THECATALYSTGROUP
strategy and environment

p 06 358 6300
e enquiries@thecatalystgroup.co.nz
w www.thecatalystgroup.co.nz
a Top Level, 31 George Street,
PO Box 362, Palmerston North 4440

Barriers to Alternate Land Uses and Crop Types in the Rangitikei District

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Report prepared as part of the

Rangitikei Strategic Water Assessment project,

jointly funded by Rangitikei District Council and the

Ministry for Primary Industries (Irrigation Acceleration Fund)

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Ministry for Primary Industries
Manatū Ahu Matua

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1 Introduction

The Rangitikei district is heavily reliant upon the primary sector for its economic and social well-being. This sector is founded upon the district's topography, soils, climate, water resources, and farmer innovation. However, the district's water resource is coming under increasing pressure from irrigators, and the impacts of droughts.

In response to these challenges the Rangitikei District Council and Ministry for Primary Industries (via the Irrigation Acceleration Fund) are jointly funding The Catalyst Group to undertake a strategic water assessment for the district. This project will generate information about the:

- availability and certainty of water supply (surface and groundwater) in the district;
- efficiency of current water use, and opportunities for improvement;
- costs, benefits, on-farm implications, and regulatory and environmental considerations around irrigation, and
- alternative uses for irrigated land.

Such an assessment is a priority for Rangitikei District Council as this project will provide guidance on what additional benefits and opportunities could arise through smart use of the water resource, and identification of the costs of capitalising on these opportunities at a district and individual level.

One of the key tasks within the wider Rangitikei Strategic Water Assessment project was an investigation into what potential exists for alternative land uses and crops within the Rangitikei district (as part of an overall consideration of smart use of water), and identification of the barriers that will need to be overcome to get these alternate products to market.

The purpose of this review was to:

- collate available information on suitable alternate crops for the Rangitikei district,
- clarify what barriers exist in the grower-to-market supply chain,
- assess how well positioned the Rangitikei district and wider Manawatu-Wanganui region are to address these barriers, and
- comment on the viability of the Rangitikei district venturing into alternate crop production.

2 Background

Previous reports generated as part of the Rangitikei Strategic Water Assessment project have focussed on maximising the opportunities for smart water use within the traditional Rangitikei district landuses - sheep/beef, cropping, dairy, dairy support, and forestry. However, any assessment of smart water use would be incomplete without considering alternative uses of the water and their potential to lift on-farm production and profitability levels, and accelerate economic development within the district. Ultimately, the smartest water use is about directing water towards the highest value end use to maximise benefits.

The Rangitikei district is a diverse area, and it is this diversity that makes the consideration of alternative land uses and crop types a possibility. In no particular order, the features of interest within the district include:

- a temperate climate
- reasonable sunshine hours and growing season length
- a range of soil types and topography (i.e. slope, aspect etc)
- good transport links
- access to water for irrigation, and
- ability to grow 'out of season' produce for the northern hemisphere.

Within the district, the coastal sand country offers the greatest versatility and potential for alternate land uses because of its temperate climate, water availability and security, and range of soil types and topography. It is unique in that the soils and topography can be manipulated with land recontouring (e.g. flattened, soil engineered). The middle/lower parts of the Rangitikei, Turakina and Whangaehu valleys may also represent substantial opportunities for the consideration of alternative land uses.

Given the costs and risks associated with establishing and maintaining alternative land uses whole-property conversions to alternative land uses/crop types involving a large number of farms is unlikely. More probable is the conversion of a small portion of a traditional farming unit to alternative land uses. Although the area per farm may be small, 20-40ha, if enough farms took this approach collectively it would add up to a sizeable land area. The opportunities presented by such a collective approach are the focus of this report.

3 Method

An interview approach was used to generate information on alternative land uses and crop types and the barriers that exist in the producer-to-market supply chain, and how they may relate to the Rangitikei district. Two research scientists with considerable knowledge and experience in these matters were interviewed to inform this report.

- Dr Alec Mackay - principal scientist within the Land & Environmental group based at the AgResearch Grasslands campus, Palmerston North. Alec leads the Soils & Land use team which has a focus on ongoing refinements to land evaluation and spatial planning tools for use by the pastoral sector. Alec's interests include the development and integration of available and emerging technologies to maximise the economic, environmental and social returns from agricultural land use. Alec has conducted research in the Manawatu-Whanganui region for more than 20 years.
- Dr Brent Clothier – principal scientist within the Sustainable Production group at Plant & Food Research, Palmerston North. Brent leads the Production Footprints and Biometrics team, with a focus on the performance of various arable, vegetable, forage and fruit crop production systems and the optimisation of supply chain performance. Brent's areas of expertise include footprint (carbon, water, nutrient and pesticide assessment, ecological economics, and global market change. Brent has also conducted research in the Manawatu-Whanganui region for more than 20 years.

The interviews were conducted informally, but structured around a pre-circulated series of questions (Annex A). The interviews were conducted by Alistair Beveridge of The Catalyst Group. Both interviewees gave freely of their experiences and knowledge during the interview and during post-interview follow-up questioning.

