Talkin' Soil Health

Invention and innovation in soil management

26th and 27th March 2013 York WA

CARING FOR OUR COUNTRY

wheatbelt natural resource management

AM FERTILISERS

Welcome from Wheatbelt NRM Chair

We wish you a very warm welcome to 'Talkin' Soil Health', our inaugural conference bringing together some of Australia's most eminent soil scientists and land management practitioners to explore farming practices that will help us to best manage this valuable natural resource.

It is somewhat fitting that we are holding this event in York, the oldest inland settlement in Western Australia established because of its high quality soils which have supported high value agriculture for over 180 years.

Talkin' Soil Health presents a unique opportunity for the Wheatbelt Natural Resource Management (Wheatbelt NRM) to showcase itself as a leading Western Australian Natural Resource Management Group who are actively engaged in addressing a wide and diverse range of natural resource issues which are making many rural communities more sustainable.

Wheatbelt NRM works closely with our community, with our aim being: By 2015 have 3,500 (10%) members of the Wheatbelt actively engaged in improving the environment of the Wheatbelt through our regionally focused, multi-disciplinary, high-quality strategies and projects.

Wheabelt NRM continues to be involved in a whole range of projects, from protection of the Wheatbelt Woodlands and its fauna and flora; to water quality; river management, soil erosion; salt land reclamation; tree planting; and a whole range of by products and conservation issues that go with natural resource management.

Wheatbelt NRM has a very well developed Sustainable Agriculture Program that assists farmers to maintain a productive and environmentally sustainable agricultural industry. The program works with farmers, grower groups, researchers and industry experts to support the development and adoption of farming practices that will improve the condition of our soils and drive the sustainability of the whole farming enterprise.

The Wheatbelt has a number of issues that relate to our soils and influence how we manage them. Projects run by the Sustainable Agriculture Program, such as the Soil Conservation Incentive Program, are working with over 150 farmers to trial and demonstrate innovative cropping, grazing, soil manipulation and agroforestry practices that address issues ranging from soil acidity and salinity to non-wetting characteristics, depleted organic matter and erosion.

Thank you to our Major Sponsors the Australian Government through their Caring for Our Country Program and Australian Mineral Fertilisers (AMF) and our Supporting Sponsor SACOA, who help make this conference possible.

A special and warm thank you to all who have attended the conference, safe travel home and may 2013 be a prosperous year for you all.

Jim Sullivan
Chairperson
Wheatbelt NRM

Behind the scenes

Like all of our work addressing soil management in the Wheatbelt, an event like this is never possible without the help of committed people behind the scenes. On behalf of all of our delegates, we extend hearty thanks to:

Our Talkin' Soil Health Conference steering committee:
Dr Guy Boggs, Wheatbelt NRM
Dr David Grasby, Wheatbelt NRM
Georgia Trainor, Wheatbelt NRM
Langton Chirinda, Wheatbelt NRM
Professor Lyn Abbott, University of Western Australia
Monica Durcan, AvonGro Wheatbelt Tree Cropping Incorporated
Dr David Minkey, Western Australia No-Tillage Farmers Association (WANTFA)
Emma Wilson, Shire of Quairading

Our Event Managers:
Melanie Brennan and Samantha Morris, Wombat Creative
www.wombatcreative.com.au

With thanks to our Major Sponsors

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AUSTRALIAN GOVERNMENT

With funding provided through Caring for Our Country, Wheatbelt NRM has delivered a range of soil conservation incentive initiatives within the Avon River Basin over the past four years. The lessons and outcomes from these projects have been shared through the Talkin' Soil Health Conference.

AUSTRALIAN MINERAL FERTILISERS (AMF)

Multi-award winning Australian Mineral Fertilisers specialises in the manufacture of highly efficient bio-mineral fertilisers and beneficial microbial inputs. Our innovative products and systems are backed by 15 successful years in business, with over a decade of scientific research and development on Australian farms.

