Current situation for “Enterprise Australia”

- Mining investment peaked
- Agriculture commodities up & down
- International education & tourism recovering as Australian $ falls
- Housing recovery underway

Boom time is over....What next??

- How does Australia earn funds for overseas purchases, capital development, etc...
THE AUSTRALIAN ECONOMY EXPRESSED AS A PLANE

MINING SECTOR

MANUFACTURING SECTOR
Food is Australia’s largest manufacturing sector
Food and agriculture exports variable, imports growing

**AUSTRALIA**

- Exports (green line)
- Net exports (light blue line)
- Imports (dark green line)

**BRAZIL**

- Exports (purple line)
- Imports (dark green line)
- Net trade (light green bars)

Data source: ABS (2013b)

Export commodities dominate despite efforts to value add

Elaborately processed foodstuffs stay stubbornly low, around 1% of total exports!

Source: DAFF 2013
Challenges for Australian food exporters

- Complacency based on abundant resources 1.
- SMEs lack scale for export 2.
- High cost structure 2.
- Ignorance of export customer and market 2.
- SMEs fast followers, not innovators 3.

Australia’s food companies sub-scale

- Only wheat, beef, dairy and wine industry have world scale but ownership fragmented

**World dairy companies**

- 1. Nestle
- 4. Fonterra
- 9. Saputo
- 20+ Murray Goulburn

**Turnover US $billions**

Source: Rabobank Sept 2013
Exports need to focus on competitive raw materials

Meat, dairy and grain commodity exports highly competitive

While horticulture industries struggle for scale

Source: DAFF 2013
Poor industry adoption of research

Some issues for research organisations:

– Capability gaps, skills pipeline
– Research focus on publications
– Greater investment against impact potential
– Improve industry access to research and development facilities
– Balancing short and long-term research priorities
Opportunity

• Strategy needed across the whole agrifood value chain

• Productivity growth PLUS growth in export of value added foods and ingredients
Agribusiness is Australia’s number one growth opportunity *

Food is number one prospect for new exports *

“#1. Food manufacturing
Australia’s high food standards and quality ingredients are the driving forces behind export growth in emerging markets. IBISWorld forecasts manufacturing sub-sectors – including baby food and dairy – to shine in the next five years.”

* IBISWorld 2013
Australia's top 5 new exports
Key question:

Past attempts to increase exports of packaged consumer foods have failed. What’s different now?
A growing focus on Asia – why?
Asian food consumption growing rapidly

Global food demand

Source: Linehan et al. (2012)
Growth in Asian grocery markets

China
2011 – A$934b
2015 – A$1413b
CAGR 10.9%
Bigger than USA

Indonesia
2011 – A$154b
2015 – A$226b

Australia
2011 – A$97b
2015 – A$114b

Japan
2011 – A$391b

India
2011 – A$376b

Source: IGD 2012
Asian opportunity for Australian commodity and consumer food

EXPORT COMMODITY GROWTH
• Population growth increases demand
• Higher protein intake as incomes rise

EXPORT CONSUMER GOODS, CUSTOMISED INGREDIENTS
• Urban dwellers increase
• Supermarket numbers grow
• Proximity of Asia reverses tyranny of distance
• Convenient, healthy and safe packaged food
Understanding Asian markets and consumers
Growing our focus on Asian consumer markets
Criteria for delivering globally competitive food products

- Globally competitive raw materials
- Based on in-Asian-market research/knowledge
- Export packaged consumer products/ingredients
- Supply chain efficient and competitive
- Economies of scale
- World class research and effective adoption
- Viable business model
Researchers must contribute to leadership and the vision

- Researchers understand the sector
- Contribute to market and consumer insight
- Support the leadership and strategic direction
- Present technology and product options
- Facilitate adoption of research
Opportunities and examples

Research / Innovation

Value Added Exports of Foods and Ingredients to Asian Markets
CSIRO Microencapsulation Technology

