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**USING BENCHMARKING AND KEY PERFORMANCE INDICATORS TO
COMMUNICATE BETWEEN MANAGEMENT AND GOVERNANCE
IN LARGE FARMING ENTERPRISES**

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Abstract

One of the challenges faced by Māori Trusts and Incorporations is complex ownership and the resulting need for timely and useful information to be available to all levels of the organisation that can facilitate good decision-making. A pilot programme involving 6 Māori corporate farming enterprises, used benchmarking, KPI's and whole farm review as tools to inform changes to meet future objectives. Twenty nine responses were documented highlighting changes from simple examination of current farm practice. Benchmarking provided a set of data to examine the current state of the farm and highlight where changes may be made. However, the group identified many issues with using industry production and profitability benchmarks, mainly due to different governance and management structures, scale and farm objectives. The tools used had the power to provide an appropriate way of communicating both the needs and direction of change between the layers of management and governance.

Keywords: Benchmarking, Complex ownership, Key performance indicators.

Introduction

Benchmarking and key performance indicators have been suggested as opportunities to guide farmers in their quest for 'improvement' (Nelson 2003). Initially these indicators have been performance and financially based. Often they have been used to reduce costs, or to improve productivity, in an attempt to increase net profit (Atkinson 2003). More recently they are being used to monitor environmental performance, and social and cultural performance (Saunders et al 2009). In the farm management context productivity, cost and profit are the key drivers.

However, the process of developing relevant indicators and whole farm benchmarks has been the realm of farm advisory businesses (Baker 1993, Johnstone 1999) and industry

bodies (Beef + Lamb NZ 2018). This has made the process at arm's length from the day to day running of a farm. Historically the data has been hard to find, or retained as proprietary knowledge of farm advisory businesses and provided only to their clients, usually for a fee. Some working groups have been formed over the years to provide services for benchmarking (Shaw 1999), but often they disband as farmers become familiar with the processes and targets.

Benchmarking provides a valuable service to whole industries, by defining the progress of the industry. The question still remains, does benchmarking, using appropriate key performance indicators, actually drive lasting change on farms?

The Awhina Group is an association of 15 Māori trusts and incorporations that own and operate 68 individual farm units (40 dairy farms and 28 sheep and beef units) over 120,000 ha of effective farm land. One of the challenges faced by Māori Trusts and Incorporations is complex ownership and the resulting need for timely and useful information to be available to all levels of the organisation that can facilitate good decision making.

The Awhina group is unique in that it comprises of farm staff and managers, advisors and shareholders/trustees (see Table 1). Information needs to flow from farm workers through the hierarchy to trustees and owners. Each layer has a different need for information and potentially a different requirement for the precision of information. Sometimes the information may be different. This then poses the question, who needs what types of KPI or benchmark?

Table 1: The activities and needs of the actors within the Awhina group.

Community	Activities
Shareholders	Receive reports on performance. Provides confidence to shareholders of what has been achieved and, if not, why not.
Governance	Regular monitor of performance. Provides the ability to effect changes to implement plans.
Management	Provides agreed production plans and targets. Benchmarking provides a guide to inform plans and test progress.

This structure is a subset of structures within the sheep and beef sector. It has a relatively wide applicability to Māori farming and corporate farming. While standard statistics and

reporting packages are available within corporate farming entities, the setting for many Māori farming operations means that many of the trustees, who are shareholder elected, may not have a farming or business background. The metrics of success may also be different. For example, return on capital is not useful because many Māori landholdings cannot be sold, by law, or are intrinsically linked to tribal values of place. Therefore funds cannot be reallocated for other capital purchase. Stewardship of the land, kaitiakitanga, is also encompassed in tribal values and these are linked to the health of the local rivers and lakes. Tribes, iwi, often also have social and cultural values and objectives linked to the land and its financial returns. Therefore, the reporting structures available to corporate farming may not be appropriate.