Australian Mineral Fertilisers (incorporating Western Mineral Fertilisers) developed and markets the revolutionary Grow Safe® farming system - which optimises on-farm production, quality of produce and net return; using exactly the same farm equipment and application methodology as conventional systems, at similar costs, but with distinctly different inputs.

Grow Safe® farming focuses on soil fertility, soil quality and soil health – driven primarily by improving soil mineral nutrition linked with beneficial soil biology. The selection of farm chemicals (albeit reduced) is based on their effects on soil microbiology and impact on yield and the environment. This leads to healthy, nutrient and carbon rich, biologically active soils for long term sustainable production. We adopt the concept that we do not fertilise plants... we fertilise biologically active soil.

With thanks to our Supporting Sponsor

SACOA

SACOA

SACOA Pty Ltd is a leading developer and supplier of spray oils, surfactants and adjuvants in Australia. Since their inception in 1991, they have grown to become a national Australian-owned company supported by active partnerships with world-leading manufacturers, researchers and development groups.

This WA based company has spent the last few years researching solutions for the non-wetting soils typically observed in Western Australia. SACOA and its partners have investigated a range of formulations to optimise yields and solve this repellence issue. The results of this research are IRRIGATOR and LURE H2O. With two completely different system of applications (Boom spray for LURE H2O, banded in-furrow for Irrigator), these soil surfactants have proven their efficacy on the WA soils, providing a solution adapted to current farming

With thanks to our workshop hosts

THE UNIVERSITY OF WESTERN AUSTRALIA
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THE SOIL BIOLOGY AND MOLECULAR ECOLOGY GROUP
THE UNIVERSITY OF WESTERN AUSTRALIA

The Soil Biology and Molecular Ecology Group in the School of Earth and Environment at UWA studies the impact of land management practices and climate on the ecology and activities of soil microorganisms.

Examples of research include: measuring and modelling soil carbon to identity soil types and land uses with potential to sequester more carbon in dry-land agricultural soils; quantifying greenhouse gas emissions from dry-land agricultural systems including nitrous oxide (N^2O), methane (CH^4) and carbon dioxide (CO^2); examining how changes in rainfall alter water film connectivity between soil pores and microorganisms involved in greenhouse gas emissions; characterising microbial diversity, function and nutrient cycling dynamics in mine sites and mining residues under rehabilitation; quantifying interactions between arbuscular mycorrhizal fungi and plants associated with nutrient use efficiency and soil structure; investigating microbial ecology in the rhizosphere, especially the role and diversity of microorganisms involved in N and P cycling; and assessing the biological, chemical and physical quality of key soil types in agricultural systems across Australia to provide resources to growers for greater understanding of their soil quality (see www.soilquality.org.au).

WESTERN AUSTRALIAN NO-TILLAGE FARMERS ASSOCIATION (WANTFA)

The Western Australian No-tillage Farmers Association (WANTFA), is the largest agronomic grower group in W.A., driving the adoption of sustainable and profitable broadacre cropping systems by sharing grower experiences and innovations from research and field trials.

Formed in 1992, WANTFA promotes Conservation farming principles, which are no-till or zero-till seeding systems, full residue retention, diverse rotations, reduced traffic (compaction) and promotion of soil health.

AVONGRO

Avongro Wheatbelt Tree Cropping Incorporated is a not-for-profit group which works with land managers and communities to raise the profile of and confidence in tree crops as part of future agricultural businesses that will be resilient to climate change and variability. We firmly believe that tree crops can play a vital role in broadacre farming enterprises and that, when established at the scale needed to support new industries, there will be a significant positive impact on the environment. For the Avon Wheatbelt this could mean planting only 10% of the already cleared landscape to protect good agricultural land. With around 8million hectares cleared in the Avon this would mean 800,000 hectares of a variety of strategically placed tree crop species for a positive natural resource management outcome as well as a significant amount of resources to supply new industries.

