

Submission to the Senate Environment
and Communications Committee Inquiry
into the Abbott Government's Direct
Action Plan



Presentation to the Committee
28 February 2014



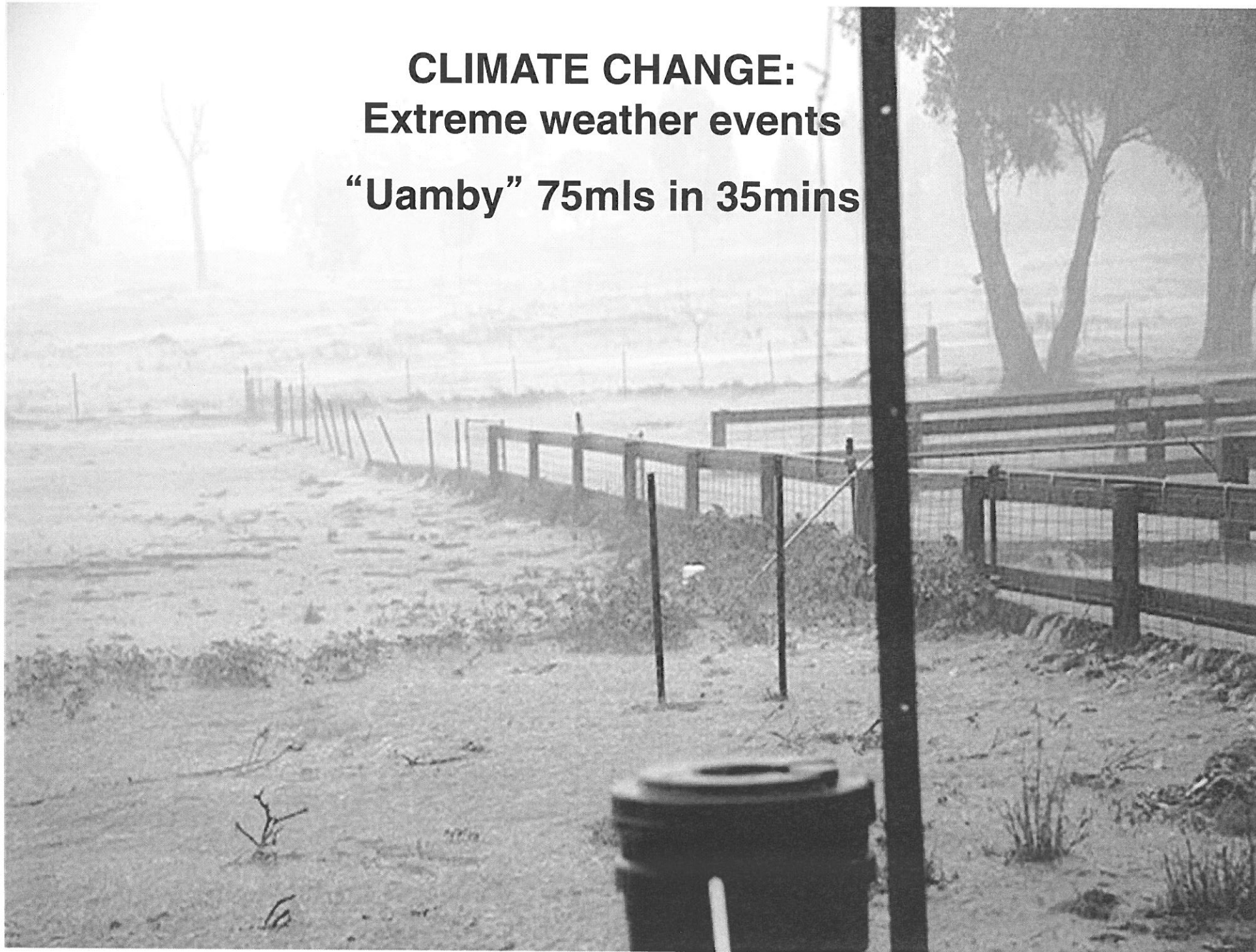
Campaigned for Australian Farmers right to be rewarded for regenerating the nation's soils since 2005.

Convenors of National Carbon Farming Conference, 2007-onwards

Provider of Training, Consulting, Carbon Neutral (NCOS), Lobbying, Representation, Advocacy

