

Join University of Lethbridge geography professor Dr. Ian MacLachlan as he explores

## Changing Livestock Geographies and Global Meat Consumption: What are the implications?

November 20, 2014 | 7 – 9 p.m.  
UofL Dr. Foster James Penny Building PB210  
324 5 Street S, Lethbridge  
Free. Everyone Welcome. No RSVP Required.  
Appetizers and a host bar will be available.

Learn more about the PUBLIC Professor Series, visit:  
[ulethbridge.ca/artsci/publicprofessor](http://ulethbridge.ca/artsci/publicprofessor)

University of  
**Lethbridge**



## Agenda

Introduction

1. How did things get started here in Lethbridge County?
2. The BSE crisis: It could have been worse!
3. Where we are today
4. Global meat & livestock trends

A concluding thought

# PUBLIC Professor

SERIES

## A Spirited Conversation.

The University of Lethbridge is proud to introduce the Public Professor Series, a monthly, thought-provoking lecture series that brings a range of experts and researchers from across the arts and sciences to the community for a spirited conversation.



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University of  
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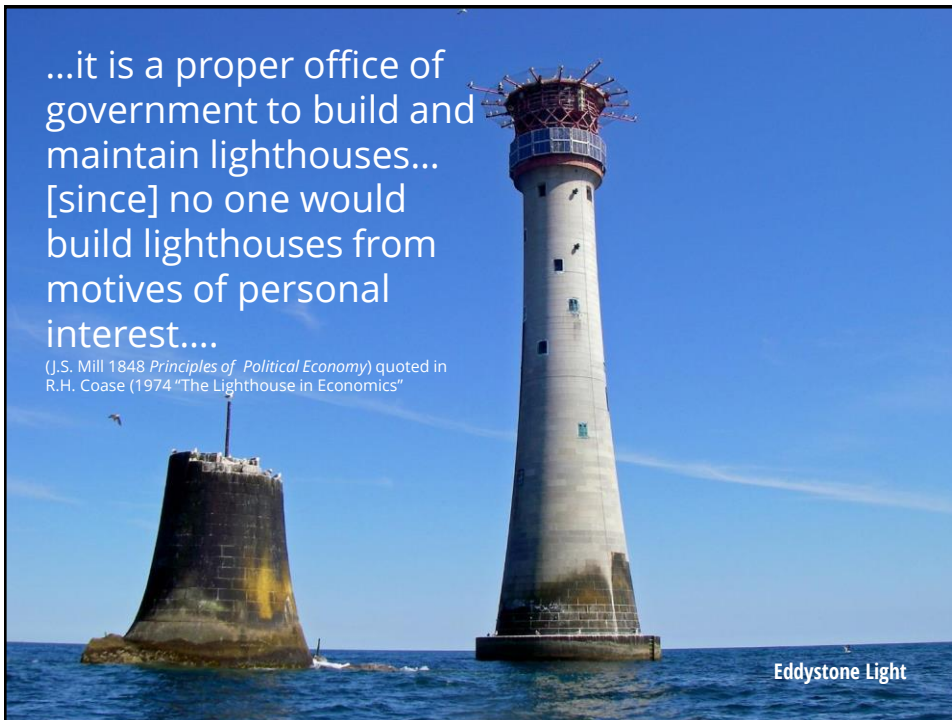


## One dam thing after another...



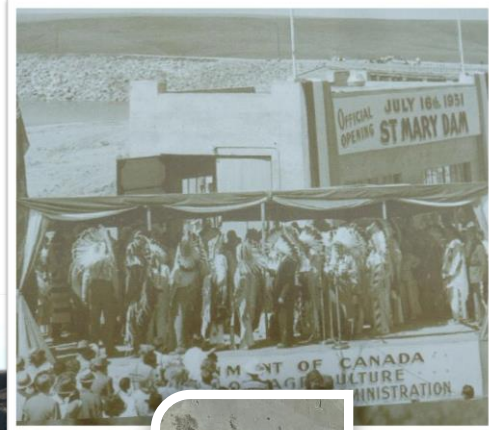
...it is a proper office of government to build and maintain lighthouses... [since] no one would build lighthouses from motives of personal interest...

(J.S. Mill 1848 *Principles of Political Economy*) quoted in R.H. Coase (1974 "The Lighthouse in Economics")



Eddystone Light

- Completed by PFRA, 1951
- Largest earth dam in Canada
- Alberta takes over in 1974
- Reconstruction completed in 1999



“Stockmen are hopeful that [a stockyard] besides expediting the movement of their stock through Lethbridge, will also result eventually in the establishment of a full-scale packing plant in Lethbridge.” (Lethbridge Herald June 15, 1949: 6)

SATURDAY, FEBRUARY 4, 1950

THE LETHBRIDGE HERALD

# PUBLIC LIVESTOCK MARKET OPENING HERE

## Will Provide Daily Competitive Sales

Aerial View of Lethbridge's New Stockyards

The value of livestock can only be determined where buyers and sellers meet in open competition, and the operation of the stockyards at Lethbridge by the Alberta Stock Yards Company, Limited, will result in Lethbridge becoming another of several public livestock markets operating across Canada, where such competitive trading methods are used.

The greatly-expanded stockyards and livestock selling facilities have gone into operation on Monday.

The facilities at these yards have been increased in order to meet certain requirements as set out by the Dominion government in the livestock and livestock products act and the regulations thereunder with respect to public stockyards.

The function of a stockyard such as is being initiated at Lethbridge is to provide the owner of livestock with:

- A daily market outlet for his livestock on a regulated and supervised basis.
- Competitive and fair trading for his livestock—ensuring the highest possible cash returns.
- Cash for his livestock—with positive assurance that full payment will be received for accurate weights.
- In the case of buyers of livestock it provides a steady source of supply of killing stock for the packing companies as well as replacement livestock and stock for the cowboys' farms.

will be on hand to match their buying skill with that of the commission firm's salesman, knowing that only the highest market prices are obtained for the stock so consigned to him for sale.

When a price has been agreed upon by the buyer and the commission firm's salesman, the stock will be driven to scales operated by the stockyard's company and weighed by stockyard company employees, who are absolutely impartial in the transaction and are responsible equally to both buyer and seller to provide accurate weights.

The scales used are inspected and tested by the Dominion government's weights and measures department, thus ensuring accuracy. These scales are equipped with a type registering beam and the correct weight is printed on an official stockyard company stock ticket, which ticket also shows the name of the seller, the name of the buyer and the agreed price, a copy of which is provided to both the buyer and the seller.

After being weighed the stock immediately becomes the property of the buyer and is placed in holding pens and held by the stockyard company until delivery is taken on by the buyer for shipment.

The owner of the stock can then receive immediate payment for his stock from the commission firm which handles his consignment.

The multiple charges made by the commission firm for its services and for the stock yard company for any

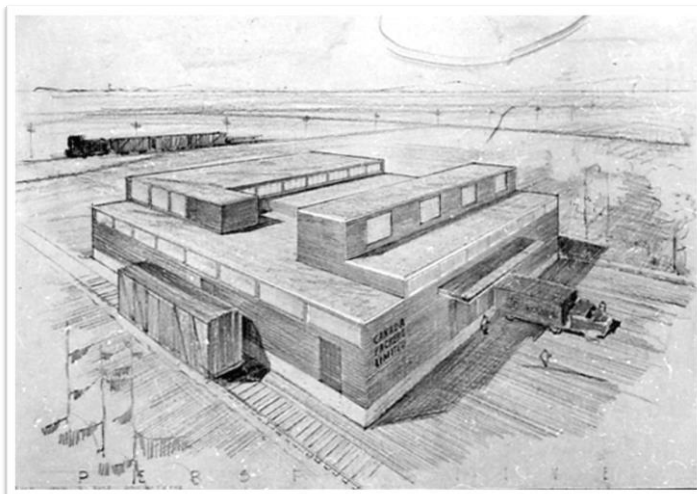
—Staff photo: Herald Dispatching. Here is an aerial view of Lethbridge's new terminal stockyard. The stockyards with railway loading chute are in the foreground. The block in the centre is the terminal administration

