

Technology transfer for Carbon Farming

NZARM/Grasslands Conf
Waitangi, 5 November 2009

John-Paul Praat

Outline

- Background (who, why)
- Information resources
- Response, Feedback
- Availability

MAF Sustainable Farming Fund Project

- Co funded by Carbon Farming Group
- Supported by
 - NZ Farm Forestry Association
 - NZ Landcare Trust
 - Greater Wellington Regional Council
- **Aim** – To help farmers, agribusiness managers and farm foresters to understand carbon farming

ETS review?

- Early indication to modify ETS
- Increasing awareness of carbon in market
 - eg carbon footprinting
- Role to improve basic understanding
 - Fundamentals won't change, politics likely
- Identify early opportunities for some

Developed and delivered an information resource

- Emphasis on appropriate technical level for presentation
 - Complex subject, low level of knowledge
 - GHG and C farming NEW, build carbon and be efficient OLD
- 20 seminars delivered (20 to 120 mins)
- A series of pertinent information sheets
- Summarised background reference material

Seminars

- Conference presentations
- Meat and Wool monitor farm fielddays
 - Used local farm examples
- Meetings at Regional Councils
 - land management focus

Information Sheets and Referenced Report



P.A. Handford & Associates Ltd

CARBON FARMING INFORMATION REPORT


Further Reading Material supporting Info Sheets

Carbon Farming – Opportunities & Issues for Rural NZ Information Transfer for Landowners and Managers


MAF Sustainable Farming Fund Project Number: C08-042

11 August, 2009

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FORESTS • AGRICULTURE • ENVIRONMENT • TECHNOLOGY

Information Sheets

- Designed to be “read over a cuppa”
 - double sided, 2 pg, colour

Info Sheet Titles - Content



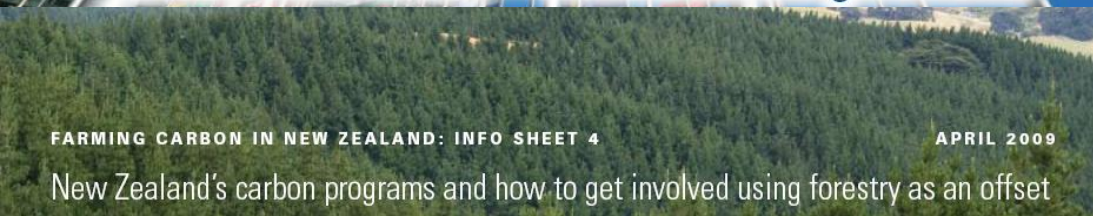
Carbon cycling,
animal emissions
carbon calculators



Soil life
Carbon in NZ soils,
Management and Selling



International agreements,
UNFCCC,
Kyoto Protocol and NZ



NZ Carbon programs,
Which one and How



Carbon price,
ETS mechanism,
point of obligation



Voluntary market,
outside Kyoto and Kyoto



FARMING CARBON IN NEW ZEALAND: INFO SHEET 7

MAY 2009

Managing Emissions from Farming Livestock

Issues,
Livestock, Fertiliser,
Energy and Forestry



FARMING CARBON IN NEW ZEALAND: INFO SHEET 8

JULY 2009

Carbon Balance – Sheep and Beef Farm

Annual emissions,
Analysis (5000 SU)



FARMING CARBON IN NEW ZEALAND: INFO SHEET 9

JULY 2009

Carbon Balance – Dairy Farm

Annual emissions,
Analysis (535 cows)



FARMING CARBON IN NEW ZEALAND: INFO SHEET 10

JULY 2009

Carbon Balance – Integrated Dairy, Sheep and Beef Operation

Annual emissions,
Analysis



FARMING CARBON IN NEW ZEALAND: INFO SHEET 11

JULY 2009

Carbon Balance – Arable Farm

Annual emissions,
Analysis (270 ha)

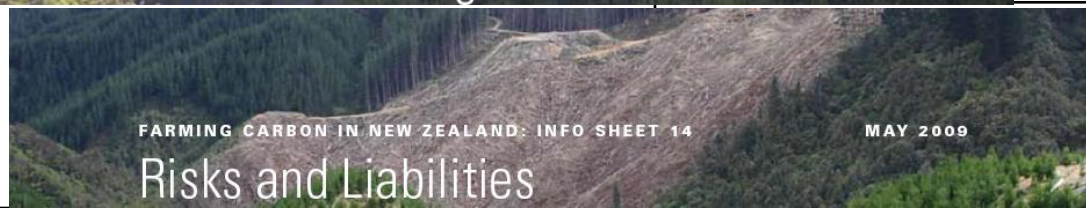


FARMING CARBON IN NEW ZEALAND: INFO SHEET 12

MAY 2009

Carbon Forest Management

Carbon and forests,
Forest age
Rotation and harvest,



FARMING CARBON IN NEW ZEALAND: INFO SHEET 14

MAY 2009

Risks and Liabilities

Risks
Actions
Timber vs carbon

Where to get them?