2014 National Carbon Farming Conference,
Rydges Hotel, Canberra 17-20 MARCH, 2014

**CLIMATE CHANGE:
Extreme weather events
“Uamby” 75mls in 35mins**



“Uamby” 75mls in 35mins



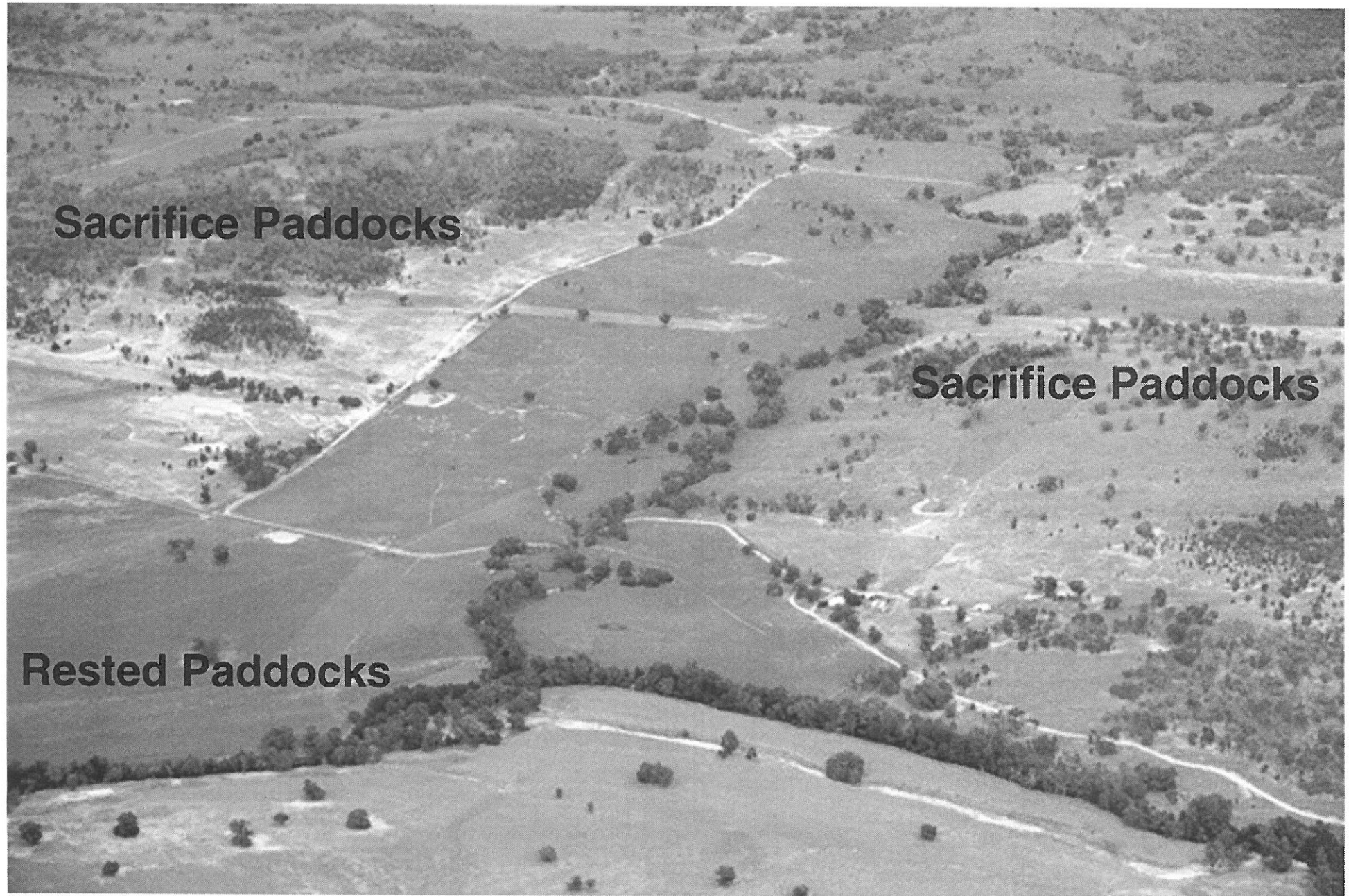
Adapting to Climate Change



Enjoying the ride



“Uamby” 2 weeks after 75mls



Conventional Farming vs Carbon Farming



All sides of politics support soil carbon



GREG HUNT "SOIL CARBON VISION' 2008

"This once in a century replenishment of our soils also offers the potential to improve soil quality, farm productivity and water efficiency, and should be a national goal regardless of the additional CO₂ abatement benefits." The Hon. Greg Hunt, "*LANDCARE AND CARBON FARMING UNDER THE COALITION*" SPEECH TO THE 6th ANNUAL CARBON FARMING CONFERENCE: 23 OCTOBER 2012, DUBBO

Returns to farmer

- Australian Farmers can meet Direct Action's abatement targets
 - Popular notions of soil carbon's potential are wrong
- Permanence need not be a barrier
 - Popular notions of 100 years are wrong

The Invisible Carbon Farmer



Soil tests show that Cam Banks of Lakeview, Uralla has `built' over 2t carbon/ha/ year or sequestered 7.8t/ha/year of CO₂ – over 20,000 t in the last 5 years. But Cam and farmers like him are officially invisible. They are 'outliers'. Their data is removed from the data sets as a matter of course. There are many outliers like Cam Banks in Australia and around the world - too many for them to be ignored.

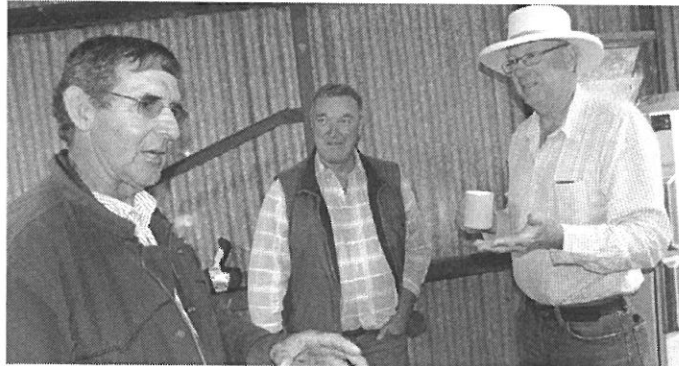
“No difference was detected...

between high and low P fertiliser inputs to pastures. Central tablelands NSW
between set stocking and rotational grazing (Central tablelands NSW
between pasture cropping and permanent pasture. Central slopes NSW
between native pasture (tropical pasture , tillage minimum tillage. Northern slope and plains NSW
between native grass , lucerne , Rhoades grass and Premier digit . Northern slope and plains NSW
between cropping with organic fertilisers and chemical fertilisers. Northern tablelands NSW
between rotational grazing and set stocking pastures. Northern tablelands NSW
between tillage, stubble and fertiliser treatments. Hermitage research trial Qld
between conventional tillage and no-tillage systems. Goodger research trial Qld
between conventional tillage and no-tillage systems. Biloela research trial Qld
between stubble retention and stubble burning at MacKay and Bundaberg trials. Sugarcane Qld
between grazing pressure treatments on SOC stock, Wambiana grazing trial Qld Rangelands
between cell, rotational or continuous grazing management practices , Qld
between phosphorus application or stocking rates. Hamilton Vic
between continuous grazing, optimised deferred grazing, and timed grazing. Ararat Vic
between applied stubble management and tillage treatments Horsham Vic
between annual pasture and perennial pasture . Esperance WA
between stubble retained and stubble burnt . Merridin WA

Soil Carbon Research Program - \$24.5m After analyzing 20,500 samples from 4500 locations, the largest soil sampling exercise in Australia's history, the CSIRO concluded that no practice was any better than any other at improving carbon levels in soil.