## Lethbridge Stockyards, 1974



Source: Sir Alexander Galt Museum & Archives

## Kill and Chill in Lethbridge: Canada Packers, 1960



Source: Archives of Ontario, Canada Packers collection

## **Kill and Chill in Lethbridge: Canadian Dressed Meats & Canada Packers, 1961**

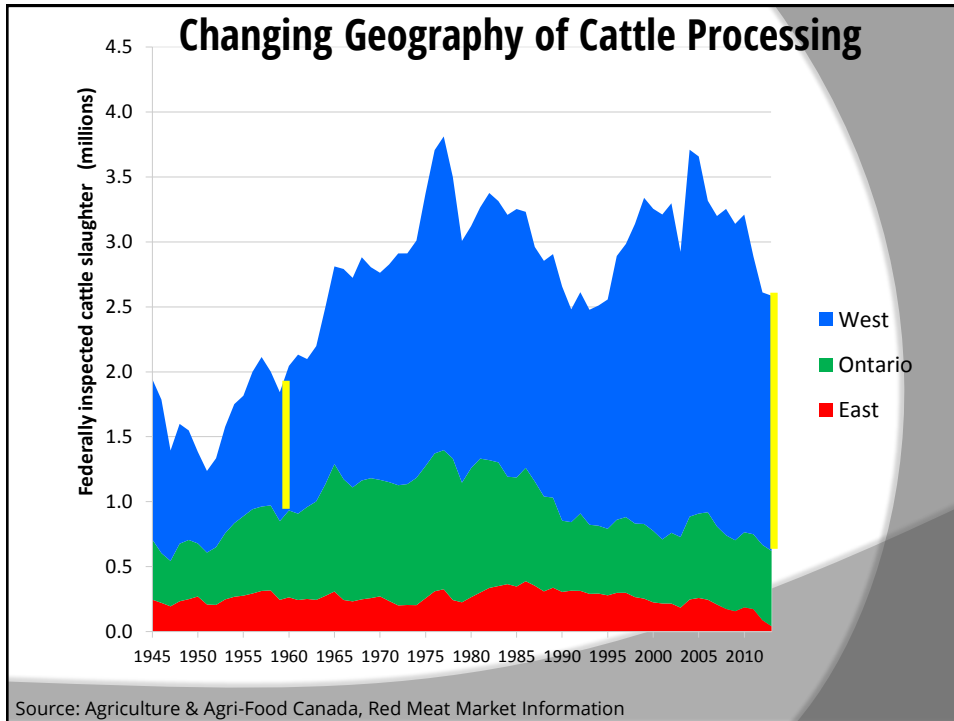


Source: Sir Alexander Galt Museum & Archives

### **Kill and Chill: New Concept in Meatpacking**

- ◎ Single story plants
- ◎ Single species
- ◎ Single product: chilled dressed sides of beef
- ◎ Spatial division of labour
- ◎ Raw material oriented, not market oriented
- ◎ Continuous on-the-rail processing
- ◎ 1,000 head per week





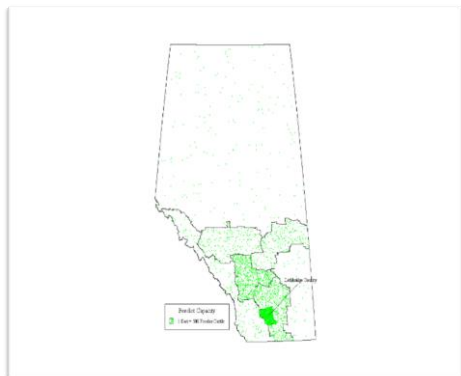
## New Geography of Cattle Processing

- ⦿ Lethbridge plants cannot expand *in situ* & close
  - (3,600 head per week max)
- ⦿ Calgary & Edmonton plants close
- ⦿ Cargill Foods, High River
  - 3,850 head per day by 1999
- ⦿ Lakeside Packers, Brooks
  - 4,600 head per day by 1999
  - JBS Food Canada
- ⦿ Alberta now has >75% of Canadian cattle slaughter



Source: Ian MacLachlan

## Lethbridge County feedlot, 25,000 head



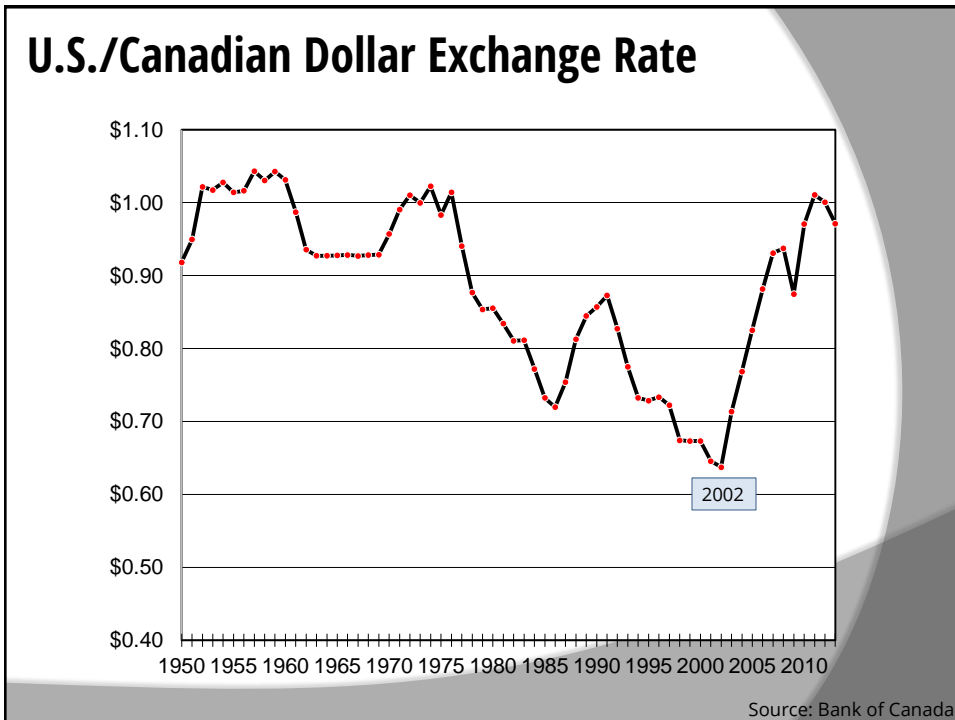
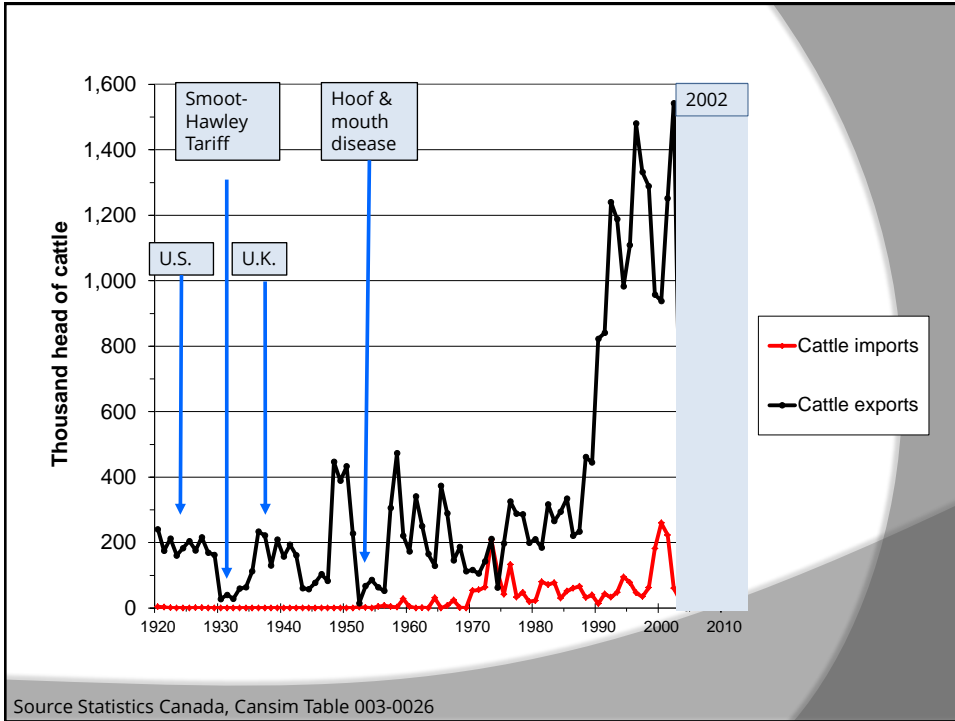
## Feed Bunk Capacity



| Region                | Number of Feedlots | Feed bunk capacity |
|-----------------------|--------------------|--------------------|
| Lethbridge County     | 73                 | 524,200            |
| Northern Alberta      | 14                 | 90,500             |
| Southeast             | 7                  | 22,700             |
| Newell-Taber          | 29                 | 252,200            |
| Foothills             | 17                 | 81,000             |
| Red Deer              | 21                 | 102,200            |
| Calgary-Claresholm    | 29                 | 308,000            |
| Three Hills-Vermilion | 19                 | 110,200            |

Source: Raw data from CanFax, 2000





## Cattle & Beef Exports Peak in 2002

- ⦿ Canada produced < 2% of global beef supply
- ⦿ Yet Canada was 3<sup>rd</sup> largest beef exporter in 2002
  - (after Australia & U.S. - #9 by 2011)
- ⦿ > 30% of cattle and 35% of beef production was exported in 2002
- ⦿ U.S. was vital:
  - >80% of beef
  - 100% of live cattle



