



## Wool - Part of the natural carbon cycle

Martin Oppenheimer



### WCA – How it started;

- Wool did not have a “position” on carbon
- Needed to catch up with other industries (ie. Cotton)
- Focus specifically on wool
- Threats to future industry viability; ETS, CPRS
- Opportunities;
  - Marketing?
  - Carbon trading?
  - Lobbying/Advocacy



#### WCA – First steps;

- IWTO Frankfurt
- Who's involved?
  - Initially AWI, IWTO, MLA, AFI, WPA, AWGA
  - Now AWI, IWTO, WPA, AWGA, NSWFA, AASMB & consultants
- Goodwill - Apparent from the start that all grower groups were “on the same page”
- Most efforts previously concentrated on emissions eg MLA & Sheep CRC, AFI/NSW DPI Farm Gas Calculator
- Kyoto was directing most R&D guidelines



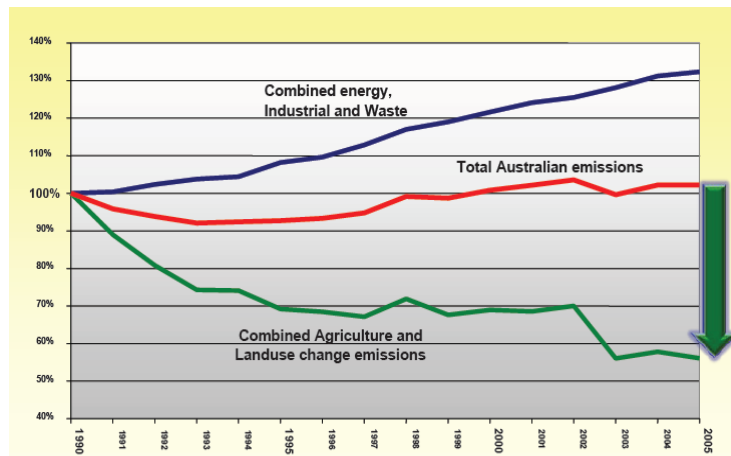
#### WCA – Members;

- Chick Olsson (AWI Director) Chairman
- Meredith Sheil (AWI Director)
- Gunther Beier (IWTO)
- Geoff Power (WoolProducers Australia)
- John Manwaring (NSW Farmers' Assoc.)
- Tom Ashby (Australian Stud Merino Breeders Assoc.)
- Martin Oppenheimer (AWGA)



### WCA – Outcomes sought;

- Wool products recognised by consumers as fibre of choice for taking personal action to reduce CO2 in atmosphere
- Wool recognised as a carbon sink
- Wool growers rewarded for carbon capture & storage
- Evidence based compendium to support wool's carbon claims, including;
  - Robust wool carbon model
  - Wool Life Cycle Analysis (LCA)
- Australian & global wool industry work collaboratively



Agricultural emissions have dropped steadily since 1990

Source: AF1. Decline is mainly due to declines in livestock numbers (esp. sheep) and reduced land clearing



## The Carbon Cycle

- Need to account for the full carbon cycle, not just emissions;
- Plant material harvests CO<sub>2</sub>
  - Wool fibre as a carbon sink
  - Soil Carbon
  - Biochar
- Changing perception
- Marketing opportunities
  - "Turn down the heater & put on a sweater" J. Carter 1978



## Marketing opportunities for wool

- If we don't say it who will?
- Media releases already;
  - Wool is 50% Carbon
  - Wool can reduce energy consumption
- Google Search WCA
- Viral marketing
- Low cost – effective?
- Changing perceptions – livestock not the problem, part of the solution



### Climate variability

- Climate variability is a constant issue in Australia
- Grazing systems can be efficient users of rainfall
  - Water holding capacity linked to carbon
  - Importance of groundcover, perennials
- Superior animals use less water & feed
- Efficiency of animal production
  - Weaning rates
  - Growth rates

Without frequent moves, grazers bite palatable plants again and again, keeping them small.

Because small leaves can only feed small roots...

...overgrazed plants suffer drought stress and die, while weeds and thorns can still reach water.





### Research – fill in the gaps

- Plethora of “climate change” R&D now
- Retro fit carbon onto previous R&D ie LLW, grazing, pasture & fertiliser trials
- Example of new (1998-2007) & old (1994-2000) data; Rick Young, Industry & Investment NSW;
  - Recent paper in Australian Journal of Soil Research
  - ‘Soil carbon accumulated fairly rapidly a positive surprise’
  - ‘Substantial levels of carbon can be sequestered under pastures’
  - ‘Soil carbon accumulated at about 600 Kg/Ha each year’



