Putting Co-design into practice: Learnings from New Zealand's agri-food sector - Policy Spotlight

Beechener, ES

Print publication: 06/01/2022

Document Version
Publisher's PDF, also known as Version of record

Rural Policy Centre
POLICY SPOTLIGHT
SRUC
January 2022

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Image courtesy of NIWA

Key Points

- Growing levels of concern over systemic issues in New Zealand's agri-food sector prompted the study of a novel, co-innovation inspired approach via a five-year pilot, the Primary Innovation Programme;
- This programme not only gave a fresh perspective on these complex issues, but it also provided an insight into the challenges and opportunities of putting co-innovation into practice. Parallels between co-innovation and co-design make these learnings of interest to policymakers in England as they apply a co-design approach to support roll-out of the Agricultural Transition Plan 2021-2024;
- Engaging with stakeholders was the first step in the process but the greater challenge was maintaining this engagement. Holding a so-called co-innovation space provided a forum for the exchange of ideas, accommodating different levels of power and modulating diverse spatial (local, regional, and national) and temporal (shorter to longer term) perspectives. Mutual respect between participants; learning to navigate tensions; and a growing level of trust in the process all helped to sustain this space over time;
- The concept of 'learning-by-doing' is central to a co-innovation inspired approach. Not all stakeholders are comfortable operating on the premise that realising occasional, transformative breakthroughs outweighs the risk of wrong-turns and mis-steps along the way. Some engaged, others stepped-back and observed while others withdrew. Among participants, a commitment to reflexivity was required to ensure that they were alert to learnings, successes and failures, and acted upon emerging learnings;
- Looking back at the programme, one stakeholder described it as "a foundational piece of work that has provided us with some tangible on the ground experiences … which has been invaluable, absolutely invaluable." The impacts of the Primary Innovation Programme are enduring and lessons learned continue to resonate in the context of New Zealand's agri-food sector.

Introduction

Globally, the agri-food sector is seeking to rebalance food production and environmental protection with a view to securing a more resilient and sustainable future for both. In post-Brexit England, the Agricultural Transition Plan[1] will accelerate this process. Central among the guiding principles informing roll-out is a commitment to co-design: a joined-up approach to decision making, enacted via collaboration with multiple and diverse stakeholders. These principles are familiar to some but new to others and, as such they risk giving rise to concerns that may disrupt roll-out. To better anticipate these concerns, this policy brief highlights lessons learned from the Primary Innovation Programme[2], a five-year study of in-field collaboration in the context of New Zealand's agri-food sector[3].

Background

Various terms are used to describe collaborative approaches to change. As well as co-design they include, for example: co-construction, co-production, and co-innovation (Metz, 2015). The principles of the latter align with co-design (Ingram et al., 2020) making it of particular interest to policymakers in England as they put a co-design approach into practice.

Supported by government and industry in-kind funding, New Zealand's Primary Innovation Programme applied a novel, co-innovation inspired approach. It brought together research institutes, levy-bodies, consultancies and universities from New Zealand, Australia and Europe, as well as domestic producers and processors in a five-year (2012-17) pilot study. In the context of an agricultural innovation system characterised as competitive than collaborative; conservative rather than entrepreneurial; and overly science-centred (Turner et al., 2013), stakeholders shared an interest in exploring transformative, rather than incremental, alternatives to the status-quo.

