



What is resilient intensification?

Christopher Rosin
Centre for Sustainability
University of Otago

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This presentation is a 'state-of-play' report on the initial steps in the AgICC (Agricultural Intensification and Climate Change) project. It is largely focused on the ontological exercise behind developing a shared understanding of agricultural intensification as a concept with a diverse set of definitions, leading to distinct assessments of its relative impact on social, environmental and economic sustainability. We have accounted for this variation by identifying and referring to distinct 'intensification trajectories' – found both in the international literature and in practice on New Zealand pastoral farms. In the project, we were also set with the task of combining two concepts – intensification and resilience – that are often considered contradictory. Thus, in the process of defining intensification, we have remained open to both the potential benefits of as well as the constraints imposed by intensification trajectories in relation to the threats posed by climate change.



Agricultural Intensification (once over lightly)

Introduction to AgICC project

Engaging with agricultural intensification

Situating intensification in pastoral farming

Postulating pathways to resilience

In the presentation, I will cover four topics, starting with an introduction to the AgICC project (its funding, its objectives, its participants).

I will then provide a brief overview on how the research team has engaged with agricultural intensification in the literature, followed by an introduction to the process of interviews with farmers and farmer facilitators (including a range of actors from industry interest groups, farmer interest groups, regional government regulators, etc.). Finally, I will discuss the intended process for bringing the research back to participants and back into the policy arena.



AgICC

Funding – Ministry for Primary Industries

SLMACC

mitigation, adaptation, opportunity

Context: export growth targets

intensification as given

Acknowledgement of climate change

response to likely variation and extreme events

opportunities for NZ based meat and dairy

The Agriculture Intensification and Climate Change (AgICC) project is funded by the New Zealand Ministry for Primary Industries within their Sustainable Land Management and Climate Change funding stream. This funding is oriented toward both new science in regard to mitigation and adaptation technologies as well as assessments of policies and policy alternatives for promotion of climate change appropriate response. Over the course of its funding history, SLMACC has experienced a shift in emphasis from mitigation (especially in response to the proposed Emissions Trading Scheme, but with diminished emphasis with the delayed entry of the agriculture sector) to adaptation (which seems to have received relatively limited engagement from farmers) to opportunities (in terms of both the benefits of extended growing periods and the marketing of New Zealand products as being climate friendly). The AgICC project reflects the shifting emphasis with the focus on expanding the opportunities of the pastoral sector as it intensifies.

The context of the project also reflects the government targets for export growth – raising the proportion of exports to 40% of GDP – the achievement of which is likely to rely to a significant extent on the pastoral sector. Within this context, intensification of agriculture is taken as a given, to the extent that it is a pathway for maintaining competitive advantage for meat, dairy and fibre products in international markets.

The purpose of the AgICC project is, thus, to recognise and acknowledge the potential impacts of climate change on sustainable practice and the resilience of the pastoral sector. To some extent, this involves the traditional focus on promoting informed response to likely climate variation and increased incidence of extreme events. It also requires that the project recognises the potential for the particularities of the New Zealand context to provide opportunities for New Zealand based meat and dairy production to exploit market advantages as consumers look for more climate friendly products and competitors face more extreme climate change consequences.



Engaging with Intensification

Review of literature

2,500+ articles, reports, etc.

569 coded as 'social'

Multiplicity of definitions

bad / good — cause / solution

quantity / quality

rational / relational

Implications of/for climate change

In order to get a comprehensive perspective on agricultural intensification – and particularly in relation to climate change – the research team engaged in a literature review process. We found over 2500 articles (when limiting the journal articles to post-2005), reports and other documents using both a academic search engines and targeted examination of relevant websites, such as FAO, New Zealand Ministry for Primary Industries, Greenpeace, etc. Of the 2500 documents identified, 569 were coded as involving social research or predominantly social data. This is probably most indicative of the extent to which intensification is a issue of interest relative to agricultural and environmental sciences.

A brief summation of the literature review exercise is that we found a multiplicity of definitions or assessments of agricultural intensification. The documents could be classified according to a set of binaries:

1. Those that presented intensification as bad compared to those seeing it as good. In the literature this was often expressed as either the examination of the negative impacts of intensification on environmental or social conditions or of the potential benefits of intensification in social (in terms of more food production) or environmental (in terms of land saving for conservation) terms. In that sense, intensification is often characterised in a black and white manner as either a cause of degradation (and contributing to a less resilient system) or a solution to environmental or social constraints (and potentially enabling more resilient systems).
2. Intensification was presented either in terms of a quantity or a quality. Frequently, intensification was identified as an upward trend in a specific measure (e.g., Kg/ha). In these cases, the correlation to impact or implication was direct. In other cases, intensification was referred to as a general quality of a system that was not 'measured' in terms of a specific indicator. In this latter set of literature, intensification is treated as a long-term trend or associated with particular types of practice or technology (e.g., mechanisation or irrigation).
3. A final distinction is between the representation of intensification as a rational practice compared to that as a relational practice. This distinction refers to the narrowness of the focus on intensification. As a rational practice, assessments of intensification interrogate the rationale behind the adoption of a specific technology/practice or the direct impacts of more cf. less intensive practice. Relational approaches investigate on the one hand the diverse social and technological pressures behind intensification trajectories and, on the other, the broader implications of more cf less intensive practice through society (to global scale) and landscapes.

The literature included in the review was also limited to that which addressed either the implications of climate change on the viability/resilience of more cf. less intensive agricultural systems or of changing systems on the process of climate change.



Situating Intensification

Interviews (50 farmers, 18 facilitators)

Currently intensive?

description of practice

future expectations

Desirability of intensification?

agricultural subjectivity

sectoral imperative

national ambition

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In order to gauge the extent to which intensification represents an active element of practice and strategic orientation within pastoral agriculture in New Zealand, we next conducted a set of semi-structured interviews with 50+ farmers and 18 facilitators. The interviews were separated into two parts, the first of which interrogated existing practice to assess the relative levels of intensification both on the farms and in the pastoral sector more generally. The second part examined the rationale behind decisions to engage in more or less intensive practice.

In the first part, we asked for descriptions of current practice as well as expectations of how that practice would change into the future. From the latter part of the interviews we focused on the likely points of influence for policy as well as getting insight to the desirability of intensification. The latter feature was associated with three factors – the subjectivity of being a farmer, the pressure associated with sectoral imperative to increase production and the desire to comply with national ambitions in regard to increasing the value of agricultural exports.



Pathways to Resilience

Workshops (feedback, scenarios)

What is thinkable?

- appropriateness of current practice
- prospective futures

Introducing the unthinkable

- risk management
- eco-efficiency
- woody vegetation
- eco-labelling

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For the coming year, the project identified several potential pathways toward more resilient intensification trajectories. Arriving at final policy recommendations is, however, still subject to a series of workshops in which we will seek feedback on our assessments of the literature and the interviews. We will also present scenarios that represent our understanding of the implications of diverse trajectories for society, the economy and the environment. The workshops will help to confirm our knowledge of what is 'thinkable' in the New Zealand pastoral sector – the basis for asserting the appropriateness of current practice as well as for envisioning future practice. The goal of the project and its policy recommendations will be to examine means to introduce the 'unthinkable' – to make more resilient practices an active element of the alternatives that farmers and farm facilitators consider. We believe that these practices will be supported by claims around risk management, eco-efficiency, environmental benefit (specifically related to woody vegetation) and eco-labelling (as short hand for the reflexive engagement with consumers).