Proof of Higher SOC Potential

David Marsh,
"Allendale",
Boorowa - 2.5%
increase in soil
carbon over 10
years

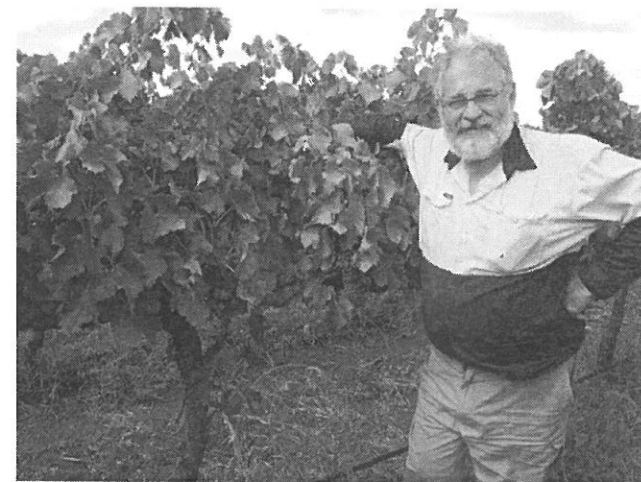


Craig Carter, "Tallawang" –
2% increase in soil carbon
over 3 years or 0.6%/yr

David Bruer of Temple-Bruer
Vineyards at Langhorne Creek
(SA) increased average soil
carbon levels by 2% in 10
years to 2011



Martin Royds moved his soil
carbon levels at "Jillamatong"
near Braidwood NSW from 3% to
7% in 5 years, lifting his tonnage
per hectare from an increase of
2 tonnes per year to more than
14 tonnes per year at his best
monitor points. He was awarded
National Carbon Cocky of the
Year 2011. Rhonda Daly (seen
presenting the award)



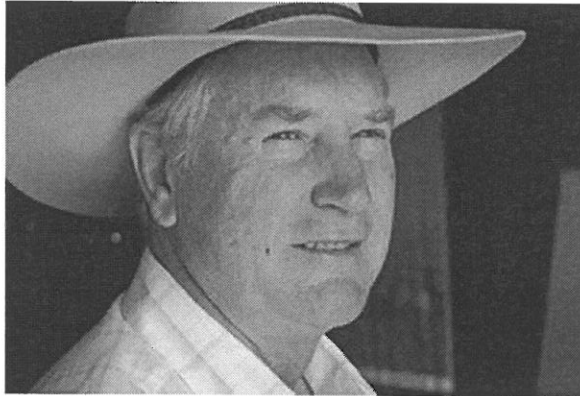
Proof of Higher SOC Potential



Increase in soil carbon from 2% to 4% was recorded on grazing and pasture cropping land recorded on “Winona”, Gulgong, between 1995 and 2005.

2008-2010:
Sequestration rate 33 tonnes CO₂ per hectare per year

“Proof of Higher SOC Potential



Terry McCosker,
RCS, Cell vs
Continuous Grazing
comparison Uralla
NSW: Cell system
0.6% increase in SOC
in 5 years vs 0.1%
loss

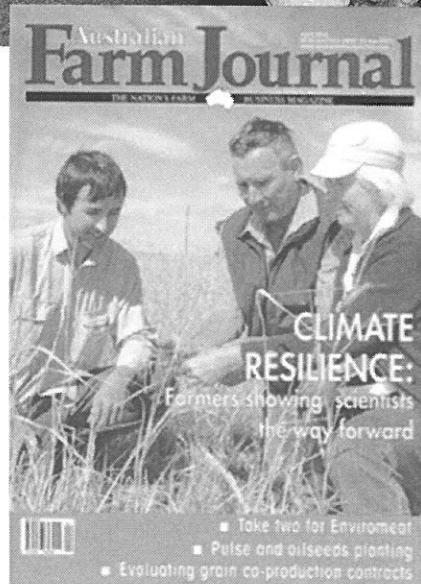


Rhonda Daly, “Glenroy”, compost
mineral blend vs single super,,
increase 0.5% TOC vs 0.07% increase
2008-2010