Critical mass of tree crop resources = a healthier and more pleasant physical environment, income diversification for land managers and new regional industries = a vibrant and healthy regional Western Australia

CSIRO

CSIRO's research brings together many different scientific disciplines to address the economic, environmental and social sustainability of agriculture and forestry. The Sustainable Agriculture Flagship aims to secure Australian agriculture and forest industries by increasing productivity by 50% and reducing carbon emission intensity by at least 50% between 2010 and 2030. Australian agriculture and forestry are entering an era where they must cope with rapidly changing global markets for commodities, changes to water allocations, rising input costs, skills deficiencies, environmental pressures and meet consumer expectations for sustainable land management and healthy, ethical food production. These land use goals cannot be simply traded off against each other. The national challenge for the Flagship is to develop rural land use systems that deliver the highest value benefits to the Australian economy and society and address the major global issues of food security and greenhouse gas abatement.

With thanks to our booth sponsor

C•WISE™
smarter naturally

C-WISE

C is for carbon, the basis of all life on earth. C-Wise provides end-to-end solutions that recycle carbon back into the soil. We recycle organic waste from the community to produce humus rich organic carbon that helps get your soil in balance and working productively. For more information visit our website at www.cwise.com.au or call C-Wise on (08) 9581

About our Master of Ceremonies

Gerry Gannon

Following a 10-year career as a journalist and broadcaster with ABC Radio, Gerry Gannon left to pursue a career that would bring him closer to audiences and allow him to explore parts of the world he could not do from a radio studio. He spent a time in PR, which allowed him the opportunity to travel and to get to know the business sector both in Australia and SE Asia. It was at this time that he established Indonesia's first English language radio station in Bali for a Perth/ Indonesian joint venture partnership.

He also took an interest in the not-for-profit sector and was elected to the Council of the Royal Flying Doctor Service and served as President for two years. He also served on the Board of Tourism Council WA, Access 31 Televisions and Kids Help Line. He is a Fellow of the Australian Institute of Company Directors.

In 2002, Gerry began to devote most of his professional time to the conference industry and became a specialist conference MC and facilitator. He is also a much sought after corporate MC and has worked in every city in Australia and also overseas.

Gerry has been providing media skills training to government, not-for-profit and industry for over 10 years. Following his experience on the conference circuit he now provides speech and presentation training courses.

But his main passion is in providing a refreshing dimension to conferences with his quick wit and his ability to quickly grasp some of the complex issues presented at conferences.

Tuesday 26 March

0830 – 1030 Why Soils?

Welcome to Country | Boyd Kickett, Noongar Elder

Welcome by Wheatbelt NRM | Jim Sullivan, Chairman

James Sullivan is a primary producer in Holt Rock, he has had a wide variety of engagement with all aspects of community services and organisations. James is currently the President of the Kulin Shire Council and the Deputy President and Executive Member of the Central Zone of WALGA

Introduction by Major Sponsor | Western Mineral Fertilisers

Stephen Frost, farmer, founder and CEO of Western Mineral Fertilisers leads the Company with over 35 years of practical experience in farming and forestry, specializing in sustainable and profitable farm production.

Conference Opening | Major General Michael Jeffery, National Advocate for Soil Health

Born in Wiluna, WA in 1937, Michael Jeffery graduated from the Royal Military College into Infantry, serving operationally in Malaya, Borneo, Papua New Guinea and Vietnam, where he was awarded the Military Cross and the South Vietnamese Cross of Gallantry. From 1993-2000 he was the Governor of Western Australia. In 2000 he established, in Perth, a not for profit strategic research institute – Future Directions International (FDI). From 2003 to 2008 he served as Governor-General of Australia where his key interests were in youth, education and landscape regeneration. He is Chairman of FDI, Outcomes Australia, and Soils for Life and is patron of numerous charitable organisations. He was recently appointed by the Prime Minister as the National Advocate for Soil Health and as the Australian Envoy for The Queen Elizabeth Diamond Jubilee Trust. Married to Marlena, he enjoys golf, fishing, and music.

