

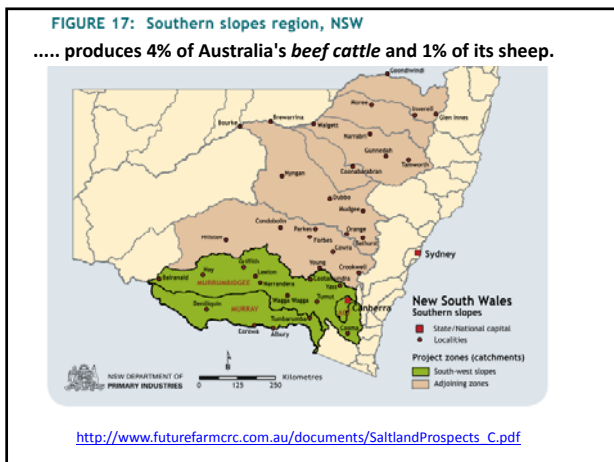
EH GRAHAM CENTRE
for Agricultural Innovation
An alliance between Charles Sturt University and Industry & Investment NSW

CHARLES STURT UNIVERSITY
NSW Industry & Investment

2010 Inaugural Sheep Field Day

Nutrition Minerals and Trace Elements

Ivan Caple
University of Melbourne



<http://www.makingmorefromsheep.com.au/>

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Business based modules

- 1 Plan for Success
- 2 Market Focused Wool Production
- 3 Market Focused Lamb and Sheepmeat Production
- 4 Capable and Confident Producers

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Resource & Pasture based modules

- 5 Protect Your Farm's Natural Assets
- 6 Healthy Soils
- 7 Grow More Pasture
- 8 Turn Pasture into Product

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Sheep technology based modules

- 9 Gain from Genetics
- 10 Wean More Lambs
- 11 Healthy and Contented Sheep

Other

- Hot Topics

Easy sheep management

Sheep Welfare

- **Law** – Prevention of Cruelty to Animals Act
 - **Model Code of Practice for the Welfare of Cattle**
- Model Code is being revised into:
- **Standards** – will be regulated
 - and
 - **Guidelines – principles** will not be regulated
- **Detailed advice** – will be provided by Government and industry extension material.

Australian Animal Welfare Standards and Guidelines for Sheep

Chapter 2 Feed and Water

Standards

- S2.1 A person **must** give sheep access to adequate and appropriate feed and water to minimise harmful metabolic and nutritional conditions

Australian Animal Welfare Standards and Guidelines for Sheep

Chapter 2 Feed and Water

Guidelines (10 in the current draft)

- G2.1 Sheep **should** have access to feed and water except where reasonable management practices, such as shearing, preparation for sale, transport, slaughter and drenching, result in a longer period of water deprivation, to a maximum of 48 hours. Feed and water deprivation exceeding 48 hours should be avoided.

<http://www.animalhealthaustralia.com.au>



Reports from New South Wales

- Metabolic disease (winter 2008)
 - Sheep grazing oats and other cereal crops
 - Hypocalcaemia:
 - Ewes
 - lambs
 - Rickets in lambs
 - (Wagga Wagga district)

- The district veterinary service has greatly reduced the incidence of both these metabolic conditions through advice on the supplementary feeding of magnesium and salt mixtures and the use of vitamin D injections to combat the antirachitic compounds in some winter crops fed to sheep

Grain & Graze *filling the feed gap*

Sheep responses to mineral supplements when grazing wheat
(Hugh Dove, CSIRO)

Research as part of the Murrumbidgee Grain and Graze Project in 2005 and 2006 and within GRDC Project CSP009 has demonstrated marked increases in liveweight gain of young sheep grazing dual-purpose wheats (Mackellar, Wedgetal) when they were supplemented with either Na (as salt) or Mg (as Causmag). Results are summarised as follows, with further details on trials prior to 2007 available in the references supplied:

Hogget Growth rates	
No supplement:	177 g/day
Salt:	211 g/day
Salt + Causmag:	232 g/day

Mineral content of dual-purpose (grazing) wheat

Mineral	Content for sheep needs
Calcium	Adequate for requirements
Magnesium	Marginal for requirements
Sodium	Low
Potassium	High (5-10 times above requirements)

Pasture	\$80/tonne DM
Grazing wheat	\$30/tonne DM

Bruce Allworth Workshop EH Graham Centre 19 August 2010

Reports from New South Wales 2005 - 2010

- Copper deficiency in goats
 - Molybdenum given to prevent copper poisoning when grazing heliotrope
- Goitre in goats, lambs – iodine deficiency
- No reports of Selenium deficiency, or vitamin B12 or Cobalt deficiency

Selenium deficiency



- Areas where selenium deficiency in sheep is likely to occur in New South Wales

GRASSLAND SOCIETY OF VICTORIA INCORPORATED

Grassland's Productivity Program



Final Report to Members 1998

200 Farmers in

- Victoria,
- Tasmania,
- South Australia and
- southern NSW

tested high stocking and high fertilizer inputs on sheep health and productivity

Conclusion:

"There were few surprises with trace elements. Selenium seems to be the element most likely to be affected and is of concern in marginal areas"

Selenium

Deficiency

- Finewool Merinos seem to be the most sensitive

Toxicity

All Selenium toxicity cases in Victoria have been caused by overdosing

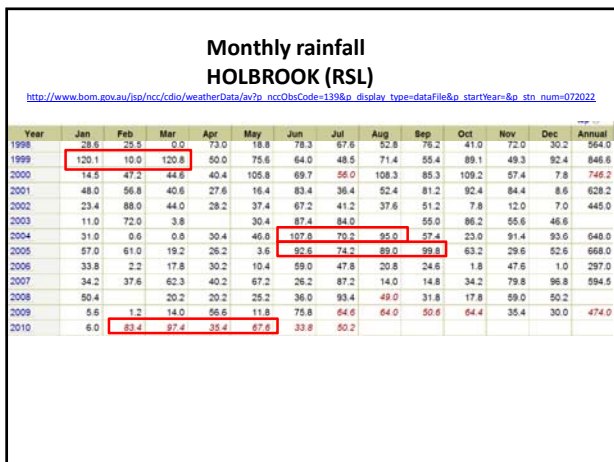
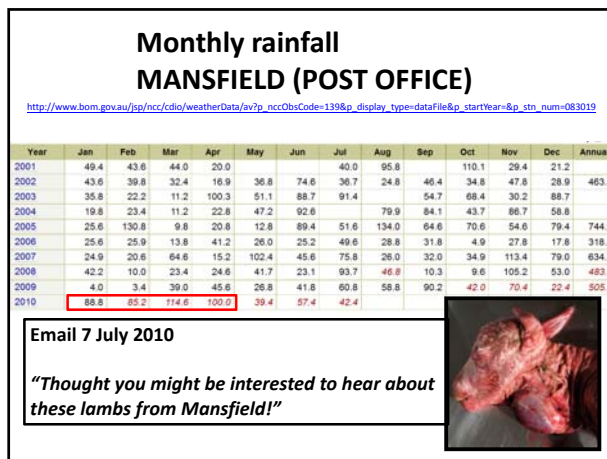
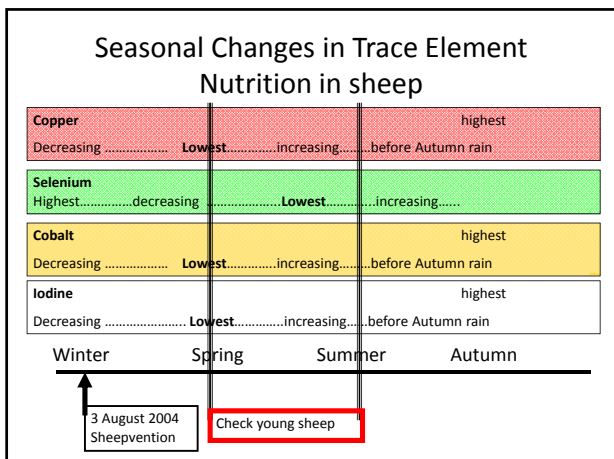
All Breeds susceptible

Selenium deficiency in finewool Merinos

- in low selenium areas
- spring lambing
- high super and high stocking rate required
- clover dominant pastures

Copper Poisoning jaundice, red urine

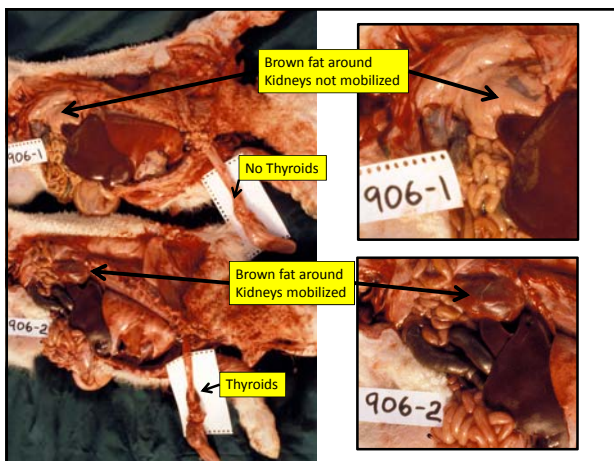




Iodine

- Deficiency
- Late September-November born lambs - goitre

Goats are more susceptible to goitre than sheep - Need wet years to see the problem



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Take Home Messages

- Minerals and trace elements can become limiting when there is a change in management such as changing sheep breed, time of lambing, pasture fertiliser practices, grazing winter wheat

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Take Home Messages

- Seek expert advice if you suspect minerals and trace elements may be limiting the health and production of your sheep flock. Samples can be sent for testing at an accredited laboratory.
- High rainfall in summer and autumn can lead to iodine deficiency and goitre in lambs born in winter and spring with large losses

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Best Practice Indicators

- The 11 modules of AWI/MLA “Making More from Sheep” are on the farm.
- Sheep production records are available for analysis
- Sheep performance on the farm is benchmarked with other farms in the district.