

NUTRIENT MANAGEMENT PLANNING

- A CORE STRATEGY FOR LANDCORP FARMING

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Abstract:

Landcorp Farming Ltd. (Landcorp) is a leading New Zealand agribusiness. Our extensive sheep and beef, deer and dairy operations are striving for best practice. Landcorp operates 137 farms encompassing 376,000 ha from Northland to Southland. We endeavour for continuous improvement in the productivity, profitability and sustainability of farming.

The reputation of New Zealand agriculture both locally and increasingly internationally is headlined by our ability to demonstrate that we can farm in our environment sustainably. The application of existing and new science are the tools to achieve sustainability.

Landcorp has developed internal process that allows us to benchmark our nutrient usage and identify nutrient inefficiencies and opportunities. The process involves both internal expertise and external contacts including fertiliser technical field consultants, Regional Councils and at times specialist consultants.

The core of this process revolves around an annual soil testing program, followed by an annual Overseer Nutrient Budget completed using Landcorp internal input protocols. All farms currently have Nutrient Management Plans which are revised every three years or when a significant farm system change occurs. These documents are supplementary components of a Land and Environment Plan which more specifically details the Land Use Capability and Regional Council requirements.

The Land and Environment Plans are a key consideration of the Business Plan (revised annually) for each Landcorp farm and is deliberated at the annual fertiliser planning meeting. At the annual fertiliser planning meeting, the fertiliser company representative is present in a specialist capacity to provide further background on key points from the Land and Environment Plan. They also ensure the nutrient policy is optimised and give overall reference to the nutrient footprint and environmental sustainability of the farm. Through this on farm process Landcorp also encourages farm managers and staff to be aware of the on farm drivers of nutrient inputs, flows and fate.

Landcorp believes that the ability of farm managers and staff to understand the concepts of farming environmentally sustainably is the key to maintaining and building our local and international reputation. A renewed focus on our environmental stewardship is a key point of our new strategic plan. We want to link the best people, science and technology to our customers.

Introduction:

Landcorp Farming Ltd. (Landcorp) is a leading New Zealand agribusiness. Our extensive sheep, beef, deer and dairy operations are striving for best practice, Landcorp operates 137 farms encompassing 376,000 ha from Northland to Southland. Central to the success of Landcorp and New Zealand agriculture is our ability to demonstrate that we can farm sustainably in an environment that is sensitive to the intensification of farming systems. Landcorp believes that the ability of the farm managers and farm staff to understand the concepts of farming environmentally sustainably is key to maintaining and building our local and international reputation. Landcorp has a substantial regrassing and forage program amounting to 15,000 hectares annually. 56,000 tonnes of NPKS fertiliser is applied annually, as well as 40,000 tonnes of lime. It is our view that the application of this amount of nutrient only offers the opportunity for improved forage production and it is the skill and ability of farm managers and staff to harness this opportunity that is paramount to success.

Discussion:

Landcorp has a process driven approach to running the farming business it owns and manages including the planning and implementation of the land based activities such as fertiliser planning, cropping and effluent management.

For Landcorp as an organisation, nutrient management means being nutrient responsible and nutrient efficient across all of our properties. Our philosophy around nutrient management is a whole farm approach and is one that recognises all nutrient flows in and out of the farm.

Over the last ten years we have seen a quantum shift from the situation when nutrient management meant ensuring we were applying enough fertiliser, identifying whether capital fertiliser was required, and whether there was a nutrient budget in the bottom drawer of the desk. Now we are ensuring that the Nutrient Budget is completed to a consistently high level, but is also understood on farm. Each farm also has a Nutrient Management Plan and 50 percent of the properties have Land and Environment Plans, with the balance to be completed within the next two years.

Currently Landcorp has a close working relationship with Ballance Agri-Nutrients and part of this relationship is the allocation of a key account manager to each farm. Each of the key account managers has the advanced nutrient management certificate which Landcorp consider a minimum requirement. We rely strongly on business relationships to help us implement management strategies at a consistent level and this is important with regard to the service level required to implement the nutrient management process.

The process that Landcorp is implementing brings together a selection of Landcorp and industry modules that allows for the opportunity to identify and manage each farm's nutrient footprint. Landcorp considers that providing an overall framework for the application of each module of the process allows for the identification and implementation of best practice on farm.

Key components of the nutrient management process:

Every farm is soil tested annually on regular [fixed] transects. Landcorp has a GIS database where each transect is recorded to allow for consistency in the testing protocol. On selected farms all paddock testing is also completed which allows us to even out the fertility status of the property. Each new crop paddock is soil tested to identify and optimise soil fertility pre

planting. These same paddocks are tested two years post planting of pasture to ensure the nutrient status of the paddock is appropriate to maintain the improved pasture.

Herbage testing on both mixed pasture and clover only samples is completed as required, for plant health and in association with animal testing which is carried out using blood and liver samples as well as utilising the Optigrow program.

Landcorp has had an Overseer Nutrient Budget on each property since 2001 to allow for the maintenance nutrient requirement calculation, as well as the benchmarking of environmental factors across the country. For the last three years Landcorp has used internal Overseer input protocols to allow for consistency between the nutrient budgets completed by individual managers in different regions.

Each property has a Nutrient Management Plan produced by Ballance which details the hot spots in the nutrient budget and the mitigation options available. These are completed every three years, or when the farm system changes significantly.

