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)
Farm Business tasks

- Planning
- Finance
- Human Resources
- Marketing
- Production
- Real Estate
- Compliance

Farm Business Performance

- Finances
- Sustainability
- Social and aesthetic
- Succession

Change

Costs

Risk

Revenues

Information base

Resource base

Social base
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.
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

Proactive

Reactive

Closed innovation

Open innovation

Upstream

Downstream

Firm controlled

Third party

Community

Product

Process

Marketing

Organisation
Open innovation arrangements within chain: some examples

Firm controlled
Third party
Community

Chesbrough (2003)
<table>
<thead>
<tr>
<th>Asset Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<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-UQ1203 Wheat</td>
<td>PHS resistance in elite germplasm using UQ speed breeding technology</td>
</tr>
<tr>
<td>Rubhi™ 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>Avstock</td>
<td>Platform for clonal propagation of avocado rootstock</td>
</tr>
<tr>
<td>XPT-UQ1201 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>QuiGene</td>
<td>Plant breeding simulation tools to investigate characteristics of genetic material underlying 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

- **Available**
- **Natural micropropor**
- **Hemi-Biotic PHI Protection**
- **UQ36 & IMB**
- **QFRI**

**Institutional Partnerships**

- **QFRI** Queensland Alliance for Agriculture and Food Innovation
- **QFRI** Centre of Excellence for Integrative Legume Research
- **QFRI** Australian Institute for Bioengineering & Nanotechnology
- **QFRI** Institute for Molecular Bioscience
- **QFRI** Faculty of Engineering, Architecture and Information Technology
Our online agricultural community for farmer peer-to-peer learning

'Alone we are great. Together we are brilliant.'

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

I'm a farmer and I'm looking to improve my soil management skills. Are there any courses or programs available that you would recommend?

Add Tags

- Crop rotation
- Nutrient management
- Soil health

Add Tag

- Dairy farming
- Irrigation

I would like the administration to post this question on my behalf.
Combatting “Chain Failure” in information provision
Griffith et al. (2017)  
Zhang (2018)  
Wysel (2018)

What about all that information?
Monetary 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))
• **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, 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