These interview responses were supplemented by comments from landowners involved with alternate land uses and crop types e.g. Dalrymple's and Bairds, and were used to expand upon the findings from previous studies into potential alternative land uses for the Manawatu-Whanganui region. These studies were undertaken by central and local government agencies in a bid to stimulate economic development by identifying alternate land use opportunities, and to encourage diversification within the primary production sector.

Given an interview-based approach was used to inform this report, the results and conclusions presented below are necessarily qualitative and generalised in nature.

4 Findings

There are a number of critical steps in the producer-to-market supply chain that need to be in place if an industry based on the establishment of alternative land uses and crops is to be successful. Each of these steps, and the Rangitikei district's positioning on each of these steps, is described below.

4.1 Alternate crops

As mentioned previously the Rangitikei district lends itself well to the consideration of alternative land uses and crop types owing to its temperate climate, sunshine hours, growing season length, range of soil types, topography (i.e. slope, aspect etc), access to water for irrigation, and ability to grow 'out of season' produce for the northern hemisphere. But what alternative crops can be grown in the district, and more importantly grown in a profitable and environmentally sustainable way?

A study conducted during the 1980's identified a range of alternate crop types that could be grown in the central part of the district given the area's biophysical characteristics. This study spurred asparagus and peacherine establishment in the Kawhatau valley (also apricots which have all since been removed). More recently, similar studies have been completed for neighbouring districts using modern modelling tools (GIS) and modern datasets (e.g. Kapiti (Mackay et. al., 2005) and Tararua (Reid et. al., 2006) districts).

To date, these studies have tended to focus on 'traditional' alternative land uses and crop types, many of which are targeted at the domestic market e.g. berries and nuts, with limited consideration of horticulture. Further, previous studies have focussed on what could be grown, as opposed to what crop would be ideally suited to the area being studied. There has also been little/no assessment of whether such crop types have a market, and could be produced profitability (given the likely costs of production in New Zealand).

The issue with focussing on the domestic market is the market is comparatively small, so any additional product released into the market is only likely to depress the price realised by existing growers. Consideration should be given to accessing international markets, where demand (and hopefully prices) will be higher. Doing so also opens up a greater range of products that could be contemplated for growing. To date alternative crops have tended to focus on European markets, but with New Zealand's increasing trade with Asia, there are significant opportunities to diversify into crops that have not been contemplated for New Zealand previously.

Within the district, the coastal sand country offers the greatest versatility and potential for alternate land uses because of its benign climate, water availability and security, and range of soil types and topography. It is unique in that the soils and topography can be manipulated with land recontouring (e.g. flattened, soil engineered). The middle/lower parts of the Rangitikei, Turakina and Whangaehu valleys also represent substantial opportunities for the consideration of alternative land uses.

Currently, there is no comprehensive or up-to-date assessment of the district's suitability for growing different alternative crops, given its range of biophysical characteristics (i.e. soils, climate etc). Such an assessment is an important first step in encouraging diversification within the primary sector. Investigations of this type are relatively inexpensive and quick to prepare.

4.2 Growing alternate crops

Once the alternative crops best suited to an area are identified, the next issue is how to most effectively and efficiently grow them. With traditional alternative products there is generally information available. Many alternative crops have been researched previously, with field trials, growing trials, and cultivar development, or simply knowledge generated through trial and error over many years. The resulting information may reside within research institutions, individuals, grower groups, and as published material.

Information on how best to grow new alternative crops (e.g. Asian vegetables) is unlikely to be readily available. Issues could include – access to seed, planting rotation, spray and fertiliser regimes, irrigation needs, when to pick, rotations per year etc.

Lack of knowledge about a particular crop is a significant barrier to landowners contemplating investing in alternative crops, and on potential yields.

Until the suitable alternative land uses for Rangitikei district are identified, it is unknown if a significant knowledge gap for growing a particular crop exists. There will be a knowledge gap at the landowner level, but there may be expertise within the wider community, research institutions, or available commercially. Knowledge gaps can be readily overcome by individuals making the effort to close the gap themselves, or by buying-in expertise. It is the responsibility of the beneficiaries to bridge this knowledge gap in some way.

4.3 Storage, processing and transport of alternate crops

Important components in the producer-to-market supply chain are the storage, processing and transport of crops, particularly of perishable products. Smart storage and processing of food crops can generate considerable added value. For example, over the last 40 years the New Zealand kiwifruit industry has developed very sophisticated storage and transport processes to ensure green-picked fruit arrives at international markets at prime ripeness.

In recent years, the wider Manawatu-Whanganui region has lost much of its dedicated food storage (i.e. cool stores) and processing capacity e.g. closure of the McCain vegetable and potato chip processing plant at Feilding. The region does not have ready air access to international markets, instead perishable goods are transported to either Auckland or Christchurch.

Despite the above, the total coolstore floor area in the region has increased markedly in recent years as the region has developed as an inland cargo hub/port. Admittedly much of this cool storage was not established for storage of unprocessed product, but there is nothing to stop it potentially being used for this purpose. Many examples of this happening exist around the country e.g. in Nelson the same coolstore is used for berry and fish storage at different times of the year.

