The Big Picture: ‘Clean, Green and Ethical’ Animal Production

Graeme Martin
BSc (Agric) PhD
Program Leader, Animal Production Systems
QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

“The Sheep Industry is Dead”
Australian sheep flock

<table>
<thead>
<tr>
<th>Year</th>
<th>Million sheep</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>100</td>
</tr>
<tr>
<td>2000</td>
<td>80</td>
</tr>
<tr>
<td>2002</td>
<td>60</td>
</tr>
<tr>
<td>2004</td>
<td>40</td>
</tr>
<tr>
<td>2006</td>
<td>20</td>
</tr>
<tr>
<td>2008</td>
<td>10</td>
</tr>
</tbody>
</table>

Drought Wool prices 'Big cropping'
Sheep prices

Source: NLRS, MLA

Sheep prices (¢/kg carcase weight) from 1998 to 2004, showing price trends for Ewe and Wether sheep.

Source: NLRS, MLA
Lamb prices

$/kg cwt

- Export
- Supermarket
- Trade

Source: NLRS, MLA
Lamb exports

Australian Sheepmeat

2006: $2.5b
2015: $3.3b
Meat Exports WA

Wool 2004-5: $490M

Source: ABS, DAFWA

Sheep

Beef

$ Million


Source: ABS, DAFWA
Re-Development of the Australian Sheepmeat Industry

1) 1980s
   First market research, initial on-farm R&D
   Establishment of LAMBPLAN … carcase genetics
   Development of Prime Lamb Key Program
   Promotion:
      “TrimLamb” (Australia)
      “Fresh Australian Range Lamb” (USA)

2) 1990 – now
   More consumer research
   New products, quality assurance
   Market focus – quality, high price
   The animals: larger, leaner lambs (genes, management)
# Wool versus (?) Meat

## Why is Meat important to Australian Wool Growers?

<table>
<thead>
<tr>
<th>Product</th>
<th>Merino Genes</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian mutton</td>
<td>100%</td>
<td>$500 M</td>
</tr>
<tr>
<td>Australian lamb</td>
<td>60%</td>
<td>$840 M</td>
</tr>
<tr>
<td>Live shipping</td>
<td>80% Merinos</td>
<td>$300 M</td>
</tr>
</tbody>
</table>

**Meat Value from Merinos: $1.64 B**
Wool versus (?) Meat

Based on EBVs for Merino sires with >25 recorded progeny.
The Australian Wool Industry

Same principles
... but still waiting at the blocks?

- Small share of apparel market (5%?)
  Price-takers?
- High quality product?
  High-price markets; Discretionary spenders
- Competitors?
  Synthetics, cotton
CRC for Sheep Industry Innovation

Program 1: ‘Easycare’ sheep
Program 2: Information nucleus flocks
Program 3: Meat Innovation
Program 4: Wool Innovation
Program 5: Adoption, uptake and change
Program 6: Education
Re-Development of the Australian Sheep Industry

1) 1980s
   First market research, initial on-farm R&D
   Establishment of LAMBPLAN ... genetics
   Promotion: “TrimLamb” and “Fresh Australian Range Lamb”

2) 1990 – now
   More consumer research
   New products, quality assurance
   Market focus – quality, high price
   Bigger, leaner lambs (genes, management)
   Australian Breeding Values ... meat and wool

3) 2000 –
   Re-assess role of sheep in whole-farm enterprises

4) The Next Hurdle
   A licence to continue playing the game ...
Program 6: Grazing Systems for Recharge and Discharge Pastures

Goals

- New animal production systems that use forage plants on recharge and discharge areas
- Profitable and practical systems that will be rapidly adopted by landholders
May 17, 2007

National Award for Excellence in Innovation

CRC Salinity: Sustainable Grazing on Saline Lands

Australia’s Chief Scientist, Dr Jim Peacock:

Hundreds of thousands of hectares that had been written off were made productive in a manner that protects the environment and rewards livestock producers.
Program 3: Future Livestock Production

• High performance livestock systems
  • Perennial plants for feed
  • Integrated with specialist cropping farms
  • Adapted to diverse regions, climate variability

• New plants, new management systems
  • High livestock performance
  • Better natural resource management
Livestock: ‘Landscape Integrators’

Low rainfall landscapes
~ 80% of farms have livestock
~ 35% effective farm area is not cropped
~ 20% farm income from sheep and wool
Livestock: ‘Landscape Integrators’

Dr D Abrecht (DAFWA)