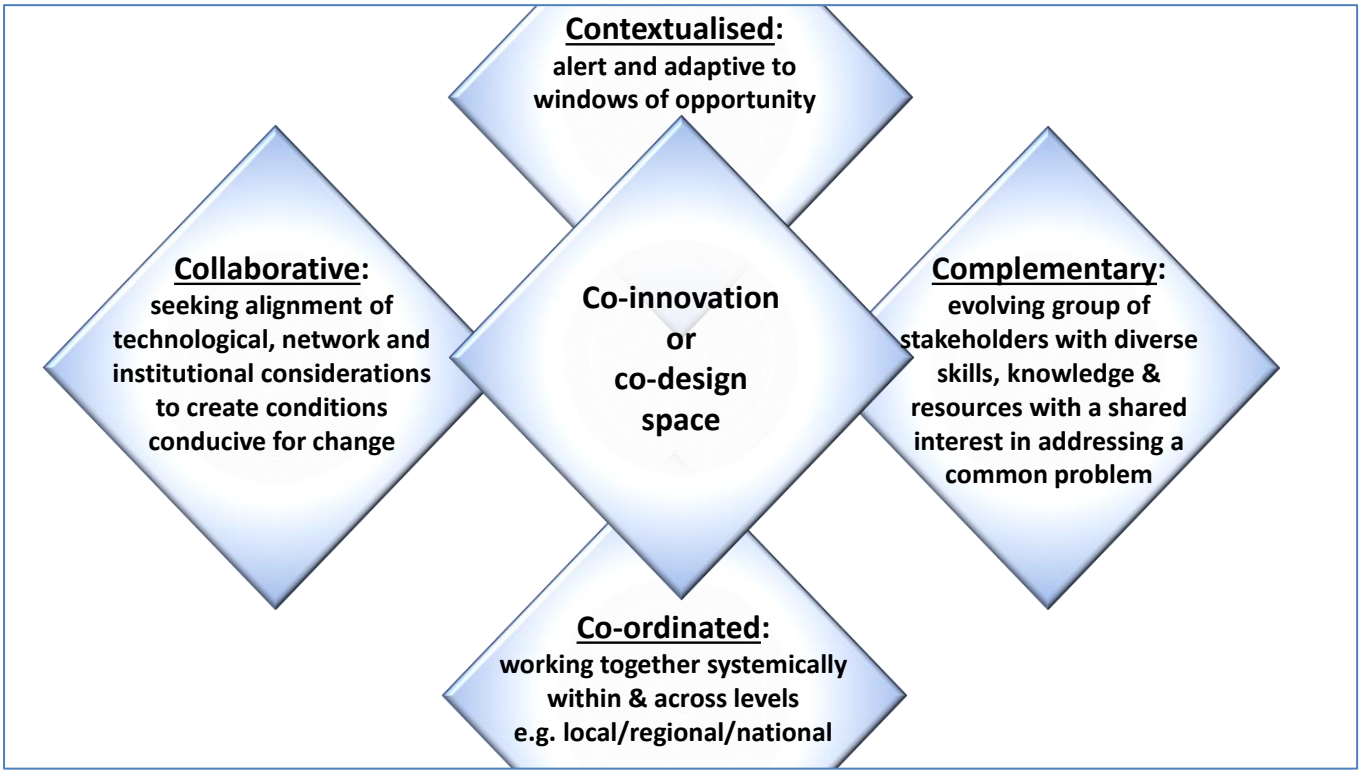
In this brief, lessons-learned from New Zealand's experience of applying co-innovation are highlighted and their implications for other contexts considered.

Analysis

Introducing a novel, co-innovation approach into New Zealand's science-led agri-food sector challenged the norms of business-as-usual. Some stakeholders embraced the concept; others sought reassurance, for example in the form of a blueprint for action; while others preferred to keep their distance. In this way, stakeholders variously engaged, observed or detached from the process. Those most actively involved, valued co-innovation as a pathway for change in a dynamic context. They saw the strengths of business-as-usual but they were also aware of its limitations; and while they recognised the need for transformative change, they acknowledged its inherent uncertainties. Speaking in terms of "building the plane while we're flying it!" they accepted that learning-by-doing comes with both the benefits of occasional breakthroughs as well as risks, of wrong-turns and mis-steps.

Co-innovation is as much mindset as method (Klerkx and Nettle, 2013) and, as shown in Figure 1, below, may be envisaged as a holding of space (Coutts et al., 2017). This space accommodates a 'triple-co' of collaboration; co-ordination and complementarity (Bitzer and Bijman, 2015). Collaboration to describe a shared commitment to change; co-ordination to describe interactions within and across the value-chain; and complementarity to reflect a good fit of knowledge, skills and resources. More recently, there has been increased interest in the context-specificity of such approaches (Bell and Reed., 2021). As these dimensions may be disruptive as well as harmonising (Schut et al., 2013) some reflexivity is required among participants in order that they are alert and responsive to the changes around them.

Figure 1 visualising the various dimensions of a co-innovation inspired approach



In Table 1, below, some of the opportunities and challenges experienced in putting a co-innovation inspired approach into action are illustrated by drawing on the Water Use Efficiency project (Srinivasan et al. 2019), one of the five in-field projects contributing to the Primary Innovation Programme.

Table 1 Overview of the Water Use Efficiency project

Context of the case	Expansion of irrigated grassland in the Canterbury Region of New Zealand is contested. On the one hand, conversion of extensive dryland to more intensive pasture has revitalised the local economy. On the other hand, expansion is putting pressure on scarce water supplies and prompting concerns over the effects of run-off on the environment. The Regional Councils are increasingly requiring producers to complete and comply with a Farm Environment Plan (FEP) and on-farm water management is a core component of these plans. To help manage on-farm irrigation management decisions, New Zealand's National Institute of Water and Atmospheric Research (NIWA) has developed a Farm Weather Briefing (FWB). This collates field-level soil moisture and local weather forecast data with the aim of helping to ensure that the right amount of water is applied to the right place at the right time. The Water Use Efficiency (WUE) project applied a co-innovation approach to inform development of the FWB and explore the on-farm impacts of its application.
Collaborative	Technology is developing at pace in the agri-irrigation sector. On-farm decision-makers seize new opportunities afforded by smart phones; irrigation schemes adopt automated control systems, freeing-up management time; research organisations collect, collate and disseminate high resolution data; and regulators more closely monitor in-field activities. They share an ambition for change and recognise the potential gains for productivity and the environment from improved efficiencies. The WUE project held space to bring together these various stakeholders, with representatives from the irrigation scheme, regulators, advisors, developers and on-farm decision-makers all contributing to the process.
Co-ordinated	The Canterbury Region has taken a joined-up approach to address the complexities of water management and the co-innovation approach was consistent with this. At the same time, with FEPs becoming a requirement, on-farm water users needed to demonstrate good practice and the FWB helped them do so. The project was resonating across various levels.
Complementary	The norms of on-farm irrigation behaviour in an area with an irregular water supply reflect a fear of supplies being restricted, often at short notice. The consequences of land drying-out have led to a "just in case" approach to irrigation. As one farmer remarked "that's what irrigators do with unreliable water, they water too much." By equipping on-farm decision-makers with close to real time information, the FWB sought to encourage a shift from "just-in-case" towards a more "just-in-time" approach.
Outcomes	• Input from diverse stakeholders shaped development of the FWB; • By demonstrating early impacts, co-innovation gained traction; and • The project informed the aims and design of a five-year follow-on[4].

