furthermore, to maximise their effectiveness, mitigation strategies are best used in areas that lose the most P, but occupy little of the farm or catchment‟s area. Focusing on these areas, termed critical source areas, is more cost-effective than farm- or catchment-wide strategies. Although strategies may be effective at decreasing P loss, there is a lot of uncertainty over whether or not this will result in the desired (or required) improvement in water quality. Some of this uncertainty surrounds what background and human-influenced losses are. Not all anthropogenic losses will be mitigated. Hence, the concept of a manageable loss is introduced as the maximum quantity of P loss mitigated with current knowledge. The question is: will this be enough?
Phosphorus management	Management of phosphorous in organic amendments for sustainable production and environmental protection	Click here	Massey University	2012	Research Paper, Report	"Land application", "Phosphorous", "Nutrients", "Environmental protection	The use of organic amendments such as biosolids, poultry and animal manures and farmyard compost in agriculture holds dual benefits for the waste-producing industry and primary producers. For waste-producing industries, land application provides a primary avenue for safe and beneficial recycling of these resource materials. For agricultural producers, these organic amendments are an alternative source of nutrients, and thus the traditional routes of disposal for these valuable resources such as land-filling, incineration and ocean dumping are avoided. These organic amendments can also be used to enhance the rehabilitation of fragile disturbed lands such as mine sites.
Nutrient management plan	Integrated nutrient management strategies for dairy and cropping farmers	Click here	Massey University	2012	Research Paper, Report	"Nutrient management", "Cropping", "Dairy farming", "Nitrogen",	During the 2007–08 and 2008–09 summer seasons we conducted seven trials in the Waikato region to investigate the ability of silage maize to recycle nutrients from high fertility dairy soils (referred to as first season trials). All of the trials were conducted in farmer paddocks that had a history of permanent pasture (~10 years) with either regular effluent irrigation or very high stocking rates (up to 7 cows/ha) and were being cropped for the first time. In all trials we compared a no N fertiliser practice to each farmer's standard fertiliser practice, which was either starter fertiliser only (36–45 kg N/ha), or starter plus side dress fertiliser (64–149 kg N/ha). Our goal was to achieve similar yields to the farmer's standard practice without the cost or additional nutrient loading from fertiliser. During the 2009–10 summer season we conducted follow up trials in two of these first season paddocks to investigate if the potential nutrient benefit lasted for consecutive cropping seasons with no extra N fertiliser (referred to as second season trials). In between the seasons (May 2009 – October 2009) winter grass was planted at both sites to ensure there were minimal loses of N. No extra N fertiliser was applied to the grass. Three fertiliser practices were compared in these second season trials, including a no N fertiliser practice, starter only fertiliser (36 kg N/ha), or starter plus side dress fertiliser (128 kg N/ha). With the exception of nutrient management, all other crop management decisions were made by each farmer. A wide range of growing environments, soils and production practices were covered.
sediment management	Reducing overland flow and sediment losses from winter forage crop paddocks grazed by dairy cows	Click here	Massey University	2013	Research Paper, Report	"Overland flow", "Sediment loss", "Winter forage", "Winter management", "Grazing",	The scale and extent of dairy farming in southern New Zealand has grown considerably in recent years. However, environmental concerns associated with the loss of nutrients, faecal microbes and sediment to waterways during winter grazing of dairy cows remains an issue in vulnerable landscapes. Winter forage grazing paddocks are believed to contribute a disproportionately large part of annual farm nutrient and sediment losses as a result of intensive stock grazing on soils with high moisture content. A paired catchment study was established at Telford Farm, South Otago to investigate alternative winter grazing management strategies that may reduce the volume and concentration of contaminants in overland flow.