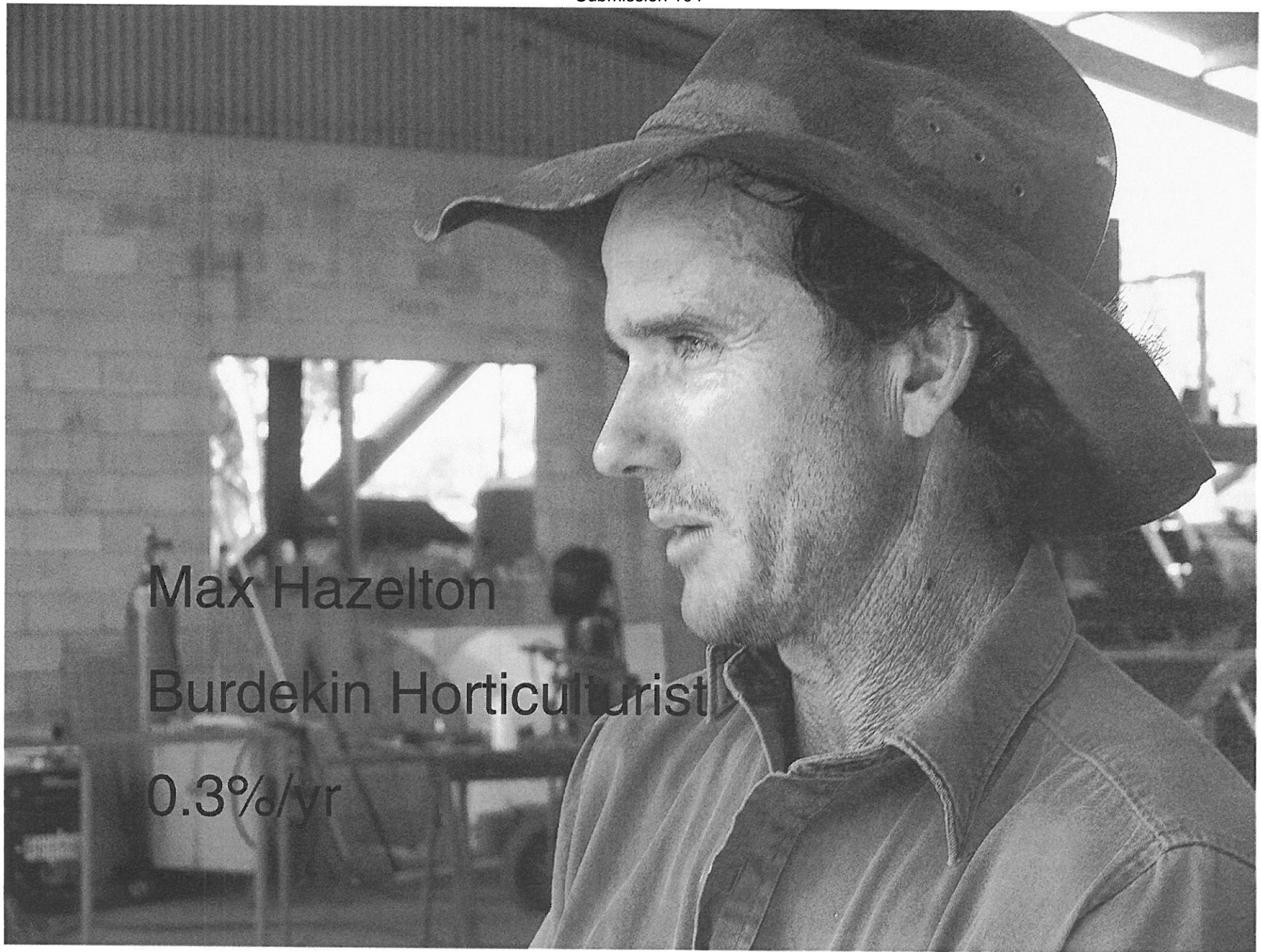
“Proof of Higher SOC Potential”



Cam McKellar, “Inverary Downs”, Spring Ridge. Increase of 0.59% SOC between March and November, 2008 in a cropping enterprise



Michael, Noel and Marie Moretti, Roselea, Biloela QLD. Increase of 0.57% SOC in pasture cropping environment

