



NEW ZEALAND GRASSLAND ASSOCIATION

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DEADLINE: Friday 15 February 2019

TITLE: BEYOND RUMINANTS: OPPORTUNITIES FOR NOVEL PASTURE USES IN NEW ZEALAND

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Give a **brief** (no more than **400 words in total**) outline of the contents of the paper under the following headings:

Background

The New Zealand government has set ambitious goals for primary sector growth and of zero net carbon emissions by 2050. This presents an opportunity to develop new ideas and approaches for grassland production systems to increase export value and generate new job opportunities, while reducing our environmental footprint. An international, interdisciplinary consortium was formed to explore the potential for future alternative uses for pasture beyond the primary use as feed for ruminants.

Approach

We will investigate alternative, or complementary, uses for pasture through a literature review and workshop with our consortium partners. The review will focus on promising options for novel pasture-based products through bio-refinery processes to extract, for example, proteins and cellulose that can be used as raw material for bio-plastics, polymers, pre-biotic animal feed, and food ingredients.

Results

Through our review and synthesis we will detail the current and emerging technologies that show promise for application to New Zealand grassland systems, and the barriers (e.g. financial, technological, market development) for implementation. For example, it can be relatively simple to extract protein from green biomass once harvested. The solid/fibre fraction could be used as a low-nitrogen feed for ruminants to reduce urinary nitrogen, while the liquid protein fraction could be processed to make it suitable for mono-gastric (i.e. humans or chickens) consumption. Enzymes can also be used to promote the extraction of certain chemical and biological compounds, and anaerobic digestion could be added to these processes to create energy.

Conclusions

We need to think creatively to meet our sustainable growth targets. There are a number of promising approaches and technologies that are being developed that create opportunities for new products, businesses and farm systems based on pasture. Although some of these technologies may seem revolutionary, if targeted efforts are made they may be achievable in the not so distant future.

Practical implications of conclusions

In the short term, a transition to growing flexi-pastures that could be used as feed, but that also have attributes beneficial for bio-refineries for different purposes. In the longer term we may be able to develop carbon neutral, or even negative, emission pasture-based farming systems.

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Preferred conference topic area: Future farming, farm systems and innovation		
Preferred form of presentation	SHORT <input type="checkbox"/>	LONG <input type="checkbox"/>
Workshop presentation	YES <input type="checkbox"/>	NO <input type="checkbox"/>
Organisational approval (have you received permission from your employer?)		Yes
At least one of the authors is a current financial member of the NZGA, or an invited speaker.		Yes