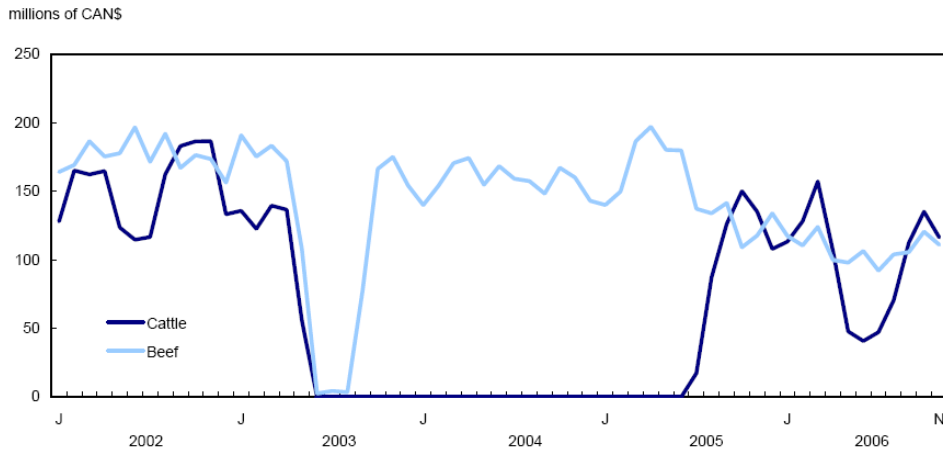
Source: Ian MacLachlan

## How had things turned out by 2002?

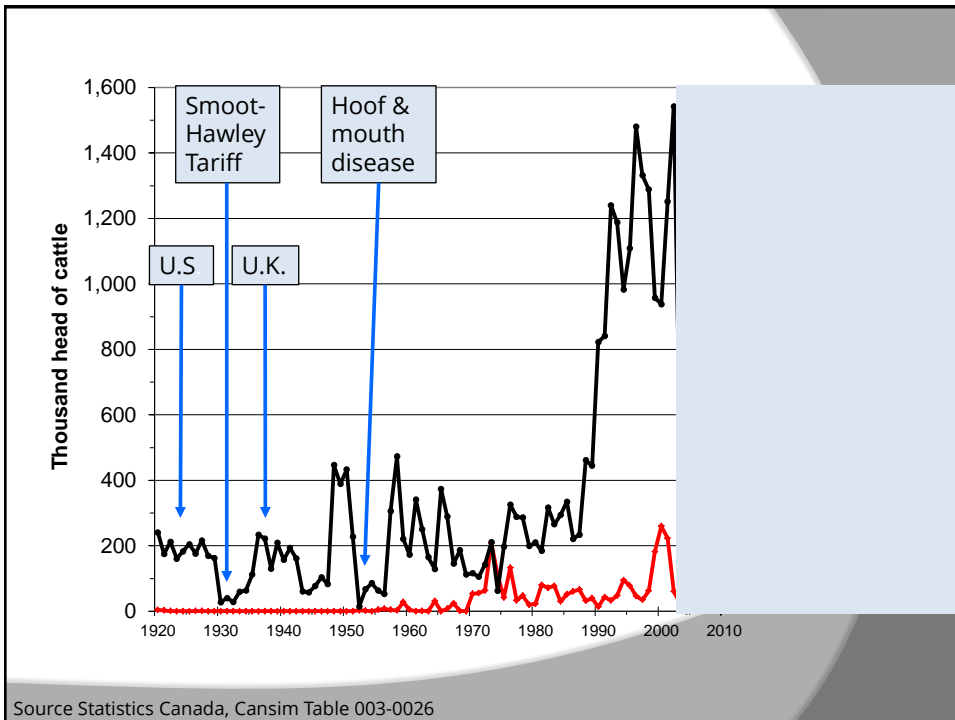
- ⦿ Public market and kill and chill plants had come and gone.
- ⦿ Investment in expanded cattle processing was drawn closer to Calgary & centroid of Alberta feeding
- ⦿ Lethbridge County had become Alberta's & Canada's cattle feeding capital

## 2. Black Tuesday, May 20, 2003: The BSE Crisis

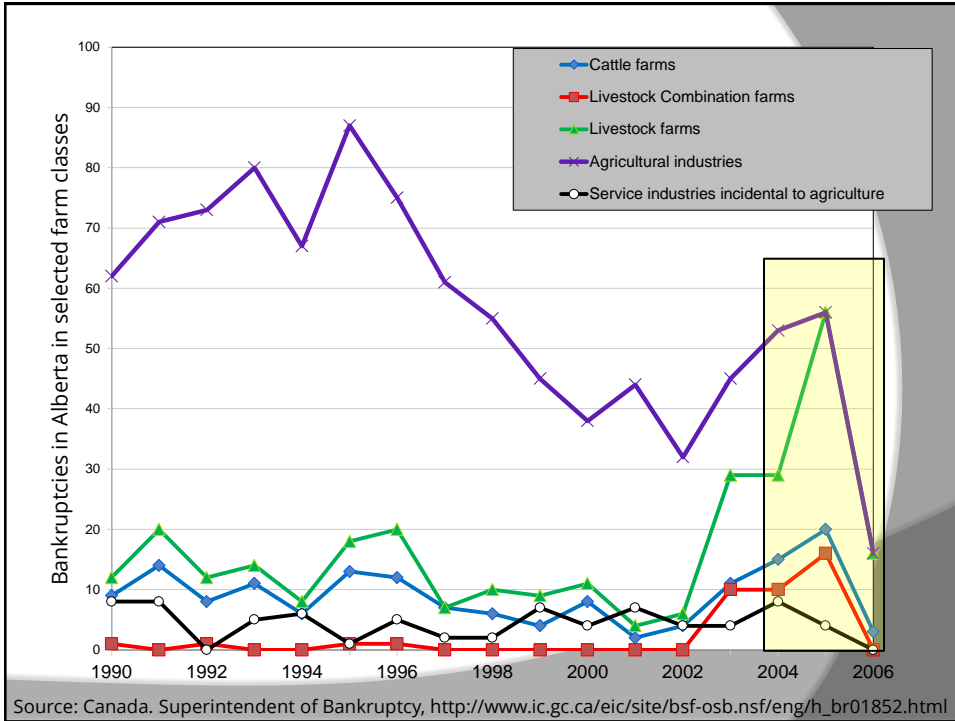
World exports of canadian cattle and beef



Statistics Canada 2007 Cattle Statistics 23-012



Source Statistics Canada, Cansim Table 003-0026



LETHBRIDGE HERALD — Thursday, January 10, 2002

**GEORGE SEVCOV**  
AGRI EDIT

**ALLAN FOX**  
CALL TODAY 327-1111

# AGRICULTURE

RIC SWIHART EDITOR 329-4411 • Information for Farm and Field

1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002

## 2001 record dry year in region

Last year also third warmest on record, agrometeorologist says

**By RIC SWIHART**

Hot and dry sums up southern Alberta's weather in 2001, says the agrometeorologist at the Lethbridge Research Centre. Steve McClean said it was the driest year at Lethbridge since records started in 1922.

He recorded only 176.2 mm last year, 44 per cent of normal.

There were some decent periods of precipitation, but August wasn't one with no precipitation recorded. And the September to December period had only 27.1 mm, 20 per cent of normal for that period.

The driest years were previously 1918 at 103.8 mm, 1919 with 206.7 mm, 1921 with 202.2 mm, 1975 with 143.7 mm, 1990 with 262.1 mm, and 1962 with 260.7 mm. Last year was the third warmest year on record with temperatures 2.3 degrees above the long-term normal.

McClean had fewer than 11 new extreme daily maximum temperatures set in 2001. The measurements in agrometeorology is the precipitation from September to August.

It includes the post-harvest and winter period when soil moisture in the soil is collected in the soil can be available for the next crop.

In the September through August period for 2001, precipitation at Lethbridge was 218.8 mm, the second-driest period on record, second only to 1926 (216.5 mm).

At the Outlook research station near Macleod, 2001 was driest year since records started in 1928. McClean recorded 165.5 mm of precipitation, half of normal, that followed a dry 2000 when 236 mm was recorded.

The estimation point for Outlook is that only 14.8 mm fell from September to December in 2001.

Temperatures compounded the lack of moisture at Outlook, he said. Last year, the average temperature was two degrees above normal.

There were 11 new extreme daily maximum temperatures set last year at Outlook.

At the Vauxhall substation, it was the driest year since records started in 1954. He recorded 173 mm or 53 per cent of normal. The second driest was 2000 when 211 mm of precipitation was recorded.

Windfall temperatures were 1.4 degrees above normal in 2001.