This paper describes the experiences from a pilot programme involving 6 Māori corporate farming enterprises, a subset of the Awhina Group. This programme used benchmarking, KPI's and whole farm review as tools to inform changes to meet future objectives. The relative impacts of each are described.

Methods

In 2016 the Awhina Group was offered the opportunity for a subset of the group members to participate in the RMPP Pilot Farm Extension project. The RMPP group consists of six central north island Maori incorporation sheep and beef farms where stock numbers range from 9000 to 35,000 SU wintered.

It was decided that the key focus for this group within RMPP would be to develop systems and tools by which farm staff can be better connected to their Boards (and vice versa) to enable more effective communication of key information to allow good operational understanding and decision making.

The intention was that this would be useful for not only Maori Trust farms, but also any farm business where decision making involves more than one person such as corporate or family owned farms.

Key areas the group investigated were measurement and information protocols to develop a bench marking process of key seasonal indicators that help inform decision making. The group activity started with a GAP analysis of their farm accounts which helped identify opportunities specific to each farm. Monthly on-farm workshops have commenced where all levels of personnel associated with the farms are working together to review the questions of the month with participants including farm workers, managers and partners, consultants and trustees and in some cases, farm shareholders. These are done under the

guidance of a senior farm systems scientist. Connections and discussions across the levels of those involved with each property are developing as is a network across farms for farm staff.

The Awhina Group Pilot Farm project, in conjunction with the Alliance Group Ltd, (RMPP 2016) was a multi-year project investigating the use and reporting of information throughout the farm, business and stakeholder network that is associated with Māori agribusiness. The identification of data collection and on-farm opportunities and the benchmarking of 6 partner farms against industry performance, are reported here.

Farm data collection and opportunities

The ability of farms to collect and report on data was assessed by a farm systems expert. Each farm was visited to assess the ability to collect data and identify issues that may exist on individual farms. This was to demonstrate the power of gathering information, and to provide opportunities for improvements that may enable greater productivity and profitability from gathering and interpreting information.

The Opportunities programme involved the following:

- a visit with each farm individually,
- an inspection of the physical and financial records of the farm
- a discussion with farm staff and farm supervisors about the resources available
- a report on the size of opportunities that may be available and some documentation of data collection techniques that may be needed to capture that opportunity

Benchmarking process

Farm records for 2012/13 to 2014/15 were forwarded to the farm consulting business, Baker and Associates, for standardisation and benchmarking analysis. These records were collated into physical and financial, and then an expenditure and revenue budget created, based on actual records, with some changes to generate a common comparative base. These changes included a standardisation of wages of management, attribution of surplus fertiliser costs (above maintenance) to capital expenditure, and adjustments for interest, depreciation and tax.

A time series analysis was done for the physical and financial data, and a more detailed analysis of the 2014/15 year provided. This analysis included detail on stock performance and stock sales to better define how the incomes was being derived. Other sources of

income such as dairy grazing or cash cropping were included in the revenue for each farm, but not compared between farms.

While Baker and Associates provide an on-going benchmarking service, using their client base of 131 properties, the geographic region of the Awhina farms is not well represented, so a more general benchmarking set, that is available to the general farming public, was chosen. The analysis compares the Awhina Group farm average with an average benchmark group from the Beef + Lamb NZ Farm Survey for 2013/2014. This included farms from three regions, due to the spread of Awhina farms represented. The Awhina Group farms were compared to the average and the top 20% of farms, by financial performance (Beef + Lamb NZ Economic Service, <http://www.beeflambnz.com/information/on-farm-data-and-industry-production/>).

Measuring change

Two sessions were used at workshops to collect feedback and document changes that had occurred. The first session was in August 2016, six months after the initiation of the programme (March 2016) and three months after the delivery of the Farm data collection reports. The second was in May 2017, four months after the delivery of the Benchmarking reports.

Preceding the first session was a workshop on the purpose and value of data recording. This was followed up by individual farm visits to assess the facilities and readiness of farms to collect and use data, and resulted in a formal report. Participants were individually asked to report changes that had been made.