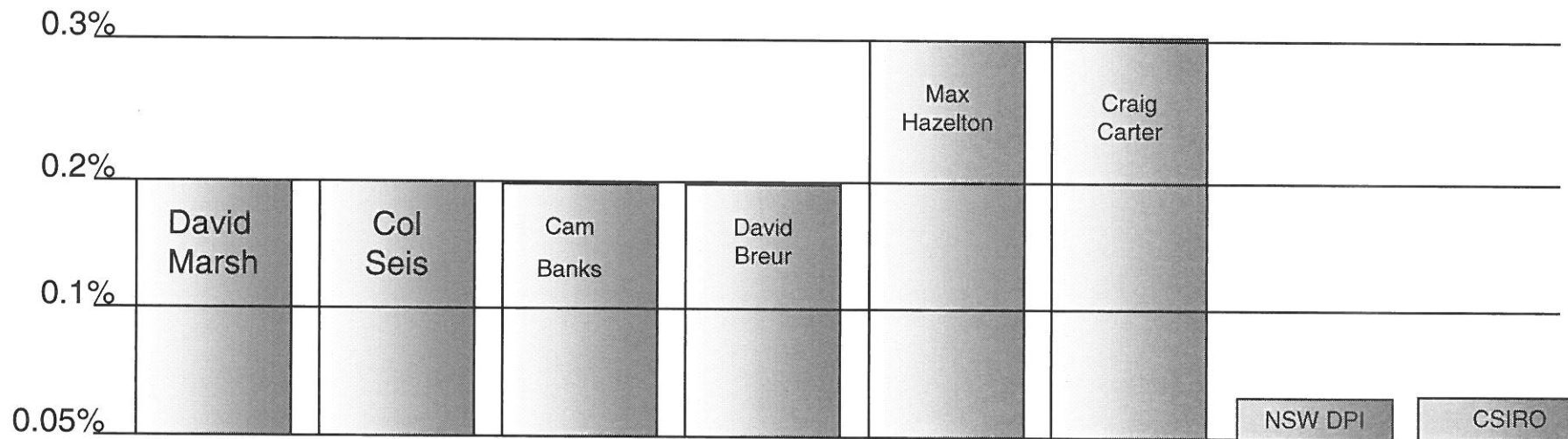


Max Hazelton

Burdekin Horticulturist

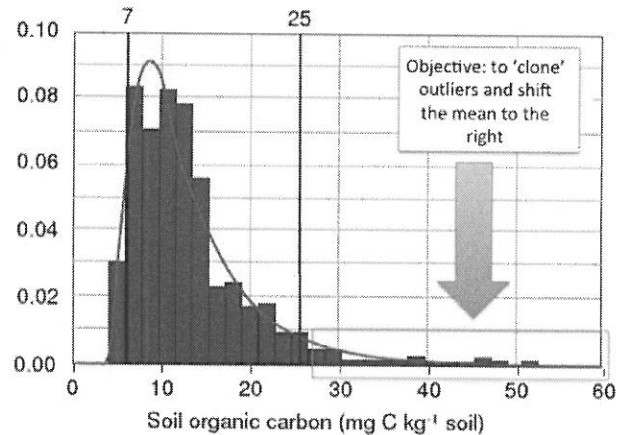
0.3%/yr

Farmer's Experience soil carbon sequestration potential



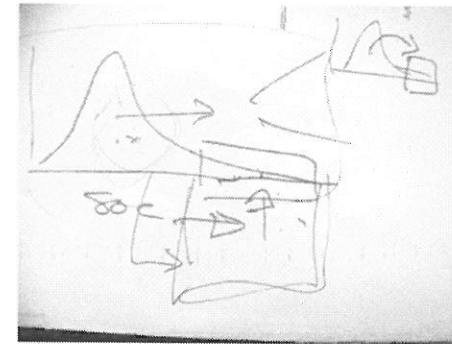
“Average potential” does not determine upper
limit of a soil's capacity

Clone them?



SOC Outliers: High Performance Individuals
Demonstrate The Real Potential

Jeff Baldock On Outliers



Our joint mission: to move farmers towards the performance level of the outliers.

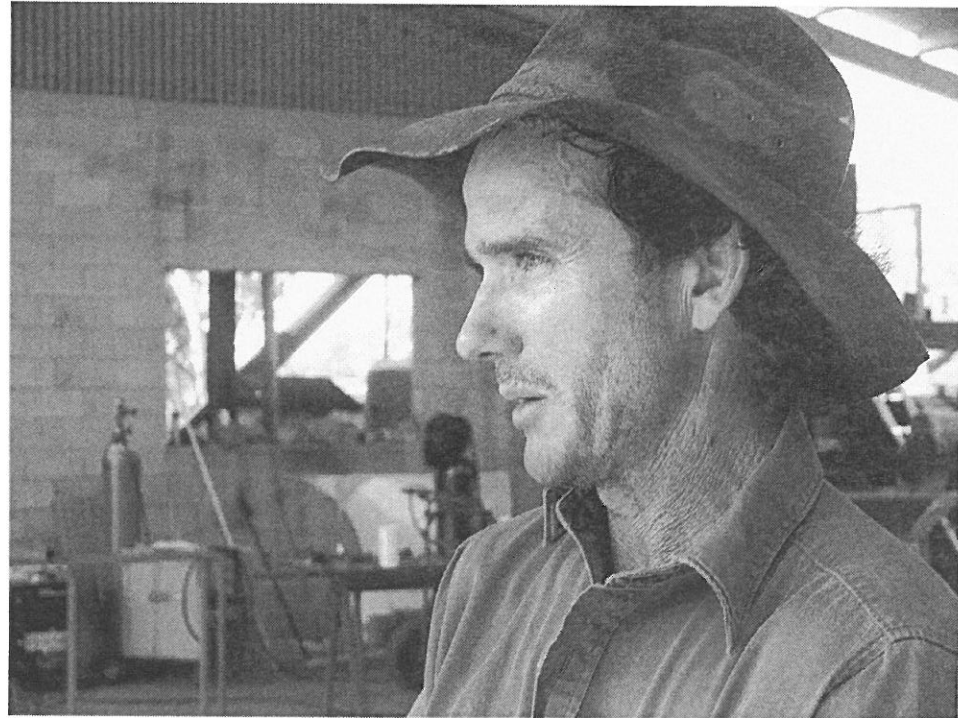
Officially the most soil carbon that can be sequestered in Australian soils is 0.5tonnes/hectare/year. Why is there a vast gap between the performance predicted by scientific models and the actual performance of many carbon farmers? The farmers' high carbon scores are not considered reliable because the measurement was not conducted according to scientific protocols. These results are officially described as 'anecdotal'. But here, in this small sample of farmers, we have a pattern which poses the question: Why? Could the farmers be fudging the figures? But what motive would a farmer have to skew their carbon scores? No one is offering to pay them for it. No carbon trading scheme pays for past performance. Most of the farmers featured above started measuring their carbon levels 10 years ago, before there was a hint of earning carbon credits.

Clone them?

When it comes to 'growing carbon' farmers enjoy an unfair advantage. Each farmer lives inside a live experiment, 24/7, observing how nature responds to various activities. They micromanage their farms, combining techniques and practices, endlessly trialling and making decisions every day. Their experiments are conducted in a single location for application in that location. The farmer is there on the ground every day, absorbing the whole ecological 'event', processing it intuitively, referencing their entire experience with nature, and developing new hypotheses on the run.

