Innovation in Farm Business Management

Launceston, Tasmania
6 March 2019

Derek.Baker@une.edu.au

Derek Baker
Faculty of Science, Agriculture, Business and Law, University of New England

Bill Malcom, Alex Sinnet
Faculty of Veterinary and Agricultural Sciences, Melbourne University
Agricultural Research Division, Victorian Department of Environment and Primary Industries

Yue (Nikki) Zhang, Matthew Wysel
Faculty of Science, Agriculture, Business and Law, University of New England
For today

1. Innovation AND Farm Business Management - some Australian context
2. Innovation domains and mechanisms
3. Supply Chain orientation of innovation
4. “Chain failure”
5. Demands on Farm Business Management
Farm Management:

The process by which resources and situations are manipulated by the farm family in trying, with less than full information, to achieve its goals.’

Makeham and Malcolm (1981)
In most countries, agriculture persists amid declining real prices, and rising real costs and resource values.

Some Australian fundamentals:
- Labour, logistics were never cheap
- The cheap land and water are gone
- Production incr. has been accompanied by value/unit increases
- The family unit has trouble accessing capital

“Farmers buy everything retail, sell everything wholesale, and pay freight both ways”
The Australian experience has, from European settlement, been one of failure-based innovation.

Innovation is a business decision.
Measurement of innovation

Outputs of innovation

Inputs to innovation

Self-reported
Results-related
IP product
Analytic product

Self-reported
Uptake/adoption-related
IP product use

OECD (1997)
Rogers (1998)
Saunila (2017)
Innovation: a sequence within the firm

Source: Smith and Reinerstein (1998)
Supply chains are a focus for social license

Transactions increasingly don’t occur in markets

Scale at some chain stages; scope at others

Actors at different SC stages are motivated differently

Market power is the norm

Supply chains are a focus for social license
Innovation: a process within the firm

Lead firm in a supply chain:
- Define the value proposition
- Assess competitive environment
- Assess internal provision or outsourcing (i.e. supply chain strategy)

Firm:
- “Ideas section” – “intro-preneur”, dedicated section, committee
- Communication around firm’s strategy
- Stage-gate mechanism: “go-kill’
Innovation arrangements in the chain: factors affecting success

Supplier involvement in buyer innovation:
- Buyer-supplier working relations, trust
- History of co-innovation
- Switching costs
- Timing and sequencing of innovation activities
- Success of the innovation
- Suppliers’ fixed costs of innovation

Yeniyurt et al. (2014)

Joint innovation
- Technological interdependence
- Information flows
- Nature of market opportunity
- Organisational structures within firms
- Organisational structures within the VC

Boon (2001)

Buyer involvement in supplier innovation
- resource endowments: the need for a partner
- governance arrangements.
- Firm size (+ Large)
- Experience with products

Castaner et al. (2014)
Collaborative: Co-innovation in the supply chain

- Product
- Process
- Marketing
- Organisation

Proactive

Reactive

Closed innovation

Open innovation

Firm controlled
Third party
Community

Upstream
Downstream
Open innovation arrangements within chain: some examples

Firm controlled
Third party
Community

Chesbrough (2003)
## PLANTS AND CROPS

<table>
<thead>
<tr>
<th>Asset Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crops and Horticulture</strong></td>
<td></td>
</tr>
<tr>
<td>TT Canola Hybrids</td>
<td>Triazine tolerant canola variety for high rainfall areas and protoplast fusion</td>
</tr>
<tr>
<td>Aussle Colours*</td>
<td>Water efficient flowering ornamental plants</td>
</tr>
<tr>
<td>XPT-UQ12D3 Wheat</td>
<td>PHS resistance in elite germplasm using UQ speed breeding technology</td>
</tr>
<tr>
<td>Ruhi™ Bayberry</td>
<td>New fruit for the western world - high yielding, sweet and high in antioxidants</td>
</tr>
<tr>
<td>Ecolurf</td>
<td>Hard wearing, industrial strength landscaping grass</td>
</tr>
<tr>
<td>Avocstock</td>
<td>Platform for clonal propagation of avocado rootstock</td>
</tr>
<tr>
<td>XPT-UQ12D1 Wheat</td>
<td>PHS resistance in elite germplasm using UQ speed breeding technology</td>
</tr>
<tr>
<td>SugarBooster™</td>
<td>Sugarcane and sweet sorghum varieties with increased sugar content</td>
</tr>
<tr>
<td>QuicGene</td>
<td>Plant breeding simulation tools to investigate characteristics of genetic material undergoing repeated cycles of selection</td>
</tr>
</tbody>
</table>

**Technology Readiness Levels (TRLs)**

1. Basic principles observed and reported
2. Technology concept &/or application formulated
3. Analytical and experiments critical function &/or characteristic proof of concept
4. Validation in lab environment
5. Validation in relevant environment
6. Prototype demonstration in relevant environment
7. Prototype demonstration in operational environment
8. Test demonstration
9. Routine use

---

UNIQUEST is a wholly owned subsidiary of UQ Holdings Pty Ltd.

UNIQUEST is a partly to Australian Financial Services Licence 455015 (AFSL) held by UQH Finance Pty Ltd, another UQ Holdings group company.
Our online agricultural community for farmer peer-to-peer learning

'Alone we are great. Together we are brilliant.'
Are you sure this is what you need?
Late / 9 days ago
I've attended a few workshops and I'm pretty confident a course will be

17 Answers
Sort by: Must Liked

I want to do a course on soil management, any suggestions?

There are some answers, but they are not provided in the image.

Ready to ask a question? Great!
If you need assistance at any time, please head over to our Support system.
If you want to introduce yourself to the community or just shout the breeze head over here.

Select Category
Choose

What's Your Question?

This is a space where you can ask your question, and provide information such as background as well as details, photos, videos, and more.

Details about your question:

Describe your question in detail. The more information you give, the better the answers you should get.

Select Type
* Private
* Add Tags
* Add image separated by a comma
  - dairy farming, irrigation

I would like administration to post this question on my behalf.

Cancel
Post
Combatting “Chain Failure” in information provision
Griffith et al. (2017)
Zhang (2018)
Wysel (2018)
Money value of quality information

WTA and WTP > 0 at all stage changes for most quality information

WTA and WTP ↑ with information quality

WTA and WTP not affected by quantity of information

In many cases, $WTP for quality information ≠ $WTA (i.e. Chain Failure (Griffith et al., 2017))

Source: Yue (Nikki) Zhang, unpubl PhD work 2019
• **Community**: typically multi-sided market

• **System**: Commons provided by community or proprietary provided by third party

• **Data**: provided by community; used on, and for, the benefit of community

**Platforms**: at least partially excludable at least partially non-rivalrous addresses a market failure

Value of platform

\[ = f(C, S, D, \text{ and specific interactions amongst the three}) \]

*Source: Matthew Wysel, unpubl PhD work 2019*
Demands on farm business management

Characterise the innovation business decision

Measure innovation – inputs and outputs – to manage the innovation business decision

Manage innovation within supply chains

Handle information flows in supply chains: reaction/pro-action
References and acknowledgements


Wysel, M. (2019) unpublished PhD work on the nature of, and value generated by, information platforms


Zhang, Y. (2019) unpublished PhD work on the value of information in red meat supply chains

Images: PIXABAY

Thanks to:
• The Farm Table
• UNIQuest
• INNOCENTIVE