- Web sites, workshops and seminars
- Are they still relevant?
 - Yes, intensity based system uses national averages
 - Starter for 10% = 2.5c/kg MS or 6c/kg beef
 - Fundamentals don't change
- Enough facts to be useful, MAF reviewed
- Leads to other info sources eg Info report
- 1800 given out, 2200 downloaded (2, 1, 12, 5, 4)



Welcome to Carbon Farming Group



The Carbon Farming Group is an independent not for profit organisation which provides information to the rural sector on climate change. This website aims to provide an overview of the current issues.

ETS Announcement

The Government has announced it has support for "moderate" changes to the Emissions Trading Scheme. To read a summary and a Q&A document visit our News page [here](#). Main points include:

- Agriculture not commencing until 2015.
- Forestry remains unchanged.
- Target of 50% reduction on 1990 levels by 2050 (not 100% by 2030 as previous)
- A fixed price option of \$25 for sectors having to meet obligations, instead of purchasing credits
- 50% obligation for solid fuels, industrial processes, and stationery energy from July 2010 to Jan 2013.

Quote of the week:




"Unless we learn to optimise carbon management at a farm level through appropriate land use, we will struggle to deal with this issue at a national level" - Chris Ingram, President of the Waikato Farm Forestry Association.

News in Brief

- The forestry calculator has been updated to include regional variations and age of the forest. [Click here](#) to try it out.
- Discussion on soil carbon has gained momentum, read our thoughts [here](#).

» [More news and events](#)

Quick Links

-  [Register for Newsletter](#)
-  [Carbon Calculators](#)
-  [Articles](#)

Calculators



This calculator will work out liabilities using data averaged across New Zealand conditions.

This calculator is provided as a guide only and it is currently under review to incorporate the new rules and targets set by the new ETS legislation.

Currently the results of this calculator estimate 100% of emissions. Under proposed ETS changes farm liabilities will be 10% of the total at 2015 and 50% by 2050. Until our calculator is updated please divide the total by 10 for liabilities at 2015 and by 2 at 2050.

Forestry data is derived from the look up tables in the Climate Change (Forestry Sector) Regulations 2008.

liability = (emissions - sequestrations) x CO₂ price

Please enter data for your farm



| NZ ETS Data | \$/tonne | Livestock | Head | Forest |
|---------------------------------|---------------------------------|------------------------------|--------------------------------|---|
| Price per tCO ₂ e | <input type="text" value="25"/> | Dairy Cow | <input type="text" value="0"/> | Species <input type="text" value="Radiata Pine"/> |
| (default value is \$25) | | Beef Cattle | <input type="text" value="0"/> | Age (Yrs) <input type="text" value="0"/> |
| Value may be subject to change. | | Deer | <input type="text" value="0"/> | Area (ha) <input type="text" value="0"/> |
| | | Sheep | <input type="text" value="0"/> | (enter '0' if no trees planted) |
| | | Horses | <input type="text" value="0"/> | |
| | | (enter '0' if no stock held) | | |

Calculate!

Reset

| NZ ETS Data | \$/tonne |
|---------------------------------|---------------------------------|
| Price per tCO ₂ e | <input type="text" value="25"/> |
| (default value is \$25) | |
| Value may be subject to change. | |

| Livestock | Head |
|------------------------------|-----------------------------------|
| Dairy Cow | <input type="text" value="500"/> |
| Beef Cattle | <input type="text" value="100"/> |
| Deer | <input type="text" value="0"/> |
| Sheep | <input type="text" value="1000"/> |
| Horses | <input type="text" value="0"/> |
| (enter '0' if no stock held) | |

| Forest | |
|---------------------------------|---|
| Species | <input type="text" value="Radiata Pine"/> |
| Age (Yrs) | <input type="text" value="15"/> |
| Area (ha) | <input type="text" value="70"/> |
| (enter '0' if no trees planted) | |

Calculate!

Reset

| Results | |
|---|---|
| Total emissions are 1736tCO ₂ e | Based on the data provided, total liabilities will be NZD \$-2100 per year. |
| Total sequestrations are 1820tCO ₂ e | |
| <hr/> | |
| Net emissions are -84tCO ₂ e | |

More details >

Livestock emissions are based on the NZ's Greenhouse Gas Inventory July 2007.