© 1998-2001 News 20 Dec 3 Thu 12 Dec 19 Jan 2 Jan 9 Alberta Press & Herald Inc. Lethbridge

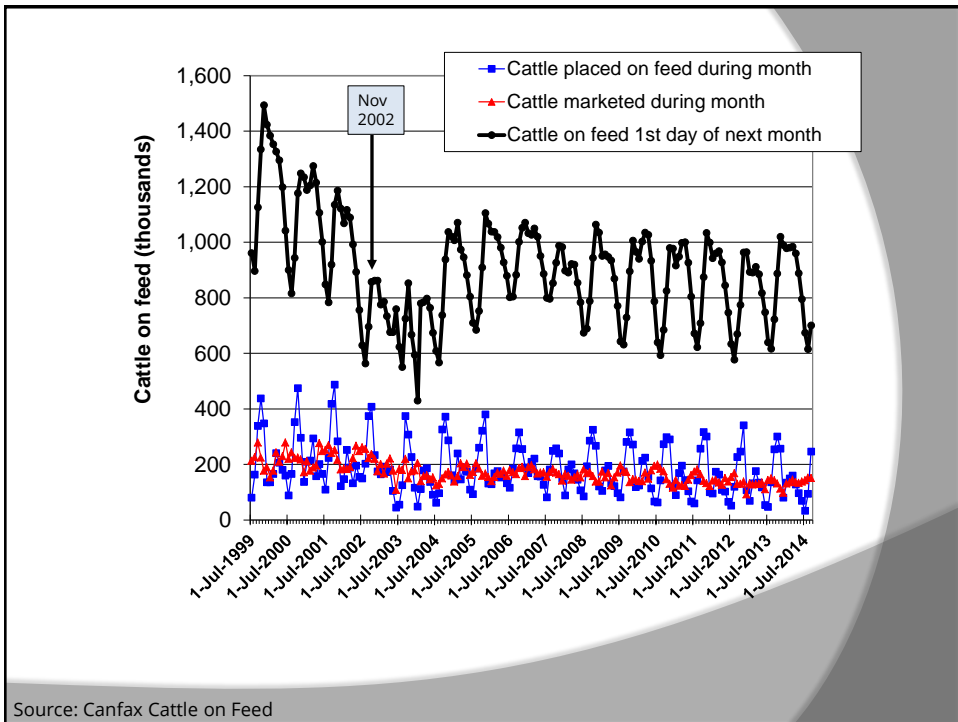
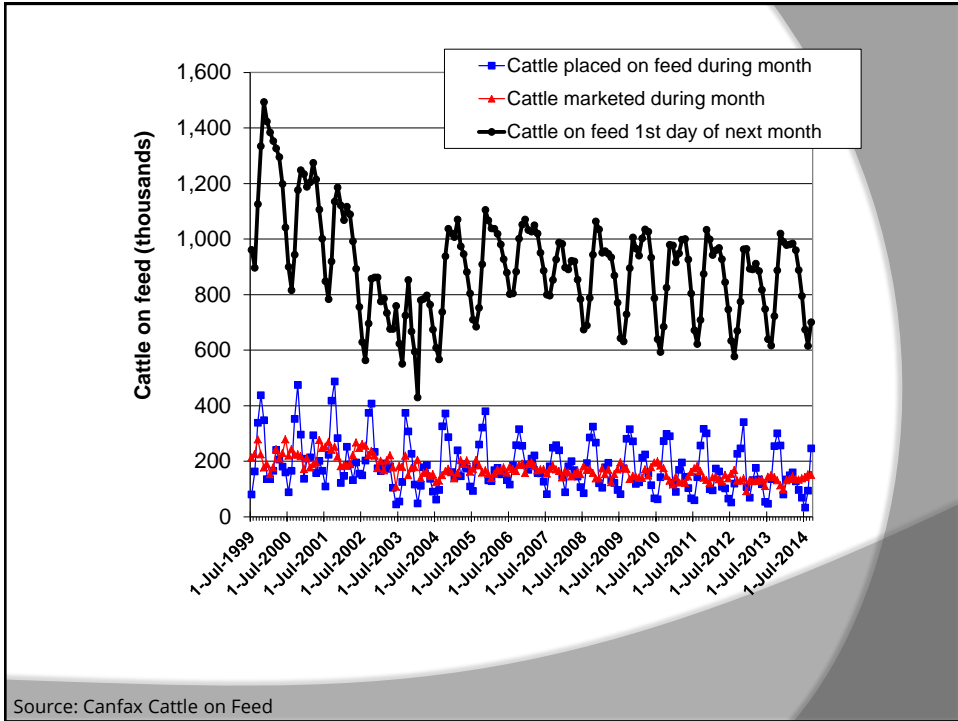
## Alberta's cattle inventory was way down

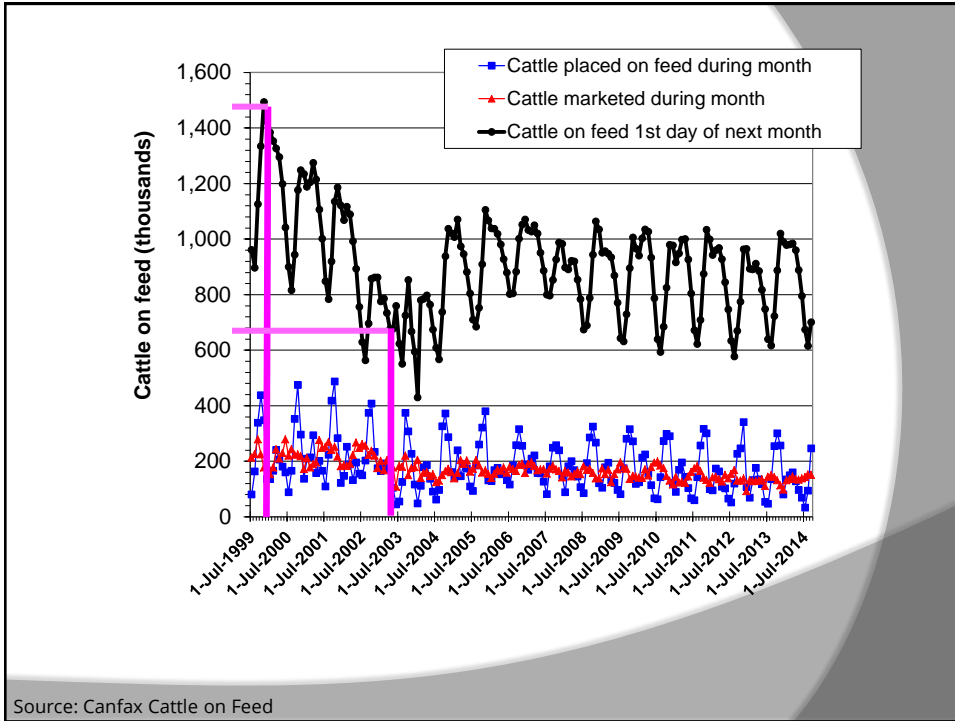
Sources: Lethbridge Herald and Statistics Canada, Livestock Survey

### Change in January 1, 2003 cattle inventories for selected provinces

Percentage change from 2002

| Province     | Percentage change from 2002 |
|--------------|-----------------------------|
| Ontario      | 6.5                         |
| Quebec       | 2.5                         |
| Manitoba     | 1.5                         |
| Saskatchewan | 1.5                         |
| Alberta      | -11.5                       |





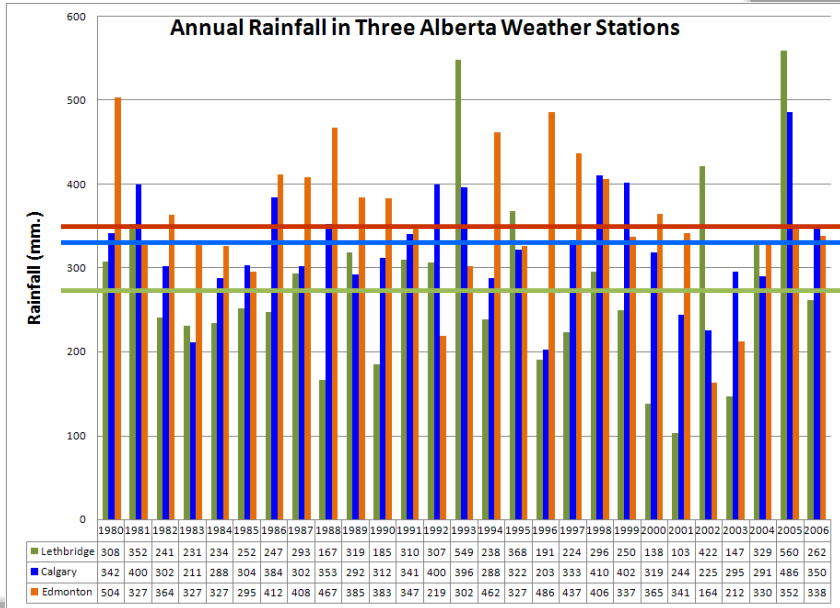
## Pasture: Canada's dominant farm land use: 29.9%