The fundamentals of soil

Dr Christine Jones, Founder Amazing Carbon

Dr Christine Jones is an internationally renowned and highly respected groundcover and soils ecologist. She has a wealth of experience working with innovative landholders to implement regenerative land management practices that enhance biodiversity, increase biological activity, sequester carbon, activate soil nutrient cycles, restore water balance, improve productivity and create new topsoil.

Christine will explain the basic processes of carbon flow and free-living nitrogen fixation which underpin humification and soil building. She will then discuss how landholders can ensure these soil building processes are activated rather than inhibited while undertaking cropping, grazing and horticultural practices.

The restoration of soil function on agricultural land enables improvements to landscape resilience, fertility, productivity, profit, food security and community and catchment health - for both present and future generations.

Wheatbelt Champion DVD | Gavin and Amanda Hagboom

Farming on some deep white sand country south of Dowerin forced Gavin and Amanda Hagboom to adopt soil improvement techniques outside of the "square". The use of micro biology with humates promotes beneficial soil bacteria resulting in a stronger, more disease resistant plants with reduced inputs. The Hagbooms have spread knowledge through information days and personal visits to other farmers and shown by example that poorer soil types can be profitable under a different way of farming.

Facilitated panel Q&A

With guest panellists Dr Christine Jones, Jim Sullivan, Dr Andrew Wherrett (Research Manager, Living Farm) and Gavin Hagboom (Wheatbelt Champion).

1030 – 1100 Morning tea

1100 - 1300 Getting the most out of our soils (session 1)

Soil preparation

Wheatbelt Champion DVD | Trevor Syme

Trevor and Renae have brought their 3800 hectare farm back from the brink over the last 18 years using claying to deal with non-wetting soils; fencing remnant bush to protect and conserve; planted tagasaste on deep white sand for stock; used no till and retained all their stubble with the exception of burning canola windrows for weed control.

Dealing with acid soils

Chris Gazey, Senior Research Officer, Department of Agriculture and Food, Northam

Chris will give a brief overview of the soil acidity situation and impacts in WA and recommendations for management.

CSI meets soil biology: Using DNA signatures to determine soil microbe quality

Andrew Whiteley, Winthrop Professor, University of Western Australia

Andrew will introduce environmental DNA signature work related to soil microbes and expand on some of the patterns we observe as land is used under different scenarios in the UK.

This fundamental analysis generates data on the types and abundance of key microbes in soil at a scale which has previously been unachievable. Andrew will reveal that soil microbiology is surprisingly predictable, despite the huge diversity within soil groups.

Facilitated panel Q& A

With guest panellists Trevor Syme, Andrew Pike (Wheatbelt Champions) , Chris Gazey and Andrew Whiteley.

Cropping techniques to improve your soil

Wheatbelt Champion DVD | Nick and Lucy Kelly

Nicholas and his father, Malcolm, have for some years been developing a total cropping, weather resilient farming system, which is improving soil health, sequestering carbon, reducing erosion, increasing moisture retention, reducing chemical use and increasing yields.

The system incorporates retaining stubbles, growing summer crops (primarily millet) to keep a live root system in the ground, use of a disc-seeder to restrict soil disturbance, and crop rotations, both to control weeds and fix nitrogen. The crop diversity and soil coverage simulates nature.

Allelopathic qualities in millet appear to suppress weeds. Elimination of trifluralin has been result. Fuel consumption has been reduced.

Getting the most out of a conservation farming system

Dr David Minkey, Executive Director, Western Australian No-Tillage Farmers Association (WANTFA)

The adoption of "No Tillage" farming in Western Australia is remarkably high with up to 95% of growers now seeding with a knife point or zero tillage machine. However, the adoption of the other three principles of conservation farming, reduced compaction, wide crop rotations and permanent residue retention have not been widely adopted. David will discuss why this is and outline some current research along with some possible threats to conservation agriculture in Australia.

Facilitated panel Q&A

With guest panellists Dr David Minkey, Dr Guy Boggs and Nick Kelly (Wheatbelt Champion).