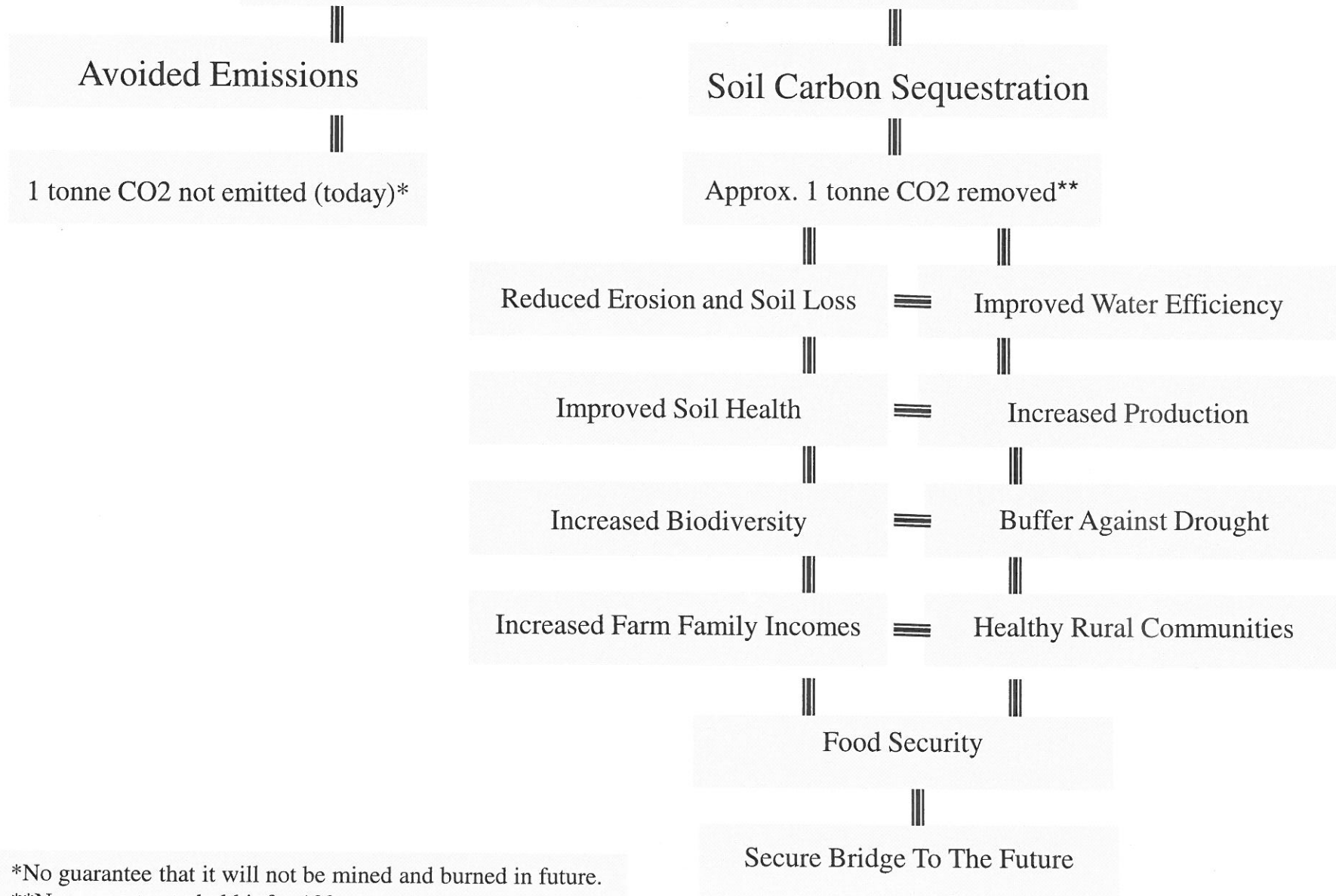
These farmers bring a learning attitude to their work. They read a lot, attend conferences, and most are active members of local natural resource management bodies or groups.

These farmers are "outliers" - not a statistical aberration, but the result of a mixture of two distributions or sub-populations. Each of them have spent the 10,000 hours studying and practicing "required to achieve the level of mastery associated with being a world-class expert - in anything," according to Malcolm Gladwell's book *Outliers*. It is on these grounds that we believe these high performance carbon farmers reveal the true potential of Australian soils.



The Carbon Farming Initiative should focus resources tagged for soil carbon on the challenge of measurement and set farmers free to sequester as much carbon as they can, independent of what the models say we can. This is the only way that the soil carbon credit can act as the catalyst needed to spark the chain reaction among farmers around the world to activate the massive carbon extractive capacity of the soils and vegetation.