|                  | Total farm area<br>Acres | Tame pasture<br>Acres | Natural pasture<br>Acres | Pasture as<br>pct. of total |
|------------------|--------------------------|-----------------------|--------------------------|-----------------------------|
| Newfoundland     | 100,271                  | 6,251                 | 17,524                   | 23.7                        |
| Prince Edward I. | 646,137                  | 29,192                | 31,786                   | 9.4                         |
| Nova Scotia      | 1,005,833                | 56,520                | 81,215                   | 13.7                        |
| New Brunswick    | 958,899                  | 44,998                | 66,436                   | 11.6                        |
| Quebec           | 8,443,656                | 451,810               | 459,382                  | 10.8                        |
| Ontario          | 13,507,357               | 773,650               | 1,314,335                | 15.5                        |
| Manitoba         | 18,784,407               | 947,585               | 3,905,189                | 25.8                        |
| Saskatchewan     | 64,903,830               | 3,473,646             | 12,668,456               | 24.9                        |
| Alberta          | 52,058,898               | 5,512,654             | 16,503,920               | 42.3                        |
| British Columbia | 6,392,909                | 575,864               | 2,983,929                | 55.7                        |
| Canada           | 166,802,197              | 11,872,170            | 38,032,172               | 29.9                        |

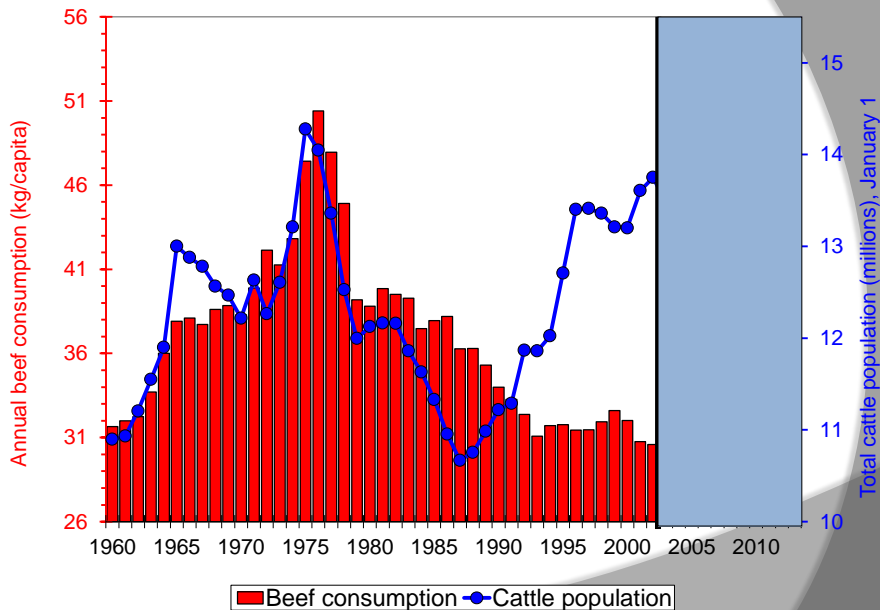
Source: Statistics Canada 2001 Census of Agriculture



## and, it rained in 2004 and 2005



Source: Environment Canada, Weather Office, [http://www.climate.weatheroffice.ec.gc.ca/climateData/canada\\_e.html](http://www.climate.weatheroffice.ec.gc.ca/climateData/canada_e.html)

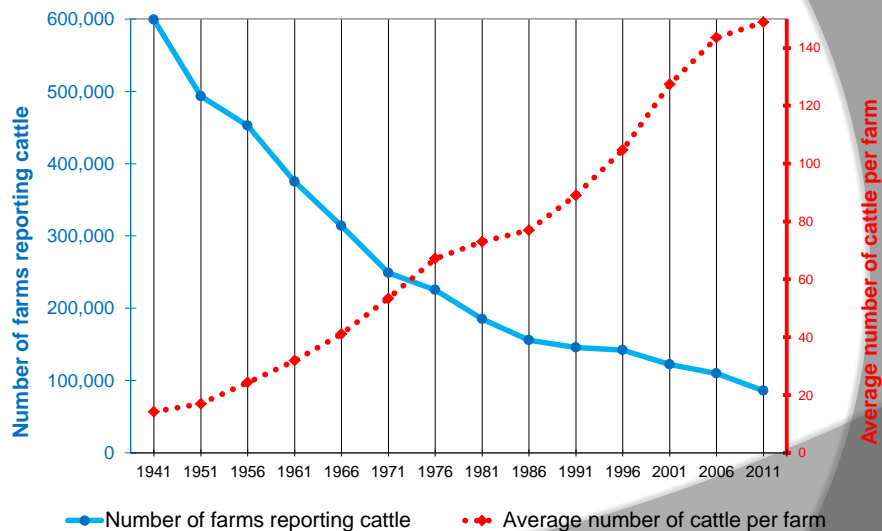


Source: Statistics Canada Cansim Tables 002-0011, 003-0026

## 2. The BSE Crisis – it could have been worse!

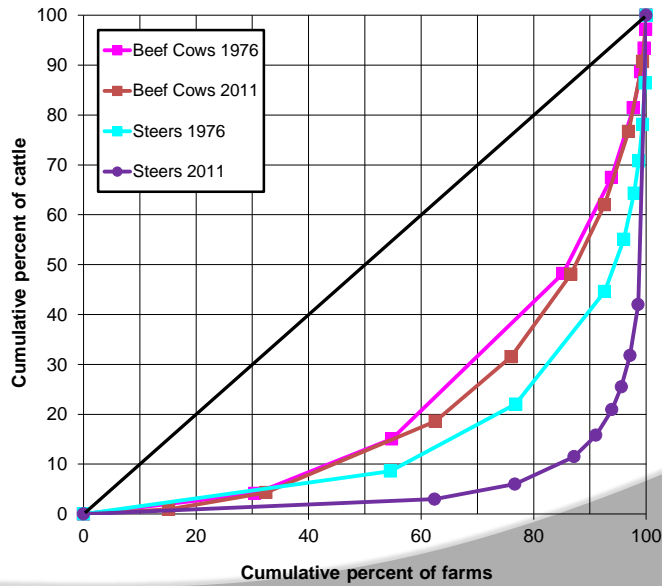
- ⦿ Alberta was exposed to risk:
  - 57.8% of the national feeder/slaughter cattle herd
- ⦿ But drought in 2001 & 2002 reduced inventories
- ⦿ Above average rainfall in 2004 and 2005
- ⦿ Canadians ate more beef
- ⦿ Deep pockets in Edmonton & Ottawa: \$2.5 billion