1996
Start R&D on n-3 delivery

1998
CSIRO Patented 1st Generation MicroMAX technology

2000
Commercialisation of 1st generation n-3 powder ingredient developed for Clover

2002
Australian AIFST Award

2004
CSIRO Patented 2nd Generation MicroMAX technology

2006
AOCS Award: Recognition for the “technological, commercial and public health impact”

2008
Licensing of CSIRO’s 2nd Generation MicroMAX® technology “ThermoMAX-50”

2010
Australian Growth Partnership Collaboration with Clover Corporation

2012
Development of more robust extrudable and compressible formulations

2013
CSIRO Patented Krill Oil Encapsulation Technology

Plus Other NEW PRODUCTS

CSIRO - Separation Technology

1997
R&D on chromatographic separation (CSEP) technology
Capital investment >$15M
Export income >$50M

1999
Export of whey protein isolate (WPI)

2000
Export of bio-fraction
Export of Lactoferrin
Bioactive dairy hydrolysates

2003
Development of CSEP technology to produce glycosaminoglycans

2004
Development of CSEP technology to fractionate bovine plasma

2006
RSEP* technology to produce galacto-oligosaccharides
Patent - stimuli responsive ion exchange resin

2010
Development of CSEP technology to fractionate bovine plasma

2011
Forward osmosis

2012
2013

*Continuous liquid and solid separation and reaction units utilizing ion exchange resin reaction
CSIRO - Ultrasonics in Oil Separation

AOCS Award 2013: For ultrasound technology to significantly reduce the oil loss and waste streams in the milling of palm oil leading to improved commercial returns for industry and environmental benefits

CSIRO - High Pressure Processing (HPP) - Preshafood

2001
CSIRO HPP technology demonstration

2003
First commercial fruit juice contract production at CSIRO pilot plant

2005
Opening of $1.4M processing facility with 55L HPP plant

2007
Won first prize for Beverage Innovation Awards in Best New Juice or Juice Drink and Best New Beverage Concept categories

2008
Export to Singapore, Hong Kong and Thailand

2009
Installation of larger 300L HPP plant to increase capacity.

2010
Export expansion into Europe, USA and Japan

2011
Won Panasonic Australia Medium Business Award

2013
New fruit coulis range available in Australia

CSIRO HPP technology demonstration

Juice, avocado & wet-salad R&D industry projects, demonstration & validation trials by CSIRO.

Concept stone fruit, purees for yoghurt and other dairy product trial at CSIRO.
Moira Mac’s (Australia) and HPP

HPP – Naturally better, chemical free

The Hyperbaric Pressure Pasteurisation (HPP) machine at the Moira Mac’s factory is the first in Australia to be used for smallgoods processing.

The key benefits of HPP are:
- Shelf life extension
- Ability to offer cooked meats without high salt content or chemical preservatives
- Authentic natural flavour
- Destruction of dangerous bacteria such as listeria and salmonella

Cooked meats in their finished pack, enter a cylinder and undergo water pressure of 87,000 psi. This destroys most harmful bacteria without damaging the appearance, flavour or nutritional value of the product.

The new Moira Mac’s range of HPP processed products are available at Woolworths and Coles stores throughout Australia.
CSIRO - Chill-stable meals concept products

First two meal options

More varieties coming soon

More meal occasions options
‘Next generation’ RTE chilled meals

Value added food products for Asian markets

30 days, 8°C
New RTE meals exported to Asian markets

- Convenient
- Healthy
- Safe
- Local tastes
CSIRO through-chain example - Grains

Genetics
Value adding & productivity

Crop management

Food processing

Clinical substantiation

Consumer engagement & sensory

Epidemiology & mechanisms

CSIRO, Animal Food and Health Sciences
New Grains – BARLEYmax™

% total weight

BARLEYmax™ Barley  Wheat  Oats  Rye

Insoluble Fiber  Soluble Starch  Resistant Starch

Double the Fibre
Four fold increase in Resistant Starch
Some Existing BARLEYmax™-containing Foods
New functional grains products exported to Asian markets

- Convenient
- Healthy
- Safe
- Local tastes
Looking to the future

Value add food exports
Asian markets

IP, innovation-rich

State of the art
production /processing

Asian market and
consumer insights

Well packaged and
branded
National Food & Nutrition RD&TT Strategy

Primary Industries Ministerial Council

National Primary Industries Research, Development and Extension Framework

Food and Nutrition Research, Development & Technology Transfer Strategy

Priority Areas
- Food, nutrition and health
- Food safety
- Technology transfer
- Climate/resource constrained
- Future markets
- Skills & training

[Logos of various organizations]
Building a National Food Innovation Network

Melbourne VIC
CSIRO / RMIT

Adelaide, SA
Food SA / SARDI / CSIRO

Perth, WA
DAF/ CSIRO

Sydney NSW
UWS/ ANSTO/CSIRO

Hobart, TAS
DSTO / UTAS / CSIRO

Brisbane QLD
DAFF/UQ/CSIRO

CSIRO, Animal Food and Health Sciences
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Images: Sourced from CSIRO and Google Images
Thank you
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