Please note **under proposed ETS policy soil and pasture carbon are not recognised**, therefore they are not included in this calculator.

The calculation does NOT include emissions from energy use or other purchases, as many emission liabilities are already accounted for in the retail costs:

- ➔ Petrol, Diesel, Electricity
- ➔ LPG
- ➔ Fertiliser

Feedback / Issues

- How does Ag create GHG emissions and why are they important?
- Dates seem arbitrary, difference between pain and gain
- Risks associated with forestry (harvest)
- Uncertainty that ETS will work to reduce GHG
- Concern over costs
- How will proactive farmers be recognised
- International relativity – too far ahead?
- Climate change is natural, no effect from man

The presentations...

- Raised awareness and understanding of fundamentals of Ag emissions and carbon management
- Debate helps understanding
- Farmers start very skeptical and finish saying that what this is really about is improving efficiency with land resources.
- We need to think about integrating the response
- Danger that whole farms will be converted which will be to detriment of NZ in the end (\$500+/ha return vs \$300/ha)

Quotable Quote

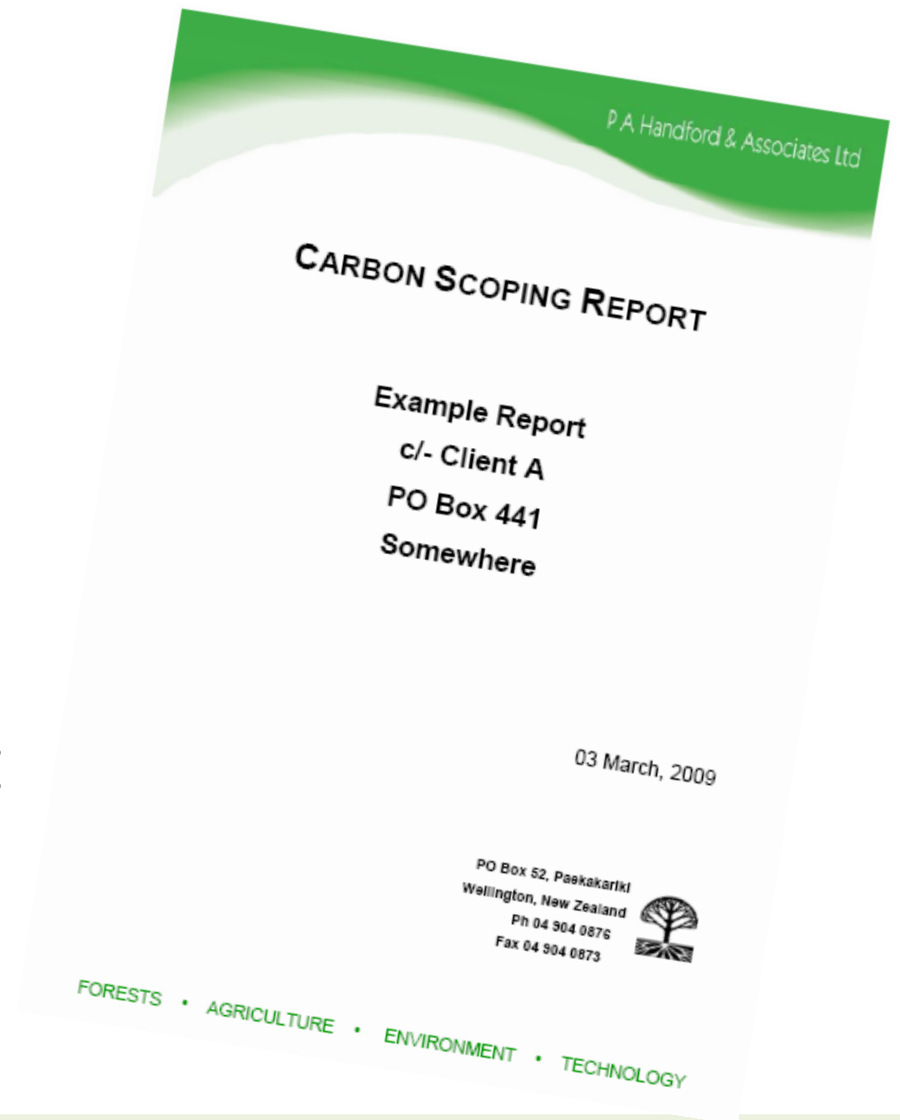
“Unless we learn to optimise carbon management at farm level through appropriate landuse, we will struggle to deal with this issue at a national level” Chris Ingram, President of Waikato Farm Forestry Association

Summary

- Carbon management should be integrated into business to provide resilience (economic and physical)
- Resource available to help ag professionals build knowledge and develop integrated programmes
- Potential for integration of forestry off-set to internalise business risk, at least a medium term solution until (30 to 70 years) while new GHG mitigation technologies are implemented.
- Take things further.....