## 3. Where are we now? The Big X

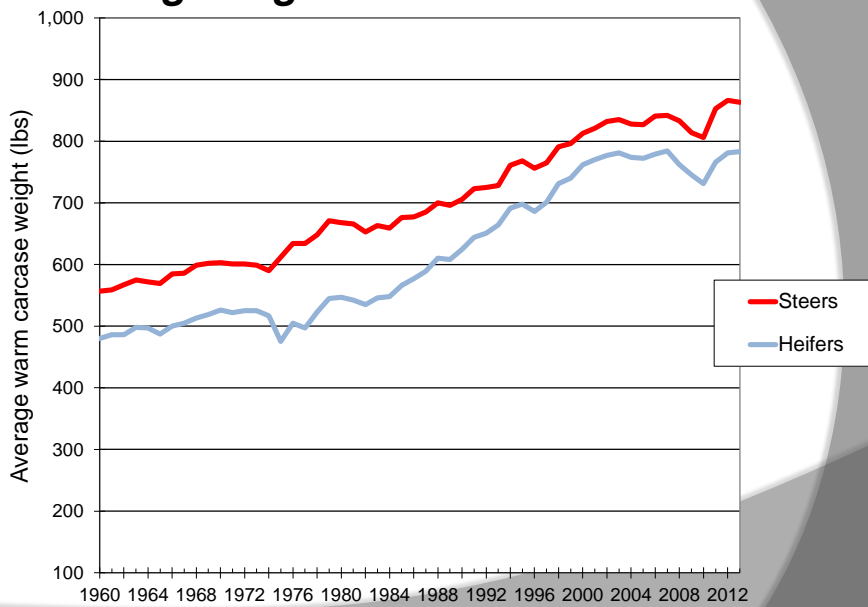


Source: Statistics Canada Census of Agriculture

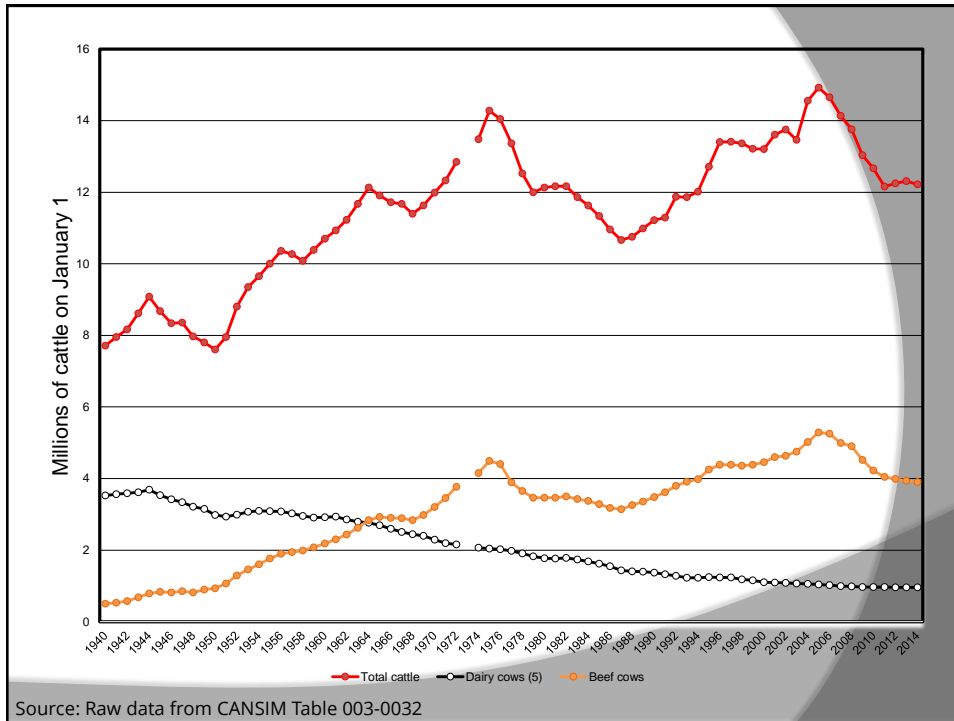
## Beef Cattle Production is More Concentrated



## Cattle are getting much heavier...



Source: Agriculture and Agri-Food Canada Red Meat Market Information

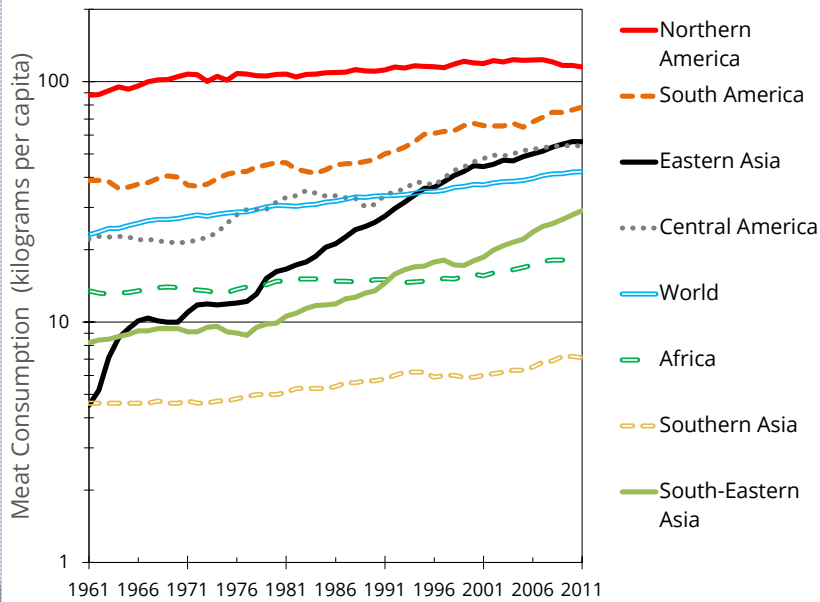


## In sum:

- ⊙ Economies of scale
  - Herds grow larger
  - Number of farms grows smaller
- ⊙ Dairy herd shrinks
- ⊙ Beef herd is consolidating & poised to grow
- ⊙ Beef animals grow larger

## 4. What is the global picture for meat and livestock?

## Per capita meat consumption



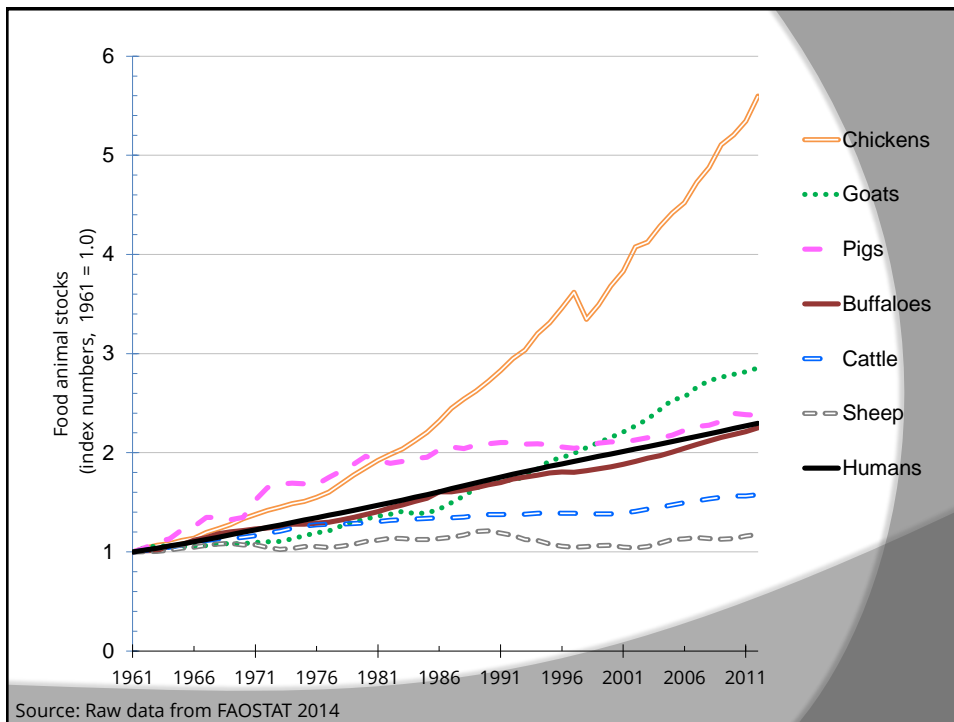
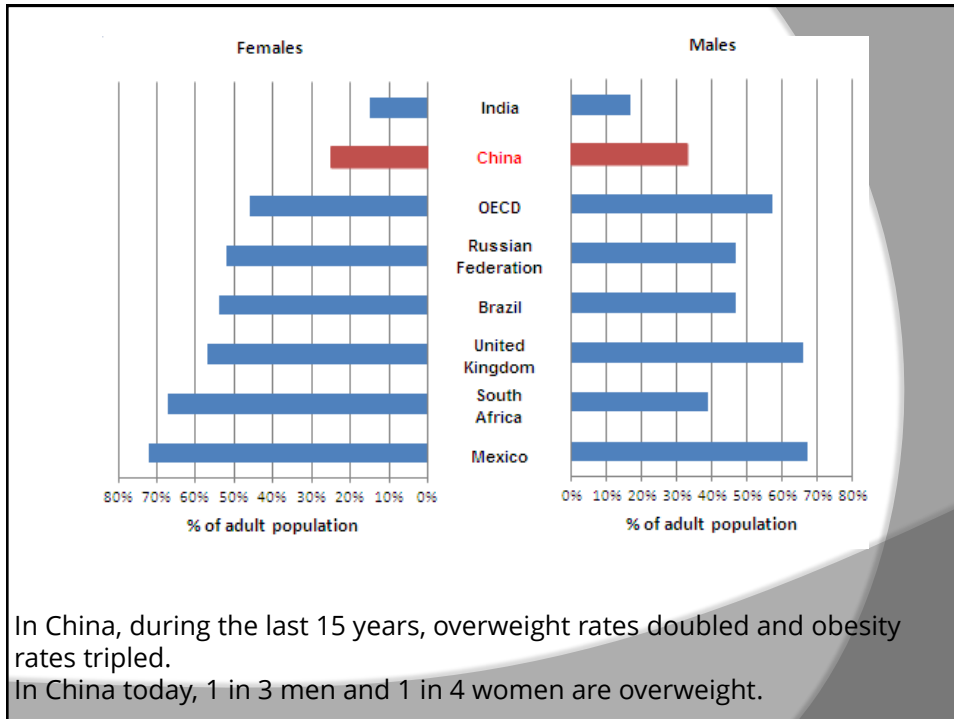
## Implications of Growing Meat Consumption