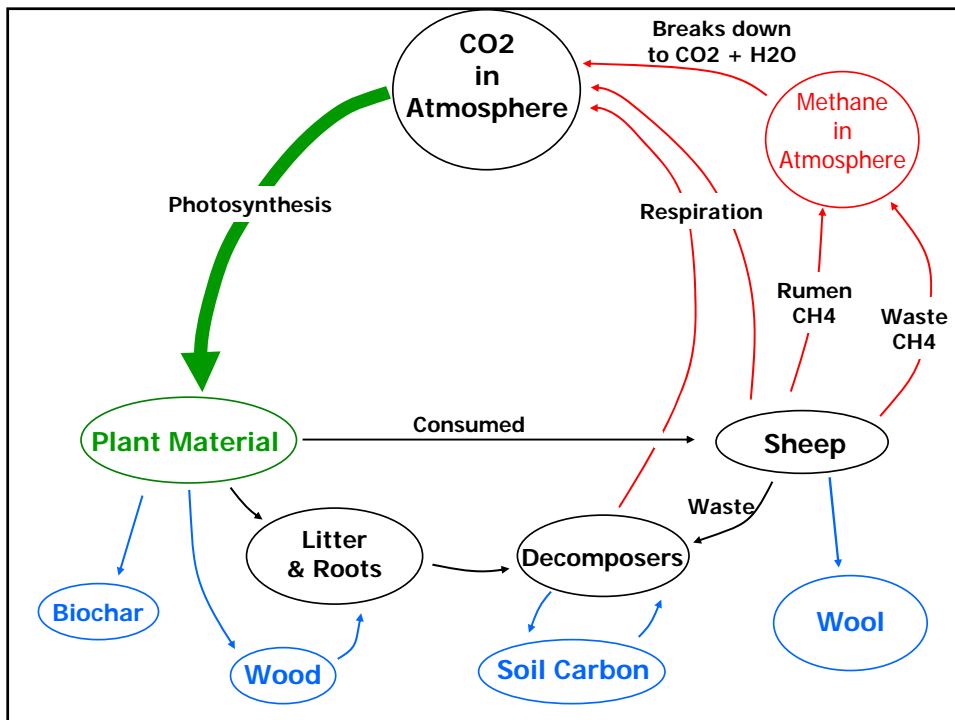
### The simple maths behind Soil Carbon

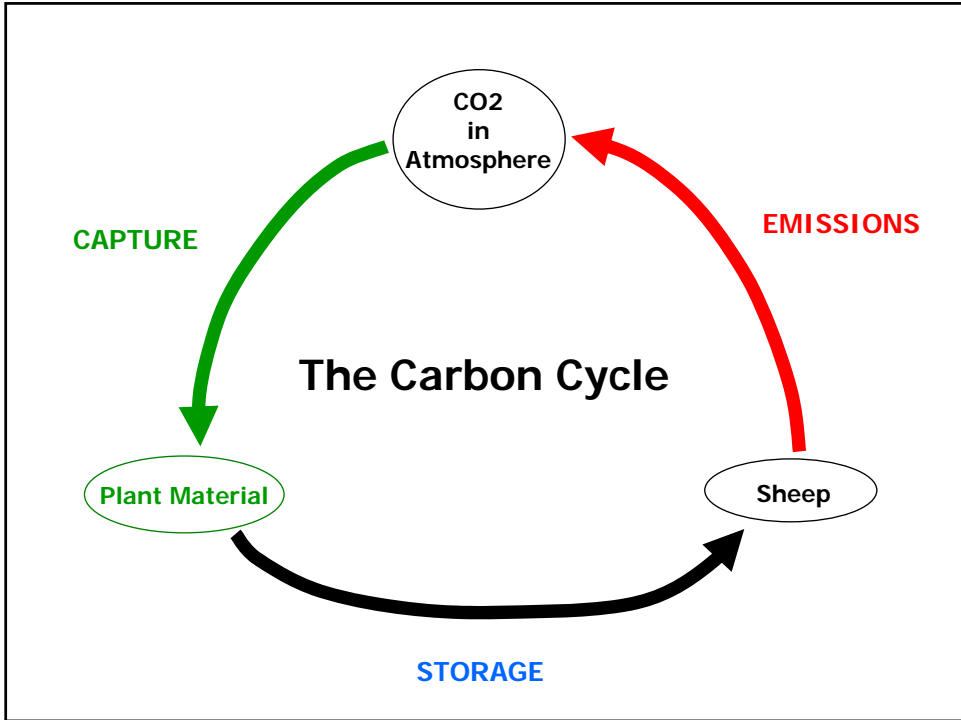
- One hectare = 10,000 sq. metres
- Soil 33.5 cm deep (1 foot approx)
- Bulk density = 1.4 tonnes per cubic metre
- Soil mass per hectare = about 4,700 tonnes
- 1% change in soil organic matter = 47 tonnes
- Which gives about 27 tonnes Soil Carbon
- This captured 100 tonnes of atmospheric CO<sub>2</sub>



### The Wentworth Group of Concerned Scientists

- “Optimising Carbon in the Australian Landscape” Oct 2009
- ‘Experts believe that it is technically feasible for Australian agricultural landscapes to increase soil carbon by 2% per year.’
- ‘This would result in the storage of an additional 900 Mt of CO<sub>2</sub> e per annum.’
- Food security – Importance of food & fibre production
- Water resources
  - ‘Unregulated carbon forestry poses risks to Australia’s fresh water resources.’





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**WOOLMARK - 50% Carbon**