1300 - 1400 Lunch

1400 - 1530 Getting the most out of soils (session 2)

Keynote address | Senator the Hon. Jo Ludwig, Minister for Agriculture, Fisheries and Forestry and Minister Assisting on Queensland Flood Recovery.

Joe Ludwig was born in Longreach, Queensland. He is married and lives in Brisbane with his wife and two daughters. Senator Ludwig began his career as an Industrial Inspector and Training Consultant, before moving to the Queensland Branch of the Australian Workers' Union. He is also a Barrister and served for over 10 years with the Australian Army Reserve. Joe has a Bachelor of Arts from the University of Queensland, a Bachelor of Laws from the Queensland University of Technology and a Graduate Diploma in Legal Practice from the Australian National University. An ALP member since 1978, Joe was first elected to the Senate in 1998. He was re-elected to the Senate in 2004 and 2010. Following the 2004 election, he was appointed to the Shadow Ministry as Shadow Minister for Justice and Customs, Citizenship and Multicultural Affairs and Shadow Attorney-General. Prior to this he was appointed Parliamentary Secretary to the Attorney-General and for Homeland Security. He was Manager of Opposition Business in the Senate from 2001 to 2007. After

the 2007 election, Senator Ludwig was sworn in as Minister for Human Services and Manager of Government Business in the Senate. On 8 June 2009, Joe was appointed Special Minister of State and Cabinet Secretary. Senator Ludwig was sworn in as Minister of Agriculture, Fisheries and Forestry on 14 September 2010. He is also serving as the Minister Assisting on Queensland Floods Recovery.

Grazing and agro-forestry

Wheatbelt Champion DVD | Maitland and Margaret Davey

Maitland and Margaret have established a fodder trial of several species of saltbush, grasses and legumes to determine the most suitable plants to provide feed for stock on this semi saline site. The Davies have plantings of Brushwood and have propagated their own saltbush over many years.

Livestock systems can improve profit AND environmental outcomes – the case for saltbush

Dr Hayley Norman, Senior Research Scientist, CSIRO Animal, Food and Health Sciences

Dryland salinity reduces farm profit and leads to environmental degradation. While livestock are often thought as a threat to landscape health, Hayley will present the case that they offer a positive solution. Through a series of on-farm research projects, the CSIRO have data that demonstrates that saltbush-based pastures can quadruple stocking rates of paddocks in autumn, provide essential vitamins and minerals to improve livestock health AND reduce salt export while increasing native plant diversity. If planted in suitable sites, these woody perennials can assist in the management of water and salt in the topsoil thus allowing productive annuals and other native perennials to persist. New saltbush varieties, selected for higher nutritional value should make these systems even more profitable.

Implementing agroforestry for multiple benefits without reducing agricultural productivity

Dr Geoff Woodall: Assistant Research Professor, University of Western Australia, consultant and farmer

Agroforestry has a lot to offer the wheatbelt community, including income diversification, employment, as well as social and environmental benefits. In this presentation Dr Woodall uses examples of wheatbelt agroforestry to demonstrate that multiple benefits can be achieved, without reducing agricultural productivity. The ability of agroforestry to play a major role in the protection and enhancement of wheatbelt soils is clearly shown. The presentation focuses on the cultivation of native sandalwood (Santalum spicatum), Casuarina species, acacias and myrtaceous plants.

Perennials in the landscape

Dr Sarita Bennett, Senior Lecturer, Curtin University

Perennials are not widely used in wheatbelt farming systems of Western Australia. They have been widely reported to have the potential to improve the sustainability of farming systems and to help to spread risk, by increasing green feed availability over the year. However, traditionally there have been few options available in the medium to low rainfall areas, and for successful incorporation into the farming system they need to be managed differently to annual pastures. In this presentation Dr Bennett will talk about the potential benefits of perennials, current options that are available, where their best fit is in the farming system and new options that are in the pipeline.