### ⦿ Nutritional transition

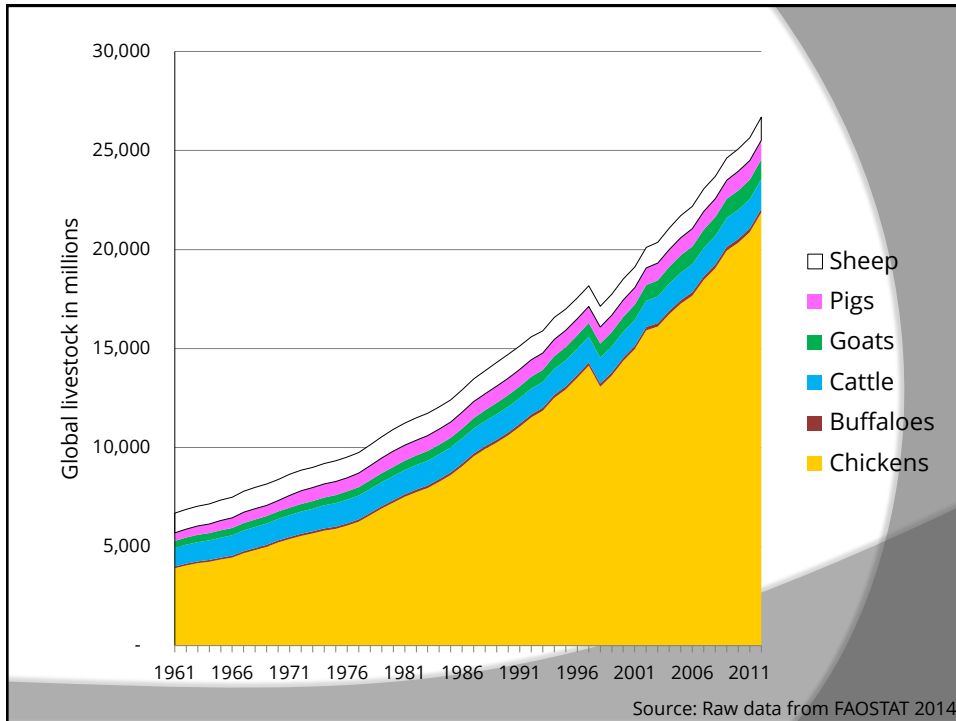
- Development model predicting that developing countries will emulate the dietary experience of Europe & North America
- People eat more:
  - animal source foods
  - saturated fat
  - sugar
  - processed foods



Source: <http://china.timesofnews.com/2-billion-people-are-overweight-china-and-us-top-fat-populations/>

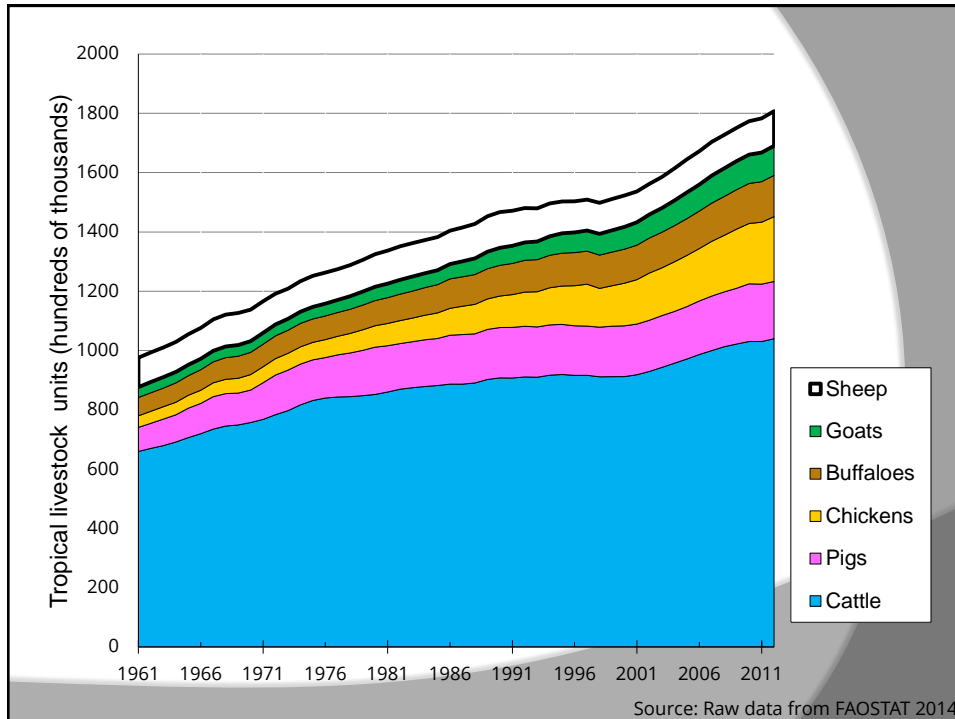






## Tropical Livestock Units

- Cattle and water buffalo: 0.7
- Pigs: 0.2
- Sheep and goats: 0.1
- Chickens: 0.01



## Livestock Revolution: What are the implications?

- ◉ Nutritional transition & obesity
- ◉ Growth of food animal stocks
  - Grain diversion from human to animal food chains
  - Epizootic disease potential
  - Environmental concerns
    - Ruminants & over-grazing potential
    - Monogastrics & peri-urban manure management
- ◉ Intercontinental trade:
  - Food animal welfare

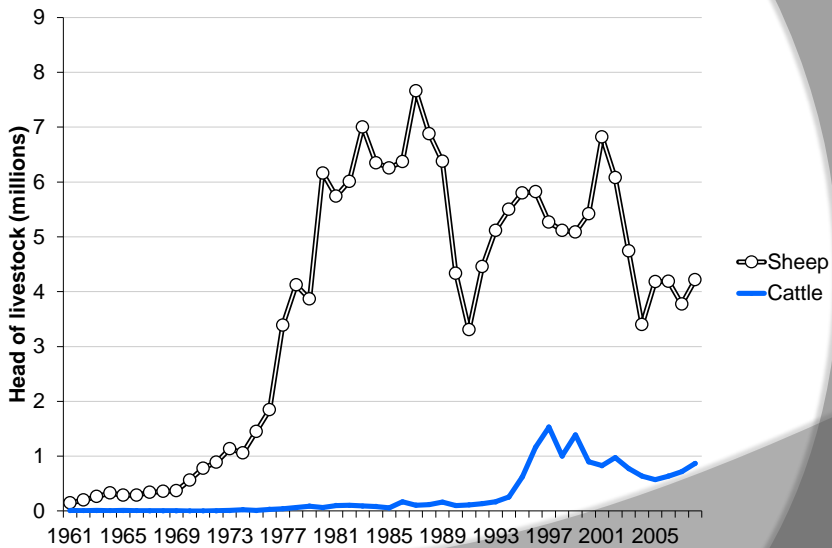
## Most livestock shipments are domestic



Source: Ian MacLachlan (above)  
Internet (left)

45

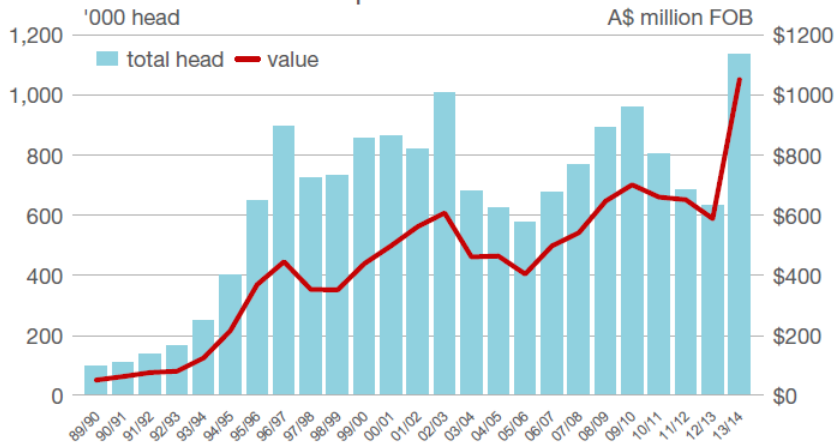
## Australian Livestock Exports, 1961-2008