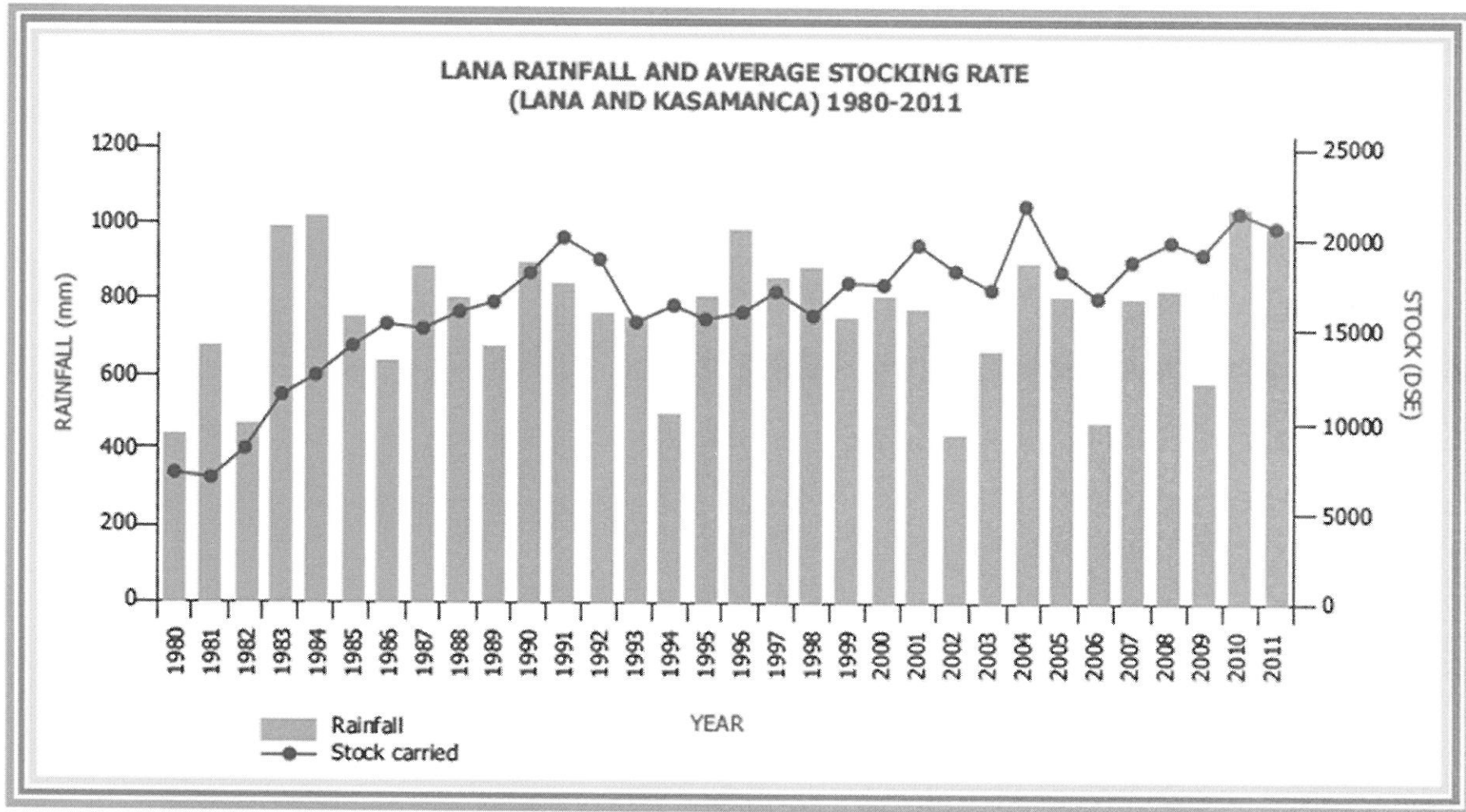
Carbon Offsets Value Proposition



*No guarantee that it will not be mined and burned in future.

**No guarantee to hold it for 100 years.

Drought Resistant Landscape



CARBON FARMER MANAGES DROUGHT: No impact on carrying capacity in low-rainfall years 1994, 2002, 2006 and 2009

CSIRO aware of the dangers

- “Loss of SOM is accompanied by:
- depletion of plant nutrients;
- increased soil bulk density;
- loss of aggregate structure;
- decreased water-holding capacity and hydraulic conductivity;
- decreased cation-exchange capacity;
- increased surface erosion;
- increased leaching of pesticides and heavy metals;
- a decline in soil biological activity and diversity;
- and ultimately declines in crop yields and quality.”

- *Jonathan Sanderman, Ryan Farquharson and Jeffrey Baldock, Soil Carbon Sequestration Potential: A Review for Australian Agriculture, CSIRO Land and Water, 2010*

NEITHER

“CLEAN COAL”