Whole-farm agro-ecology
- Cropping – herbicide resistance in weeds
- Pasture ecology – perennials, woody weeds, salinity, acidity, fertility, water-holding capacity
- Stubble management
- Soil renovation – nutrients, soil structure
- Tactical management of croplands (heavy land, waterlogged soils)

Enterprise diversity, management flexibility
- Returns in low rainfall seasons
- Wool income offset from season of production
- Mobility in poor seasons – shift livestock to feed or feed to livestock
- Whole farm profitability (temporal and spatial variability)
QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

The Sheep Industry is Dead

BUSTED
Re-Development of the Australian Sheep Industry

1) 1980s
First market research, initial on-farm R&D
Establishment of LAMBPLAN … genetics
Promotion: “TrimLamb” and “Fresh Australian Range Lamb”

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More consumer research
New products, quality assurance
Market focus – quality, high price
Bigger, leaner lambs (genetics, management)

3) 2000 –
Re-assessed role of sheep in whole-farm enterprises
‘Landscape integration’ (weeds, salinity …)
Enterprise diversity, flexibility

4) The Next Hurdle
Other aspects of product quality, product differentiation
A licence to continue playing the game …
Rose Welch has a 3 1/2-year-old son who was breastfed for a few years and now drinks only organic milk and eats only organic food. Rose worries about the hormones used in meat and dairy production. "The amount of chemicals [and hormones] in our food is horrifying," says Rose. "And most of the research ignores kids."
Consumer Concerns About Hormones in Food

Fact Sheet #37, June 2000

This fact sheet addresses some of the consumer concerns that have been brought to BCERF regarding health effects of hormones used by the meat and dairy industries. Evidence available so far, though not conclusive, does not link hormone residues in meat or milk with any human health effect.
Boycott Australian Wool

“… sheep raised for wool are often mutilated and castrated without painkillers, then disposed of by being slaughtered in the Middle East, after enduring a grueling, weeks- or months-long journey on over-crowded, disease-ridden ships with little access to food or water through all weather extremes.”
By Environmental News Network staff

A burping cow is a polluting cow. Belching and flatulence in cows and sheep annually produce 90 percent of Australia's methane emissions in the agricultural sector …
Community concerns – a Developing Situation

😊 Sustainable agricultural practices
   😞 Excess fertiliser (pasture, animal feeds)
     - N\textsubscript{2}O – ozone depletor, 310-fold more potent than CO\textsubscript{2}
     - N\textsubscript{2}O – global emissions due to nitrogen fertiliser use; agricultural soils account for 70-80%
   😞 Greenhouse gases (methane)
   😞 Waste management (eg, lot-feeding)

😊 Ethical management of animals

😊 ‘Healthy’ foods
   😊 Contaminant-free
   😊 Beneficial properties

... the next set of Market Forces ...
The Future of Animal Industries

Clean  Green  Ethical
Specific examples

“Clean”

Hormones for controlling reproduction
- Residues – Contamination of foods
- Disposal (environment)

Drugs, Antibiotics
- Worms, insect pests (lice, flies)
- Feed additives
- Disease – cure, prophylaxis

Pesticides
- Herbicides, insecticides, fungicides
CRC for Sheep Industry Innovation

Program 1: ‘Easycare’ sheep
a) Worms and blowflies – resistance, resilience

Program 2: Information nucleus flocks
Program 3: Meat Innovation
Program 4: Wool Innovation
Program 5: Adoption, uptake and change
Program 6: Education
Specific examples

“Green”

Global warming
Adaptation
Prevention
Methane (CSIRO breakthrough)
Great news on our greenhouse targets. We’ve bred a cow that can’t release methane.

CSIRO
Specific examples "Green"

- Global warming
- Adaptation
- Prevention
- Methane
- Land degradation
- Weed management
- Salinity
Program 3: Future Livestock Production

- High performance livestock systems
  - Perennial plants for feed
  - Integrated with specialist cropping farms
  - Adapted to diverse regions, climate variability

- New plants, new management systems
  - High livestock performance
  - Better natural resource management
Specific examples

“Ethical”

- Mulesing
- Live exports
- Castration
- Transport
- Lamb survival

Licence to play the game

‘Clean, green’ issues
CRC for Sheep Industry Innovation

Program 1: ‘Easycare’ sheep
a) Worms and blowflies – resistance, resilience
b) Lamb and weaner survival

Program 2: Information nucleus flocks
Program 3: Meat Innovation
Program 4: Wool Innovation
Program 5: Adoption, uptake and change
Program 6: Education
The Future of Animal Industries