Precision Agriculture	Developing variable rate application technology - Economic impacts for farm owners	Click here	NZCPA	2007	Research Paper, Report	"Precision agriculture", "Top dressing", "Fertiliser", "Economic benefits",	The use of variable rate application technology on topdressing aircraft is now technically possible. Its uptake will be determined by the economic benefit to the farmers and pricing structure for aerial operators. The economic impact of six fertiliser spreading scenarios were examined at a case study farm. Farm operating costs were considered under each of the scenarios and the economic consequences calculated. Variable rate application was found to be financially viable, both in terms of maximising return per hectare and increasing fertiliser use efficiency. Under the most productive scenario, the farm was modelled to provide a 26% higher cash surplus per hectare than it is currently modelled to achieve. This was due to the system's ability to match the supply of nutrient to the pasture's nutrient demand across varying topography, resulting in an increased economic output for the farm. The cost of implementing such a system was not prohibitive and would provide aircraft operators the opportunity to add value to the services they provide, while improving their own business sustainability
Precision Agriculture	Developing variable rate application technology - modelling annual pasture production on hill country	Click here	NZCPA	2007	Research Paper, Report	"Precision agriculture", "Variable rate application", "Pasture production", "Economic benefits"	A great deal of modelling work has been completed in New Zealand and overseas on factors contributing to variations in pasture production. Although there are many factors that affect this, some have far greater influence than others. This paper discusses some of the important governing factors that previous researchers have identified, and also comments on the modelling techniques used by others in attempting to model annual pasture production. One of the more adaptable techniques, commonly called decision tree modelling, has been selected and applied to a large sheep and beef, hillcountry farm. The resulting annual pasture production was compared with an animal intake model. Both approaches were in very close agreement. This indicates that the decision tree method could be a very useful tool in the management of hill country properties when linked with a geographical information system. Embedding a pasture production model within a geographical information system is useful as it helps to identify strategic opportunities for either increased production or greater efficiency of inputs, particularly if within-field variation is scrutinised.

Precision Agriculture	Estimation of the in-field variation in fertiliser application	Click here	NZCPA	2007	Research Paper, Report	"In-field variation", "fertiliser application", "GPS", "centrifugal fertiliser spreader", "coefficient of variation"	The aim of this research was to develop a method to assess field application variation using basic transverse spread pattern test and vehicle tracking data. The information was used to measure and compare the effect of spread pattern, driving accuracy, driving method and paddock shape.
Phosphorus management	Estimating the mitigation of anthropogenic loss of phosphorus in New Zealand grassland catchments			2013	Research Paper, Report	"EBIT", "Mitigation", "Profitability", "Reference conditions", "Water quality", "Nutrient Loss"	There are a number of tray testing methods used throughout the world to assess the distribution accuracy of fertiliser spreaders, all of which calculate differences in distribution pattern. The main objective of this work was to perform a statistical analysis of the differences between methods
Phosphorus management	A review of the cost-effectiveness and suitability of mitigation strategies to prevent phosporous loss from dairy farms in NZ and Australia			2012	Research Paper, Report	"Best management practice", "Phosphorous", "Mitigation strategies", "Dairy farms", "Cost-effectiveness"	This paper reviews the cost-eff ectiveness of mitigation strategies for New Zealand and Australian dairy farms
Infrastructure	Silage Stacks and Bales	Click here	BOPRC		Fact Sheet	"Silage stacks", "Bales", "Nutrient management", "Contaminant", "Storage"	Fact sheet on Silage Stacks and Bales
Precision Agriculture	Precision irrigation as a tool to reduce nutrient leaching and runoff	Click here	Massey University	2013	Publication	"Precision agriculture", "irrigation", "Leaching", "Runoff", "Nutrient mitigation tool"	Publication on the benefits of using precision irrigation systems in reducing nutrient leaching and runoff
Fertiliser management	Soil and plant testing	Click here	Fertiliser Association	2007	Fact Sheet	"Soil testing", "Soil management", "minerals", "Monitoring", "Fertiliser"	Establishing and maintaining the right balance of mineral nutrients is key to achieving the optimum biological and physical condition for your soil and plants and ultimately enhancing your farm's profitability. Without the use of scientifically proven protocols to reliably monitor and assess soil health it's easy to use either too little or too much fertiliser. Too much fertiliser is a waste of money and can be damaging to the environment, too little may restrict your farm's productivity.
	Nutrient Behaviour in soils	Click here	Fertiliser Association	2007	Fact Sheet	"Nutrient", "cycles", "profitibility", "intensification", "Fertiliser"	Complex nutrient cycles have been an integral part of farming practices throughout history. However, with intensification of farming systems, there is now greater awareness about the need to minimise nutrient losses through achieving the correct balance between inputs and outputs of nutrients. Understanding nutrient behaviour in New Zealand soils, presents a valuable opportunity for farmers to more efficiently utilise essential nutrients to increase profitability while reducing environmental impacts
Nitrogen Management	Nitrate leaching and pasture production from two years of duration-controlled grazing	Click here		2011	Research Paper, Report	"Nitrate leaching", "Pasture production", "Controlled grazing", "cow housing", "feedpads", "50% reduction in leaching", "Winter management"`	Duration-controlled grazing has the potential to reduce nitrate-N leaching by ~50% on dairy farms (relative to standard grazing management). Therefore, it has the potential to be an important mitigation strategy, particularly in nitrogen-sensitive areas. However, before farmers adopt this practise they will need to be convinced that they can do so without compromising pasture production. To this end, the effectiveness of smaller, more regular applications of slurry to the DG plots is currently being assessed.