Discussion

The Primary Innovation Programme brought together diverse stakeholders with a shared interest in addressing systemic issues in New Zealand's agri-food innovation sector. The group's interest and activities were sustained via a so-called co-innovation space. In the words of one stakeholder, this could be something of an "awkward alliance." While mutual respect was evident from the outset, the ability to navigate tensions and negotiate differences came to be recognised as part of the co-innovation process. As one stakeholder remarked "if you're not feeling uncomfortable, and you're not feeling comfortable at being uncomfortable, then you're probably not co-innovating!"

As the project progressed, so trust in the co-innovation process developed. There was growing awareness too of the impacts of power and its uneven distribution on the process (Reed et al., 2018), prompting increased attention on the challenge of giving voice to all.

In September 2017, some 60 representatives of the public and private sectors in New Zealand and beyond came together to reflect on learnings from the Primary Innovation Programme. The challenge of rebalancing agricultural production and environmental protection and better delivering on the country's 'clean and green' promise is pressing. Not only to support brand New Zealand in overseas markets but also to meet shifting consumer demand and to comply with changing regulatory requirements at home. In this context, delegates acknowledged the limitations of 'business-as-usual' and the value of putting a 'learning-by-doing' co-innovation inspired approach into practice.

"If you're not feeling uncomfortable, and you're not feeling comfortable at being uncomfortable, then you're probably not co-innovating!"

Stakeholder, 2017

Closing remarks

As Defra applies a co-design approach to support roll-out of the Agricultural Transition Plan, so stakeholders In England's agri-food sector will be feeling their way forward in much the same way as participants in the Primary Innovation Programme in New Zealand. Although the context is different, learnings from New Zealand are expected to be of value in terms of providing some foresight of the challenges and opportunities accompanying implementation of a co-design inspired approach.

Author

Dr Sam Beechener, Postdoctoral Researcher, SRUC
sam.beechener@sruc.ac.uk
Acknowledgements: AgResearch (NZ) and SRUC for PhD funding & National Institute of Water and Atmospheric Research (NIWA).

rpc@sruc.ac.uk
www.sruc.ac.uk/ruralpolicycentre
@RuralPolicySRUC

Produced with support from the Scottish Funding Council through the Universities Innovation Fund. For more information on this and future Policy Spotlights, please contact us: rpc@sruc.ac.uk

Further information

[1] Over a seven-year period, 2021-28, the Agricultural Transition Plan will deliver a shift from established mechanisms of direct support to a novel system of payment for delivery of public goods.

[2] Launched in 2012 and funded by New Zealand's Ministry of Business, Innovation and Employment (MBIE) with industry support from DairyNZ, https://www.beyondresults.co.nz/primary-innovation/.

[3] New Zealand's agricultural science system has a history of fast-paced change (Leitch et al., 2014; Davenport and Bibby, 2007). However, with long-term science objectives at risk of being displaced by short-term economic objectives (Leitch et al., 2014; Edmeades, 2004), Turner et al. (2015) were prompted to characterise the country's agricultural innovation system as: fragmented; comprised of competing rather than complementary research agendas; and conservative rather than entrepreneurial. At the same time, rising levels of public concern were witnessed as long-held concerns about the impacts of farming on the natural environment (for example, Glasby, 1991) came home to roost (Duncan, 2017; Doole and Romera, 2015; Aerni, 2009; and Baskaran et al., 2009). Against this backdrop, business-as-usual was not a sustainable option (Turner et al., 2013).

[4] Irrigation Insight | NIWA: a five-year co-innovation inspired programme funded by the Ministry for Business, Innovation and Employment (MBIE); led by NIWA (National Institute of Water and Atmospheric Research) with industry stakeholders and involving four interlinked components around development of on-farm tools, economic modelling, feedback loops and knowledge exchange.

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