Wheatbelt Champion DVD | Mario and Lucia Varone

Mario and Lucia are primary producers of wool and wheat who engage in a diverse range of sustainable agriculture and self sufficiency practices to add enjoyment and quality to the farming life. The Verone family keep costs down by fulfilling a large part of your own food needs with quality, produce home grown food and produce. They control pest and weeds naturally, and are focussing on doing things that improve the quality of the soil and environment they are farming in.

Facilitated panel Q&A

Guest panellists will include Dr Sarita Bennett, Dr Hayley Norman, Dr Geoff Woodall and Maitland Davey.

1525 - 1555 Afternoon tea

1600 – 1700 Future of agriculture

Planning for the future farm

Dr Michael Robertson, Research Program Leader, CSIRO

The future environment for farming in the Avon Basin will pose more challenges and opportunities for the farming community. In this talk Andrew will canvas the issues of changes in the economic settings for farming, the challenges of changes in the climate, and future developments in science and technology likely to impact on the way we farm over the next 20 years.

Facilitated panel Q&A

Guest panellists will include Dr Michael Robertson, Trevor Syme and Dr Christine Jones.

Farewell and thank you | Jim Sullivan

A word from our Supporting Sponsor | Justin Matthews, Managing Director, SACOA

1700 – 1800 Pre-dinner drinks and nibbles | York Town Hall

1830 - 2230 Conference dinner sponsored by Australian Mineral Fertilisers (AMF)


DBS
D-300

Wednesday 27 March – Interactive workshops and field trips

Wheatbelt NRM is proud to be working in partnership with WANTFA, UWA, AvonGro and the CSIRO on projects that are delivering the most up to date tools and information to support soil management in our region. The following workshops relate to four projects led by Wheatbelt NRM and funded by the Australian Government's Caring for our Country program – to find out more about these see www.wheatbeltnrm.org.au.

0900 – 1200 Morning Options

wantfa
Pioneers and Leaders in Conservation Agriculture

Option 1 Stubble retention and no tillage field trip

Hosted by Western Australia No-Tillage Farmers Association (WANTFA)

Come and hear Dr David Minkey, Executive Director, Western Australian No-Tillage Farmers Association (WANTFA) and Dr Ken Flower, Lecturer, University of Western Australia and Board Member for WANTFA, present the results of Australia's largest agronomic trial investigating long term no tillage with stubble retention and crop rotations and how these interact with soil health, water relations and carbon sequestration.

The Western Australian No tillage Farming Association will take your on a field trip to Cunderdin Agricultural College to see this trial, now in its 6th year, and to interact with key conservation agricultural researchers. Also on the field trip you will learn about carbon farming, grain and graze and herbicide efficacy in stubbles. The bus leaves York at 8.15am and returns back at 12.15pm. Lunch will be provided on the bus.

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Option 2 On-farm soil monitoring workshop

Hosted by the University of Western Australia

Professor Lyn Abbott (UWA) will demonstrate the use of on-farm soil monitoring methods including procedures for assessing your soil meso-fauna (especially mites and springtails) and the mycorhizal fungi inside roots of your crop and/or pasture plants.

An on-farm soil monitoring handbook will include suggestions for how you can investigate effects of land management practices on soil health. Relationships between soil pH and fertiliser use will be considered in relation to maximising the benefits of soil biological fertility.

Bring along your own soil (approx. 1 kg) and/or root samples on day one and selected samples will be used to extract soil fauna and prepared for root straining overnight.

1200 – 1300 **Lunch**

1300 – 1600 **Afternoon options**

Option 1 Farming landscapes for the future: a decision support tool for every farming enterprise

Hosted by CSIRO and Avongro Wheatbelt Tree Cropping

Worried about the effect climate change may have on farm production? Considering tree crops but not sure how they will compare with the current use of a paddock? Farming Landscapes for the Future is a decision support tool that enables land managers to make decisions about the economic returns of their farming enterprise using today's climate but also under a range of future climate scenarios and test these against other potential opportunities. Dr Jennifer Carter, Research Scientist, CSIRO will take you through the tool and what you can do with it.

What can the tool do?