The benchmarking reports were delivered in January 2017, and compared performance and financial records against the Beef + Lamb NZ Economic Service Farm reporting system for various geo-climatic representations of farms similar to the group. This was finally followed up by another workshop where results of the benchmarking were reported and discussed. Feedback at this meeting was recorded.

Results

Farm data collection and opportunities

The follow-up workshop and participant feedback after the farm data and opportunities reporting provided a list of twenty nine responses documenting changes that had been made. Analysis of this data identified five categories of change. These were operational and tactical decision-making (management), information collection, recording systems,

infrastructure and labour. Some of these changes were repeated as more than 1 member from each farm group was present.

Table 2: Changes made on 6 farms after farm visits by experts and a formal report on the ability to gather and use data, after the first six months of the programme.

Category	Number of entries	Type
Management	6	Foetal aging for better feed supply More attention to ewe condition Identified triplets and separated out for late pregnancy feeding and managing over lambing Applied urea to increase covers at set stocking Lambled all hoggets
Information	6	Better monitoring and data collection More regular pasture cover measurements Identified triplets at scanning More focus on yield characteristics in lambs Lifted lambing % Foetal aging
Recording	9	All had engaged in formal reporting and recording software (Farm IQ ¹)
Infrastructure	6	Purchase of fencing equipment Built new cattle yards with drafting system New cattle yards Decision to invest \$100,000 in new cattle yards Development plan for fencing, water, cattle yards Upgraded stock handling facilities
Labour	4	Health and Safety improvements Staff performance measurements and benchmarking Employing a farm tech support Faster stock throughput

¹Farm IQ is proprietary software for recording on-farm data (Isaacs and White 2016)

Table 2 outlines the number of changes recorded for each category. The greatest number of changes identified were in recording systems where farms had shifted to using the Farm IQ system of data collection and storage (Isaacs and White 2016).

More information collection was identified in six cases. This included pregnancy scanning for triplets and to foetal age, general data collection, increased pasture monitoring and carcass trait analysis.

Operational and tactical management decisions and outcomes (six cases) included changed feed allocation, tactical nitrogen fertiliser use, hogget mating and using ewe condition as a guide for feeding.

Six mentions of infrastructure change included new stock handling and weighing facilities and development of whole farm plans for fencing, water and stock handling facilities.

Labour changes were mentioned four times. This ranged from employment of farm technical support, to improvements in staff performance monitoring, health and safety planning and monitoring, and increased labour efficiency.

These changes reflected the issues identified in the Farm data collection and opportunities reports, which identified the following list of requirements that more systematic approaches to data collection needed to address.

- Minimising labour requirements.
- Ensuring ease of connectivity to transfer data.
- Appropriate training to understand the value of data.
- Pride in a job well done by knowing the outcomes.
- Linking data to less tangible ideals such as stockmanship and environmental stewardship.
- Provision of data collection systems by the governance bodies – they need to own the process and the data for transferability. They also need to show leadership.
- Data interpretation skills need to be provided.
- Systems and hardware such as computers, smart phones and email need to be provided by the employers to motivate change and capture data.

Benchmarking

The workshop after the benchmarking reporting provided a different response to the farm data and opportunities reporting.

Table 3: The responses of 6 farms to benchmarking results, categorised by value and questions raised.

Value of benchmarking	Questions raised by benchmarking
Placement on the scale in comparison to other Awhina farms	What opportunities exist as a result of these comparisons?
How we compare to NZ averages and the Top 20%	What does this mean for the governance group of each farm?
Opportunity to drill down into more detail	How do we account for the variation between region, farm class and climate within each farm business?
Promotes dialogue in order to generate improvement	Do we compare 'like with like' or can we learn from the differences between farm businesses?
The context is important for understanding	For comparison purposes, can we access data from other high performance groups, including other Maori farms or corporate groups? How do we get a comparison of productivity to the pasture resource?