Clean
Hormones
Drugs

Green
Ecosystem stewardship

Ethical
Animal welfare
Industry practices

Abattoirs, Feed producers, Factories, Transport …
### Sheep Research
UWA Institute of Agriculture and Partners

<table>
<thead>
<tr>
<th>Clean</th>
<th>Green</th>
<th>Ethical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hormone-free control of reproduction (ARC)</td>
<td>Adaptation to climate change</td>
<td>Temperament: genetics, behaviour, physiology (MLA)</td>
</tr>
<tr>
<td>Ultrasound – control of reproduction (MLA)</td>
<td>Methane production by the rumen (Enrich)</td>
<td>Lamb survival: mother-young bonding</td>
</tr>
<tr>
<td>‘Focus feeding’ to manipulate reproduction (MLA)</td>
<td>Salinity: deep-rooted perennials as fodder (CRC)</td>
<td>Lamb survival: nutrition and colostrum</td>
</tr>
<tr>
<td>Self-medication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘Nutraceuticals’ (eg, healthy fats) (ISL-DEST)</td>
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</tbody>
</table>

### Australia’s advantages
1) Already very ‘CGE’
2) The Merino
Clean  Green  Ethical

Other Animal Industries?

Pigs
Beef cattle
Dairy cattle

More diversity ...?
Rural Industries Research and Development Corporation

1. New Industries

2. Established Industries

3. National Rural Issues

   - Environment & Farm Management
   - Rangeland & Wildlife Systems
   - Organic Produce
   - Food Integrity & Biosecurity
   - Global Competitiveness

‘CGE’
1. New Industries
New Animal Products
Rare Natural (Animal) Fibres

2. Established Industries
Chicken Meat
Honeybee
Horses
Deer
Buffalo
<table>
<thead>
<tr>
<th>Animal Type</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Sheep (dairy)</td>
<td>Ostrich</td>
<td>Frog</td>
<td>Snail</td>
</tr>
<tr>
<td>Goat (dairy)</td>
<td>Emu</td>
<td>Cane toad</td>
<td>Mussel</td>
</tr>
<tr>
<td>Goat (cashmere)</td>
<td>Chicken</td>
<td>Crocodile</td>
<td>Goat (cashmere)</td>
</tr>
<tr>
<td>Horse</td>
<td>Magpie goose</td>
<td>Snake</td>
<td>Horse</td>
</tr>
<tr>
<td>Beefalo</td>
<td>Mutton bird</td>
<td>Goanna</td>
<td>Beefalo</td>
</tr>
<tr>
<td>Buffalo</td>
<td>Game birds: <strong>duck</strong>, goose, <strong>pigeon</strong>, guinea fowl, quail, pheasant, turkey</td>
<td>Turtle</td>
<td>Buffalo</td>
</tr>
<tr>
<td>Deer</td>
<td>Fox</td>
<td>Rabbit</td>
<td>Deer</td>
</tr>
<tr>
<td>Antelope</td>
<td>Wild boar</td>
<td>Hare</td>
<td>Antelope</td>
</tr>
<tr>
<td>Bison</td>
<td></td>
<td>Guinea pig</td>
<td>Bison</td>
</tr>
<tr>
<td>Yak</td>
<td></td>
<td>Possum</td>
<td>Bison</td>
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<tr>
<td>Camel</td>
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<td>Kangaroo</td>
<td>Yak</td>
</tr>
<tr>
<td>Llama</td>
<td></td>
<td>Wallaby</td>
<td>Llama</td>
</tr>
<tr>
<td>Alpaca</td>
<td></td>
<td></td>
<td>Alpaca</td>
</tr>
</tbody>
</table>

*UWA activity*
Factsheet

Honey: From Factory-Farmed Bees

The Complex Lives of Bees

A Language All Their Own

Why Bees Need Their Honey

Honeybees Do Not Pollinate as Well as Native Bees

Manipulating Nature

What You Can Do

Avoid honey, beeswax, propolis, royal jelly and other products that come from bees. Visit CaringConsumer.com for a list of companies that don’t use animal products. Call 1-888-VEG-FOOD or visit GoVeg.com to order a free vegetarian starter kit.
Re-Development of Mainstream Animal Industries
and Development of ‘new’ Animal Industries

1) Consumer research, product development, quality assurance, top-end market
2) Animals in whole-farm ecosystem – management of water table, weeds, income diversity
3) Next: licence to play; best products, differentiated by:

Clean  Green  Ethical

Abattoirs, Feed producers, Factories, Transport …

Post-farm gate practices