- Compares the economics of a farming enterprise using today's climate with productivity if rainfall changes.
- Compares the economics of tree crops and revegetation for carbon with current rotations.
- Calculates internal rate of return and Net Present Value of each scenario chosen.

Option 2 Soil carbon and landuse workshop

Hosted by University of Western Australia

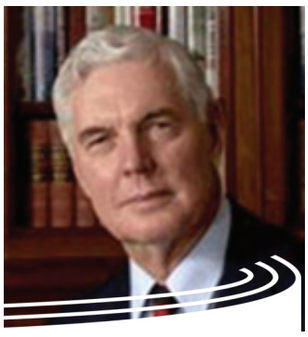
In this workshop Dr Andrew Wherrett of Living Farm will discuss the wide range of issues surrounding soil carbon storage and the relationship this has with farming practices. Dr Wherrett has been involved in a large study that combines quantitative data with paddock histories provided by farmers and examined the influence of soil types and farming practices on the amount of soil organic carbon stored in soil.

Farmers will be encouraged to think about the soil organic matter processes, and will gain an understanding of soil types and farming practices that are conducive to soil carbon storage.

1600 – 1700 **Social drinks**

1700 **Close**

About our speakers



Major General Michael Jeffery, AC, AO(Mil), CVO, MC (Retd)

Born in Wiluna, WA in 1937, Michael Jeffery graduated from the Royal Military College into Infantry, serving operationally in Malaya, Borneo, Papua New Guinea and Vietnam, where he was awarded the Military Cross and the South Vietnamese Cross of Gallantry.

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Senator the Hon. Joe Ludwig, Minister for Agriculture, Fisheries and Forestry and Minister Assisting on Queensland Flood Recovery

Joe Ludwig was born in Longreach, Queensland. He is married and lives in Brisbane with his wife and two daughters. Senator Ludwig began his career as an Industrial Inspector and Training Consultant, before moving to the Queensland Branch of the Australian Workers' Union.

Joe has a Bachelor of Arts from the University of Queensland, a Bachelor of Laws from the Queensland University of Technology and a Graduate Diploma in Legal Practice from the Australian National University. He is also a Barrister and served for over 10 years with the Australian Army Reserve.

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Senator Ludwig was sworn in as Minister of Agriculture, Fisheries and Forestry on 14 September 2010. He is also serving as the Minister Assisting on Queensland Floods Recovery.

Jim Sullivan

Jim Sullivan is a primary producer in Holt Rock and is currently the President of the Kulin Shire Council and the Deputy President and Executive Member of the Central Zone of WALGA. He has had a wide variety of engagement with all aspects of community services and organisations and brings decades of first-hand experience as a land manager dealing with environmental issues. Jim's motivation for joining the Wheatbelt NRM Board of directors is to try and avoid the mistakes made of the past. With a commitment to NRM in the Wheatbelt, Jim is leading the Board of Directors in their mission to bring benefit and improvement to natural resources within the Avon River Basin

Dr Christine Jones, Founder Amazing Carbon

Dr Christine Jones is an internationally renowned and highly respected groundcover and soils ecologist. She has a wealth of experience working with innovative landholders to implement regenerative land management practices that enhance biodiversity, increase biological activity, sequester carbon, activate soil nutrient cycles, restore water balance, improve productivity and create new topsoil.

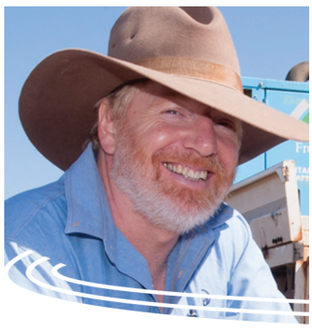
Christine has organised and participated in workshops, field days, seminars and conferences throughout Australia, New Zealand, South Africa, Zimbabwe and the USA and has a strong publication and presentation record. Christine received a Community Fellowship Award from Land and Water Australia in 2001. The LWA Community Fellowship Program was designed to 'provide recognition to individuals with an outstanding track record in mobilising and inspiring the community to better manage their land, water and vegetation'.