46

## A\$1.05 billion cattle export industry in 2013/14

Figure 1  
Australian live cattle exports and value



Source: ABS



Source: Ian MacLachlan

ADVERTISEMENT

**BORN IN BUNBURY.**

**KILLED IN KUWAIT.**



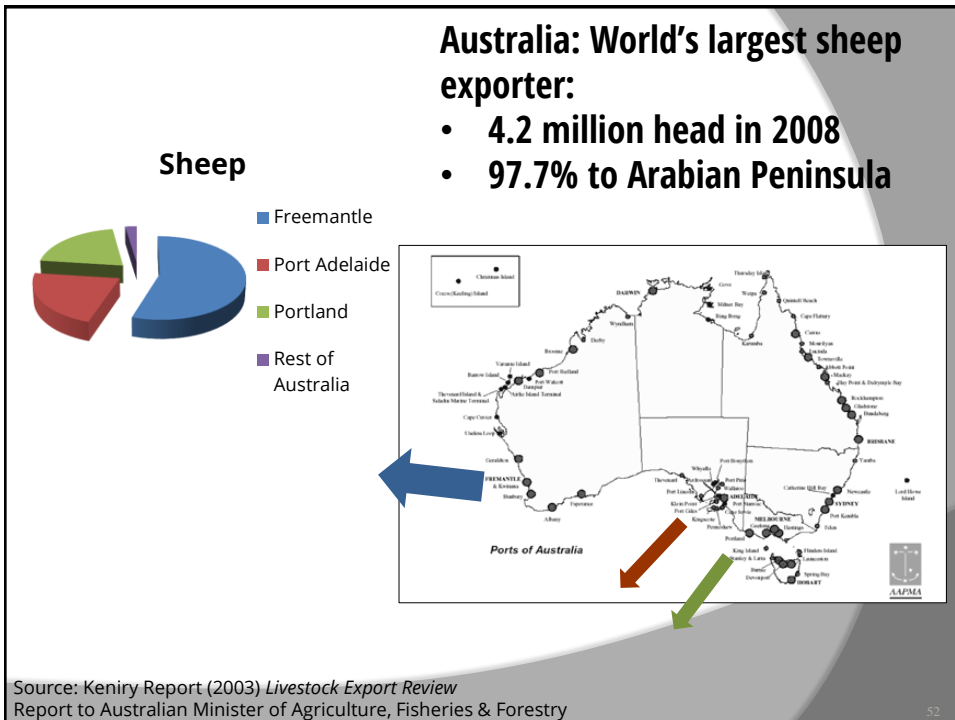
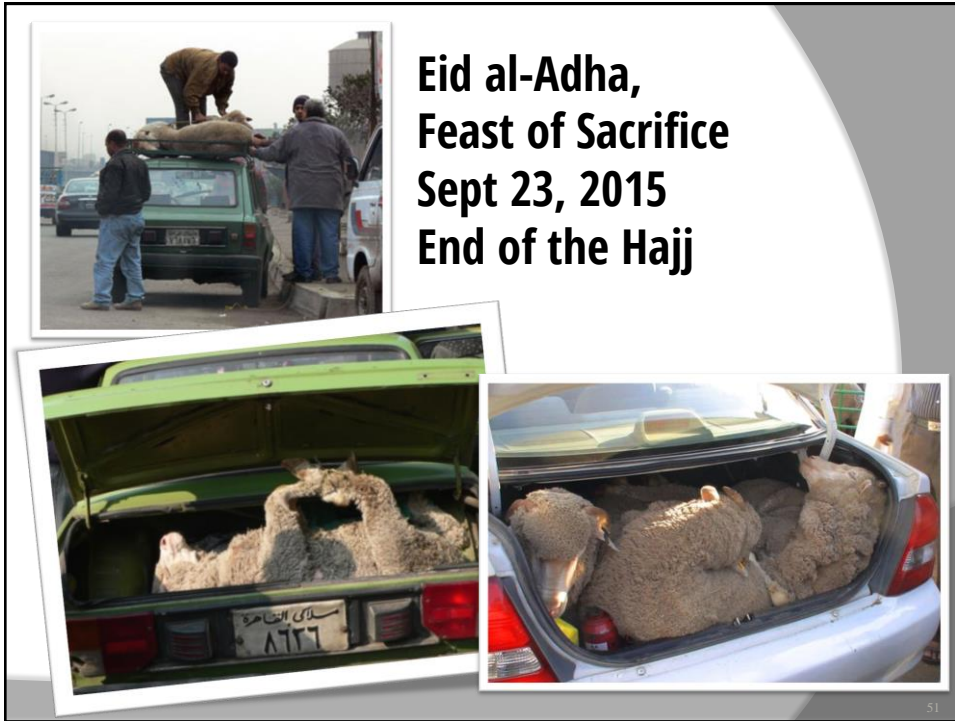
**An open letter to all West Australians who care about the welfare of animals.**

Source: [www.AnimalsAustralia.org](http://www.AnimalsAustralia.org)  
<http://www.banliveexport.com/investigations/>

49



*Sacrifice of Isaac*, Michelangelo Merisi da Caravaggio, 1598  
Source: Piasecka-Johnson Collection, Princeton, NJ Wikipedia



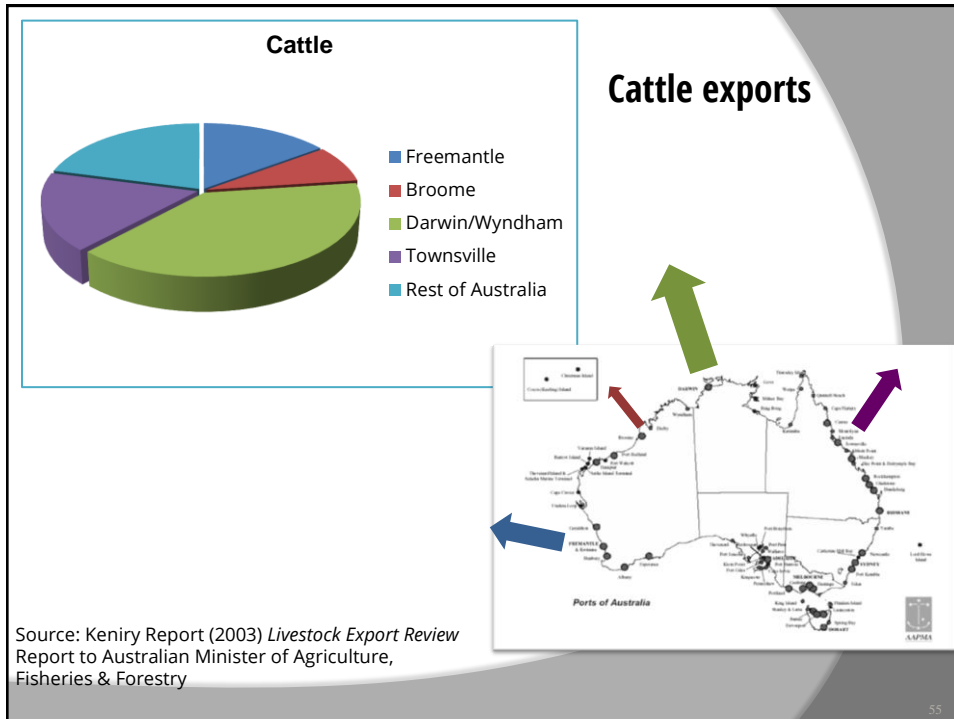




Source: Ian MacLachlan



Source: Ian MacLachlan



**Wellard**

MEDIA RELEASE  
February 23, 2010

**Cattle set sail for the Egypt aboard the MV Ocean Shearer**

A Wellard Rural Exports shipment of 16,460 cattle will depart for Egypt today, the first shipment to be exported under a new, improved animal welfare code.

The 16,460 cattle are due to depart from Fremantle this evening aboard Wellard's MV Ocean Shearer, and are expected to arrive at the Port of Ain Sokhna in approximately 15 days.

***Ocean Shearer*** – world's largest  
16,460 cattle or ~64,000 sheep



Source: Ian MacLachlan



Source: Ian MacLachlan



Port of Sokhna, Egypt  
40km south of Suez.

- 25,000 cattle
- Pens are 50 per cent shaded
- Closed system – integrated port, feedlot and ...

Source: Google Earth

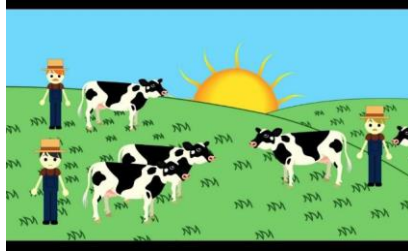
59

EU-compliant abattoir  
[Video: ABC News](#)  
Source: Google Earth

60

## Environmental & Resource Challenges Posed by the Livestock Revolution

“Tragedy of the Commons” by Garret Hardin, 1968



Individuals, acting independently according to each one's self-interest, behave contrary to the community's long-term best interest by depleting a common resource.

## Might there be local solutions to global challenges?

Elinor Ostrom, 1933-2012

How do humans interact with ecosystems to maintain long-term sustainable yields from common pool resources?



Farmer-managed irrigation systems in Nepal sustain higher intensity cropping due to superior maintenance by farmers with effective social institutions, locally-crafted rules & evolved norms to guide operations.



Nepalese government-owned irrigation system was professionally engineered with concrete & steel headworks.



Source: Elinor Ostrom, et al. Revisiting the Commons:  
Local Lessons, Global Challenges, *Science* 284, 278 (1999)

# Thank You!

Presentation and talk available at  
[www.ulethbridge.ca/artsci/publicprofessor](http://www.ulethbridge.ca/artsci/publicprofessor)

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