Benchmarking provided a set of data to examine the current state of the farm and highlight where changes may be made. However, the group identified many issues with using industry production and profitability benchmarks, mainly due to different governance and management structures, scale and farm objectives. These all influenced both costs and potential productivity.

The standards provided an assessment for comparison to average or the top 20% and may be used to ensure that a farm is not losing ground from year to year. It does not, however, provide insight into the configuration of comparable farms to help generate change.

The Beef + Lamb NZ Economic Service Farm Survey provided some relevance but needed to be interpreted in the context of the type of Farm structure that is prevalent in the Awhina Group. The Baker and Associates system also required interpretation before conclusions could be drawn.

Discussion

It is important to differentiate between cause and effect in making change. Often change success is attributed to the tools that are used. However, it first must be recognised that the will to change precedes the use of tools and techniques such as key performance indicators, measurement and benchmarking. Previous views of the need to change (Cottrell, 2016) and initial formation of the group of people, representing the Awhina group, which led the project, demonstrated this effect. The aspirations to create a reporting model that would engage and communicate to all stakeholders within an entity, and then between entities were already in place before the group was actually formed, and was expressed at the first meeting. Therefore, change was inevitable. What the tools brought to the process was a way of providing focus on what to change and the direction of change. The tools also had the power to provide an appropriate way of communicating both the needs and direction of change between the layers of management and governance.

Australian research of dairy farmers (Ho et al 2012) showed no clear relationship between a range of production KPI's and financial KPI's, across a range of farming intensities. They further produced evidence that farms rarely achieve consistent 'high' financial performance, with approximately 10% appearing in both the top and bottom 25% within a 3 year period. This demonstrates that the tools, when used without understanding intent, provide little clarity to the change process.

Elliot and Wakelin (2016) described top performing farmers (regularly in the top 5% by profit) and distinguished them from 'second tier' farmers (in the top 30% by profit), and concluded that the two groups were not that different, though the top group were more focused, motivated, had greater self-belief and were more highly skilled in their management of the farm. They identified that top farmers knew which elements of both production and costs to focus on to maximise profit, with good planning and efficiency in execution. There were no direct references to benchmarking or key performance indicators reported, though this was implied by the participants in reference to knowing which elements of production and cost to focus on. Mid-tier farmers were seen to have less well defined goals. This may mean that benchmarking and understanding key performance indicators may provide an opportunity, though this was tempered by references to motivation and confidence to implement change.

Mulvaney and McColl (2016) describe a programme of sheep farm improvement which has been active for 16 years. This programme is based on KPI's and benchmarking, but is focused on providing tools for farmers to monitor stock performance with 3 to 4 visits per

annum. While benchmarking and KPI's were important in defining current conditions, and forming targets, it was the actual process of coaching farmers in new techniques and practice that provided the progress.

The sum of these observations dovetails well with the models of change. The will to change was already in place with the formation of the group. Two other elements are also key to enacting change. James et al (2015) describes the role of benefits, or the 'what's in it for me' driver of change, while Fennessey et al (2016) describes the concept of 'can I see myself doing it', or self-efficacy, in farmer practice change. Both of these drivers need to be in place before change is enacted. The use of the tools and reporting frameworks used in this example provided a way of expressing both of these drivers of change throughout the management and governance structures using a common language.

The use of benchmarking in the corporate farming context (Atkinson 2003) has a significant power in bringing many people and parts of the business to a common understanding to reach common goals. The combination of benchmarking information and whole farm assessment prompted many significant changes on-farm within the current project. For example, the highlighting of requirements for farm labour to achieve the monitoring and future performance required by the farm board prompted more labour to be hired. Further, demonstration of the benefits of increasing monitoring and improving feed use efficiency led to significant capital investments on several farms.

This demonstrates that the use of the benchmarking and KPI tools, in this case, provided an effective means of communicating between the different parts of the management and governance structures, as changes were made quite rapidly once information was available.

It is only when monitoring, KPI's and benchmarking, are linked with a shared vision and with the information and techniques to enable change that success will be delivered, rather than any single factor alone.

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