Similarly, a food processing industry exists within the Manawatu-Whanganui region, and in neighbouring regions (i.e. Hawkes Bay). If sufficient volumes (i.e. a critical mass) of product were being produced in the area then it is likely this processing capacity would increase through expansion of existing processors and/or new processors establishing in the area.

The need to transport goods to Auckland or Christchurch to access international markets via air is not seen as a significant barrier given the quality of the cargo handling and transportation systems associated with the region's inland port. In saying that, were Ohakea to be opened-up to direct international freight transport, this would represent a significant opportunity for growers and processors in the region, and would likely result in product from the lower North Island destined for shipping out of Auckland or Christchurch being redirected to Ohakea. Ohakea, as a military air base, is currently closed to non-military aircraft, except in emergency situations.

4.4. Access to markets

The final hurdle to overcome in the development of alternative land uses/crops is access to international markets. Traditional alternative product, are not expected to encounter problems, as producer/marketing boards exist (e.g. Zespri in the case of kiwifruit). These boards ensure regulations are adhered to, set up contracts to supply agreed volumes of product, market the product into existing markets, and explore opportunities in emerging markets. This is usually achieved through a producer levy.

Non-traditional alternative products (e.g. Asian greens) are unlikely to have such producer/marketing boards, making the task of gaining access to and then selling into markets significantly more difficult. This step will be beyond the expertise and resources (and probably patience!) of any one individual grower (particularly if only contemplating 20-40ha of land), but could be achieved if growers worked collectively to purchase this expertise. Alternatively, a grower collective could work collaboratively with an existing group producing similar products (e.g. wine industry, Zespri, NZ Apple and Pear Board), a group producing dissimilar products (e.g. Tatua milk company, other exporters), or central government (i.e. MFAT) for advice and assistance.

4.5 Role of Councils

Development of an alternative land use/crop industry within the Rangitikei district will require considerable financing, vision, commitment, timing, and probably a degree of luck to be successful. Understandably, such an industry is unlikely to emerge overnight. Instead it will develop slowly over time, once the key players and pieces in the producer-to-market supply chain are in place.

The role of local government (i.e. Rangitikei District Council) in making this happen revolves around providing opportunities for landowners, processors, cool storage owners, exporters and central government officials to come together to discuss the possibilities that exist. By connecting key players in this way, opportunities will be identified, confidence will be built and agreements will be reached.

Beyond this, there are few opportunities for further local government involvement that do not require some form of subsidy that requires community support i.e. grants, consent fee waivers, rate rebates etc.

5 Summary

The key findings from this assessment into the barriers surrounding the development of alternative land uses and crop types within the Rangitikei district are:

- The Rangitikei district has the potential to support a range of land uses/crops outside of the current big five of sheep/beef, dairying, cereal cropping, dairy support, and forestry. However, what this potential is, and what alternative crops are best suited to the Rangitikei district requires further investigation.
- There are a number of significant barriers in the producer-to-market supply chain regarding alternative land uses/crops. These include:
    - how best to grow these alternative crops;
    - how to store, process and transport these products, and
    - developing and accessing markets for the produce
- These barriers are virtually insurmountable from an individual landowner perspective. However, fortunately much of the infrastructure and systems necessary to support alternative land uses/crops already exists in the region or in neighbouring regions.
- Of the various barriers described, the most challenging is the gaining of access to, then selling into, international markets.
- Local government can assist in breaking down these barriers by providing opportunities for key players in the producer-to-market supply to connect.

6 References

Mackay A., Clothier B., Mills T., Jesson M., Newsome P., Willoughby J., Reid J., Neild J. (2005) A study of the rural productive potential in the northern part of the Kapiti Coast district. Prepared for the Kapiti Coast District Council.

Reid J., Mills T., Parmenter G., Burge G., Searle B. (2006) Alternative crops suitable for the Tararua district: Stage 2 report. Report to Tararua District Council. HortResearch Client Report No 19721

Annex A: Interview questions

The following questions were pre-circulated to Dr Alec Mackay and Dr Brent Clothier who were interviewed as part of this assessment.

1. What investigations of alternative crops/products have been done for the Rangitikei district and/or wider Manawatu-Wanganui region? This is outside of the current big 5 of sheep/beef, dairy, cereal cropping, diary support and forestry.
2. What is the current level of uptake of these alternative crops/products?
3. We currently have growers of peacherines (Kawhatau), asparagus (Kawhatau), kiwifruit (Whangaehu), and grapes (Hunterville). Are these successful enterprises and good examples for others to follow?
4. What is the potential for these alternative crops/products in the Rangitikei given:
    - the investment required (base plant material, shade/support structures, irrigation
    - any other requirements such as specialised knowledge and labour
    - processing/storage facility requirements
    - transportation
    - access to markets – local, national and international
    - expected returns and production volumes
5. What in your experience are the critical barriers to the adoption of alternative crops/products?
6. What can be done to overcome these barriers?
7. What opportunities exist for a district or regional council to influence or add value to the producer-market supply chain?