Independent Carbon Services

- Seminars
- Workshops
- Carbon Scoping Report



Offices in: **Dunedin,** **Christchurch,** **Paekakariki,** **Te Awamutu**

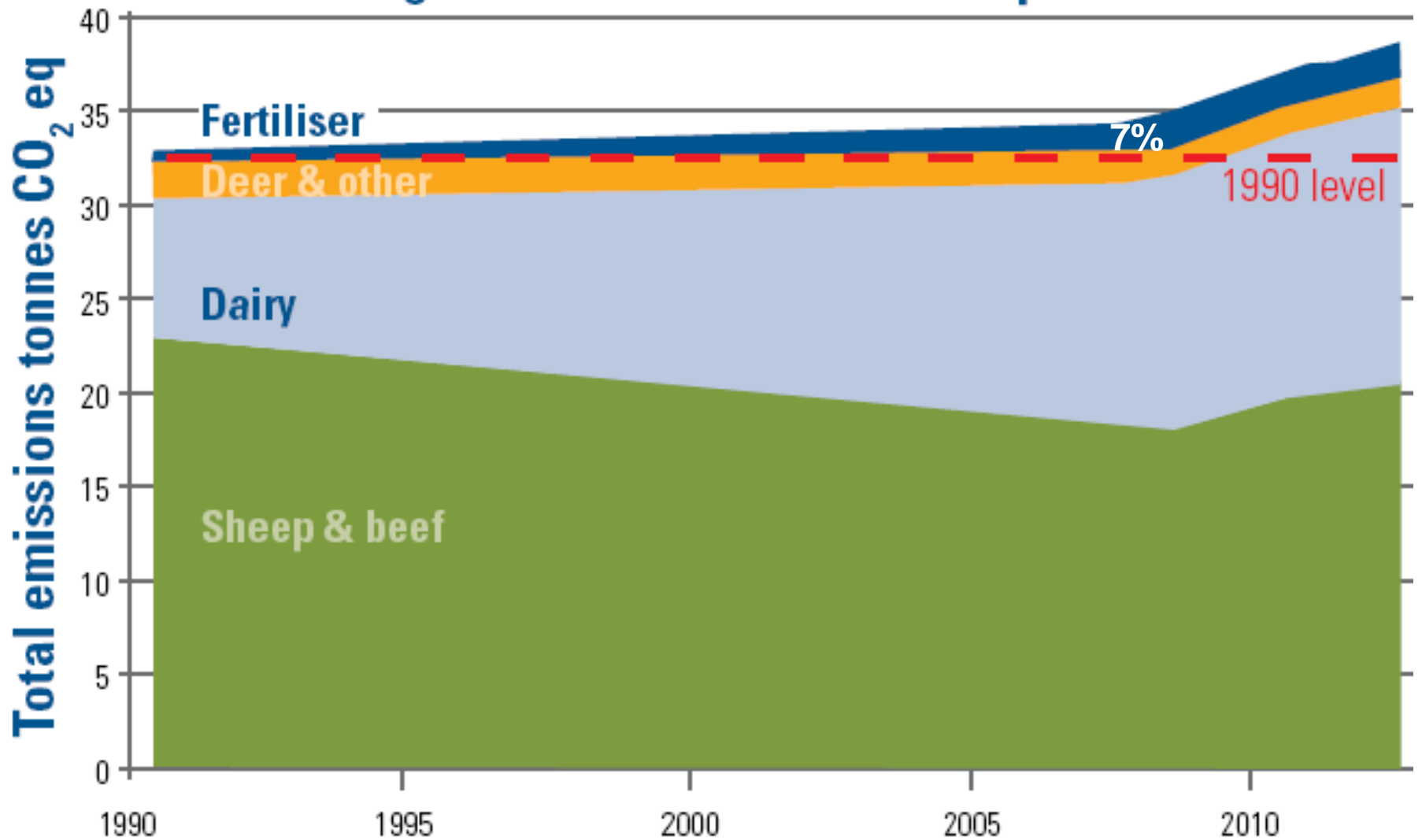
Thanks

Please take info sheets and or card for
follow-up information

www.carbonfarming.org.nz

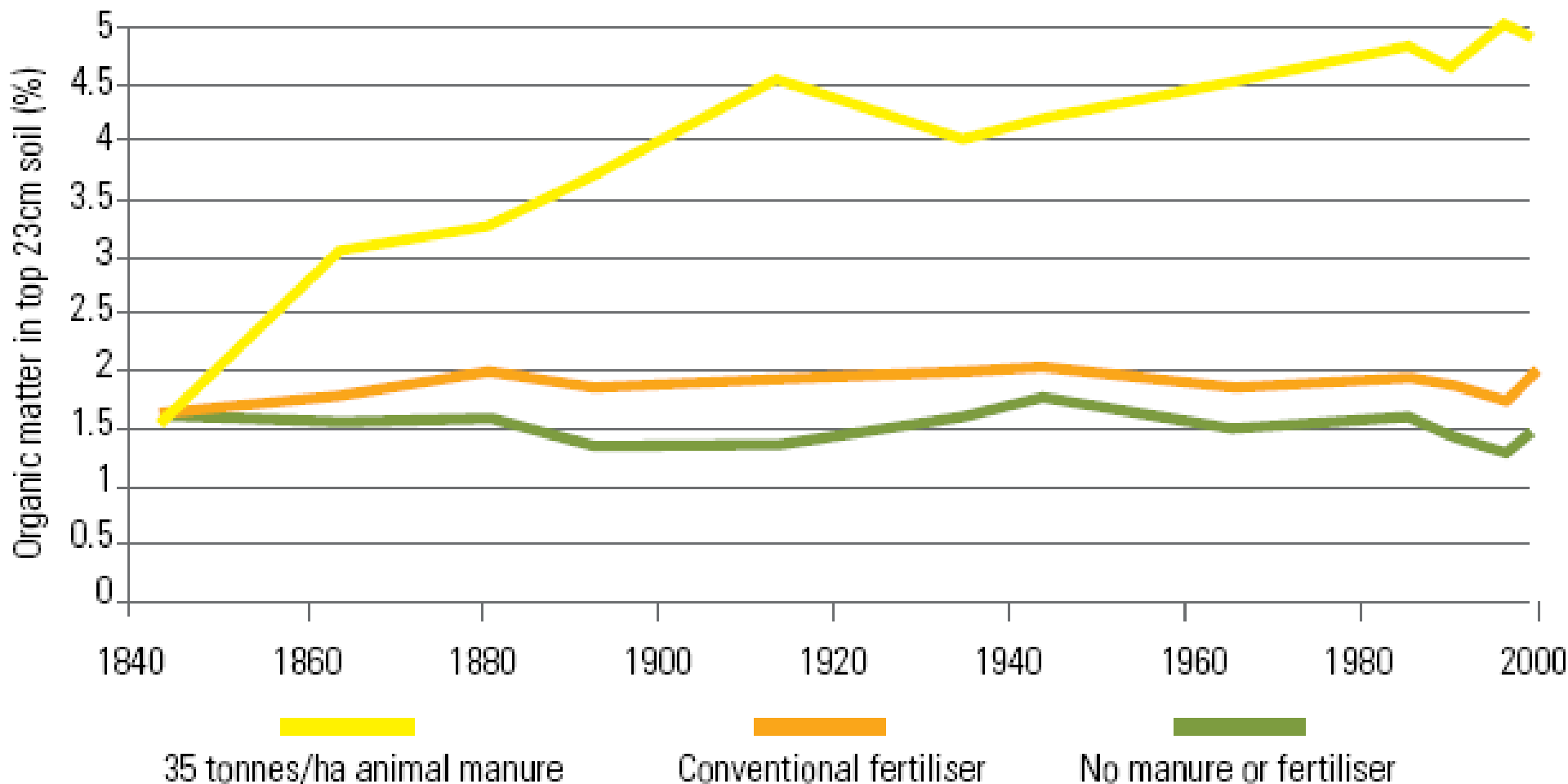
Spare slides

Agricultural GHG emissions profile



Effect of animal manure and fertiliser on 160 years continuous winter wheat(Rothamsted)

Continuous winter wheat on silty clay loam



How will it work?

- Market forces
- Trade – emitters (oil Co) will have to purchase credits from forests or other offshore credits
- Other = certified emissions reductions (CER)
 - Offshore industry adopts new technology / systems to reduce emissions
- Current price @\$25/t = 7c/l diesel or petrol
- May take higher price to get change at pump (\$125/t = 35c/l)
- Applied to acid-rain causing sulphur-dioxide cap and trade in US early 1990's, was successful

Acid Rain Experience