NOR

SOLAR POWER

NOR

NUCLEAR POWER

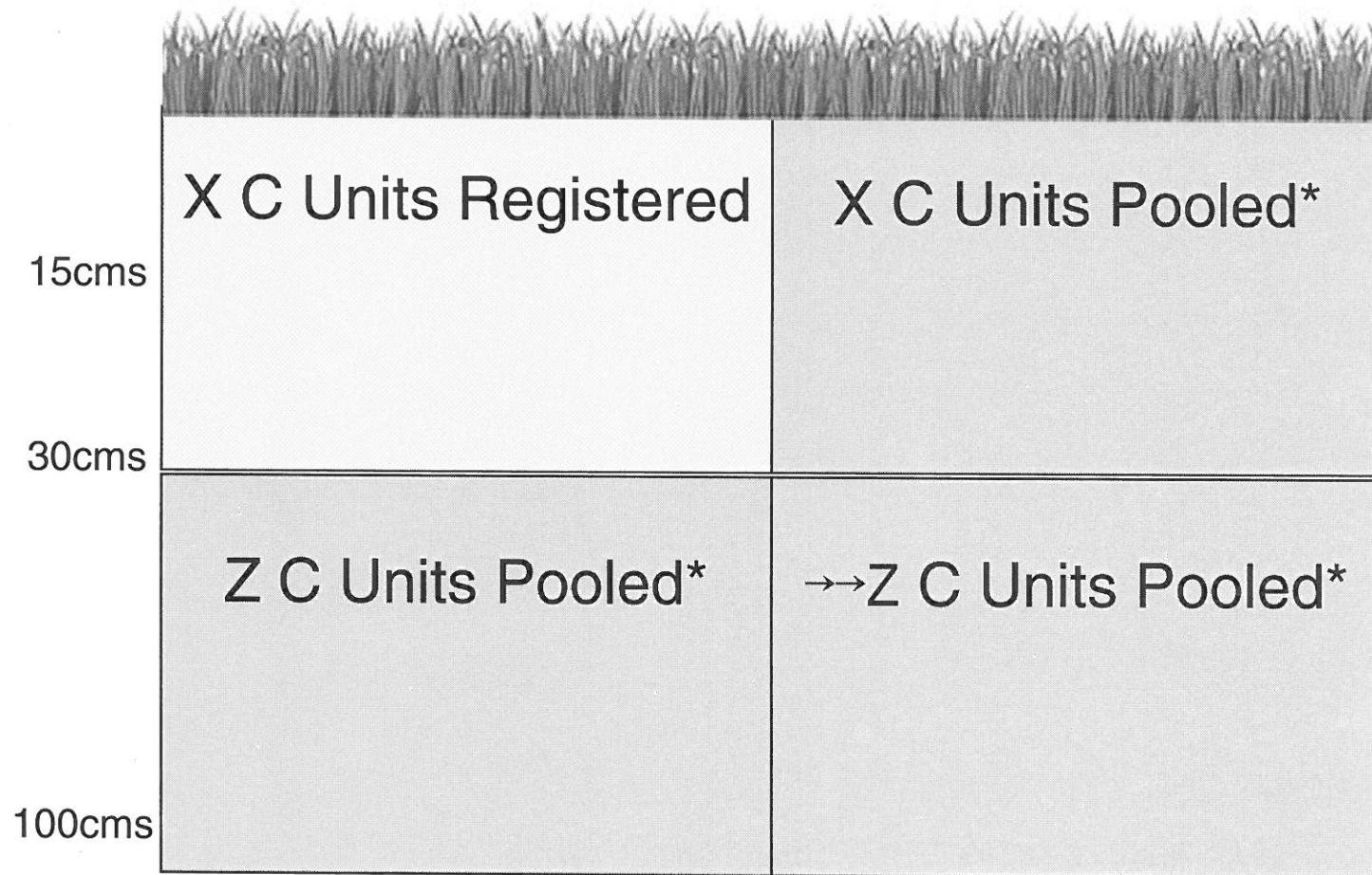
NOR

WIND POWER

CAN REMOVE CO2 FROM THE ATMOSPHERE

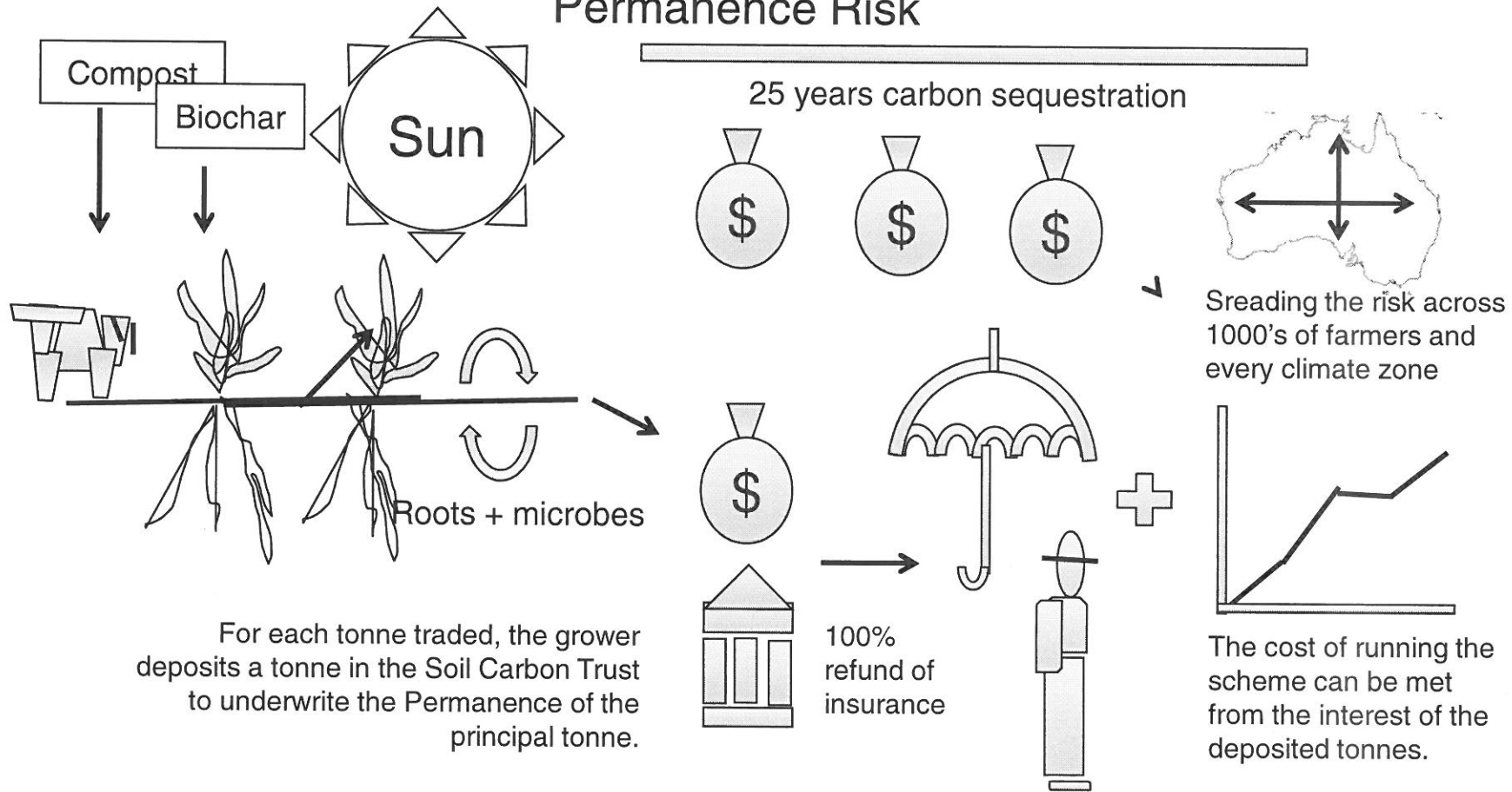
Peer Reviewed Science - Managing Uncertainty

- Project Buffer Pool to manage uncertainty



*75% buffer = 95+% Certainty Interval

The Soil Carbon Trust: Eliminating the 100 Years Permanence Risk



Year 26 onwards: Banked tonnes repaid in increments as 100 year risk reduced by time passing



The value in the payout tail rewards future landowners.