Currently we are in the process of completing a Land and Environment Plan for each property. This is a dynamic document that details the production capability and limitations of the physical farm resource as well as any Landcorp and Regional Council regulatory requirements. These plans are completed by either a Landcorp contractor or the appropriate Regional Council. Perhaps the most important part of the Land and Environment Plan is the Works Plan that is generated which allows the required improvements to be scheduled to meet best practice guidelines.

Landcorp holds two key meetings on farm annually at which nutrient management is discussed (Fig. 1) these are the fertiliser planning meeting as well as the business plan meeting. At both of these meetings, the Nutrient Budget, Nutrient Management Plan and the Land and Environment Plan are discussed in terms of the entire farm system. Having the Farm Manager, farm staff, Landcorp Agronomist, General and or Business Manager present as well as the Ballance key account manager allows for the nutrient management on the property to be challenged and discussed.

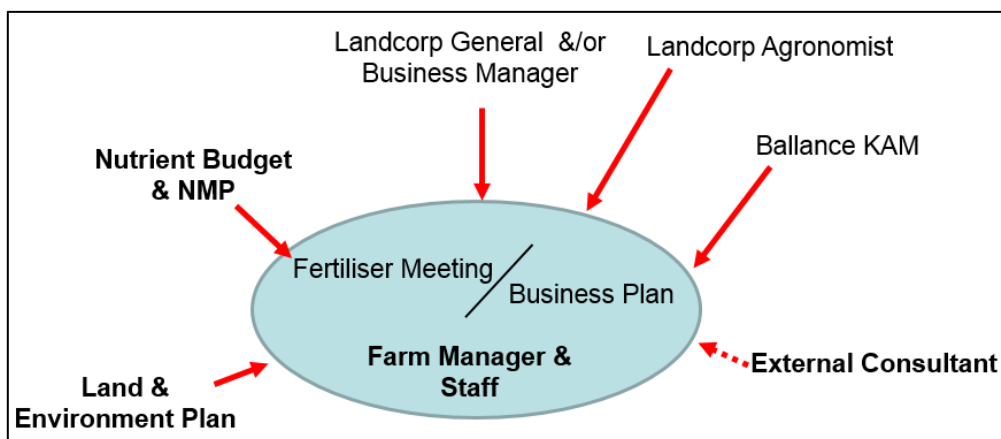


Figure 1: Landcorp key meetings on farm

A key part of nutrient management planning for Landcorp is the knowledge that the Ballance key account manager brings to the discussion, and we do what we can to ensure they are empowered to challenge the application and understanding of best practice on farm.

Examples:

Some examples of outcomes from the key farm meetings referenced from the Land and Environment Plan are illustrated below.

- Mangatoa Station in Northland had identified an area to develop for a lamb finishing hub to complement the rest of the Northland farms based on the location and facilities on the particular block of land. After investigating the resources from the Land and Environment Plan it was recognised that the block of land was dominated by podzolised soils, with a potential high P loss and therefore it was not going to be easy to raise the fertility of the block sufficiently to support the performance required for lamb finishing. Therefore we did not proceed with this and found an alternative option.
- Huirimu Station in the Central North Island, is a well developed farm with a low proportion of flats to hill country. Due to the development status of the flats, cropping was being extended increasingly into rolling paddocks. The Land and Environment Plan highlighted the risk of sediment movement and nutrient loss from this practice. Following the recommendation in the plan, paddocks are direct drilled where possible and there has been riparian fencing and associated planting carried out to mitigate some of this sediment and nutrient run off. Further to this best practice is followed while grazing the crop.
- Mt Hamilton Station in Southland is a complex property with many land and stock classes. The Land and Environment Plan process has led to a more structured approach for the allocation of the appropriate class of livestock to match the seasonal soil limitations identified. There has been a significant fencing program to subdivide the paddocks based on the LUC within the existing paddocks. In some areas rejuvenation of native vegetation has been allowed to occur in order to reduce the incidence of wind and sheet erosion.

Where to from here:

Landcorp has an internal quality assurance programme FarmPride that audits standards for the different components of the business at the farm level and is completed by independent contractors. FarmPride is Landcorp's commitment to the production and management of premium quality animals and farm products that reaches beyond the customers' expectations. This auditing process currently covers farm facilities, animal health, husbandry and welfare, farm management, and environmental responsibility, all resulting in product quality.

Currently we are instigating a specific Nutrient Management Module which is made up of three components. The first is a summary of the **key nutrient measures** from the Nutrient Budget, Nutrient Management Plan and the Land and Environment Plan. The second is to identify the **major influences on farm nutrient budgets** to enable structured discussion on 'best practice' and opportunities to reduce the nutrient foot print. For example looking at the winter stocking rate, winter nitrogen application and farm specific soil limitations. The third and last is a **field consent process** which will be required for some farm activities such as the cultivation of rolling country, crop management, tracking and stock movements.

The desired outcome from this Nutrient Management Module is to raise awareness on farm in terms of nutrient management planning across the entire farm system, as well as ensuring that best practice is being applied across the business.

Conclusion

- Landcorp is continuing to build a robust process in terms of nutrient management planning based on industry and Regional Council cooperation while applying the relevant science interpretation & expertise across the business.
- We are working towards our Farm Managers and staff having a sound knowledge of what the nutrient footprint is on their farm as well as at a corporate level.
- Better understanding and implementation of Best Practice.
- Within Landcorp there is a renewed focus on our environmental stewardship which is a key point of our new strategic plan.