In February 2009, Christine established the prestigious A & K Hill Green Agriculture Innovation Awards (GAIA) with generous support from Allan and Kay Hill, who viewed an ABC Landline program documenting her vision to improve landscape health and farm productivity through the rebuilding of topsoil. The GAIA awards will run until 2013.

Dr Michael Robertson, Research Program Leader, CSIRO

Dr Michael Robertson is a Principal Research Scientist with CSIRO Ecosystem Sciences in Perth, Western Australia. With a background in agronomy and simulation modelling, he aims to analyse and understand broadacre farming systems to inform better management regimes for economic, environmental and social outcomes.

Chris Gazey, Senior Research Officer, Department of Agriculture and Food, Northam



Chris holds a Bachelor Applied Science (Biology) WAIT (now Curtin University), Masters of Science (Agric) UWA. He lives in Perth with family and commutes to Northam and covers the majority of the wheatbelt with trials and extension activities.

After completing his undergraduate studies Chris worked as a researcher in Soil Science at the University of Western Australia for about 11 years. He then commenced a career at the Department of Agriculture and has worked on the benefits of managing soil acidity in the WA wheatbelt. Over the past 19 years he has watched as many soils have acidified but has also observed the long-term benefits of correcting this widespread problem.

A feature of his career is his ability to work collaboratively with industry and Universities. With new mapping of pH for surface and subsurface across the SW of WA he believes it is essential that management of soil acidity is effective.

Andrew Whiteley, Winthrop Professor

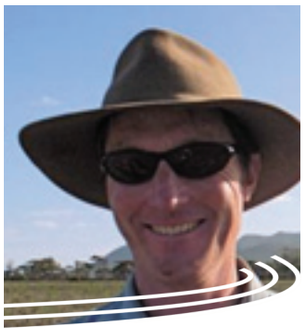
Prof. Whiteley joined UWA 4 months ago as the State's newest Premier's Fellow, one of Australia's most prestigious research fellowships.

His research interests centre around soil microbial diversity using DNA based diagnostics to diagnose the state of the populations and to build a molecular biological picture of 'healthy' and degraded environments.

Prior to coming to UWA he was at Oxford for 15 years and was responsible for the Worlds first inventory of a whole country's microbial diversity at 5Km resolution, and how this related to soil health, environmental factors and geographic spread.

Dr Hayley Norman, Senior Research Scientist, CSIRO Animal, Food and Health Sciences

Hayley Norman is an agricultural scientist with a background in plant ecology, plant development and ruminant nutrition. For the past 12 years her research has focussed on developing profitable and sustainable systems for saline land in southern Australia. She is passionate about the opportunity to utilise degraded land for autumn feed production while achieving environmental benefits. Hayley leads a national project that is selecting cultivars of old man saltbush with higher nutritional value and palatability. She is also working with project teams in Iraq and Afghanistan to improve livelihoods of farmers with saline and arid systems.



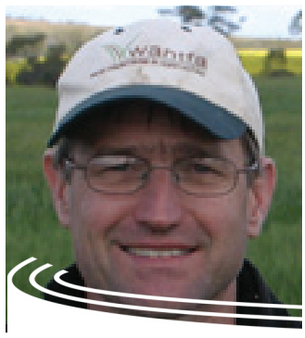
Dr Geoff Woodall, Assistant Research Professor, University of Western Australia

Geoff is a part time Assistant Research Professor at UWA's Centre of Excellence in Natural Resource Management in Albany and has a passion for native plants. Dr Woodall's research and development work focuses on developing new native plant industries. He also runs a small farm and works as a native plant agronomist. He has pioneered the direct sowing of native plants in the wheatbelt and has directly established more than 3,000ha. Geoff has played a pivotal role in the re-establishment of native sandalwood (Santalum spicatum) industry in the wheatbelt. In 2010 Geoff won the Great Southern Development Commission Medal for Excellence in Natural Resource Management.

Dr Sarita Bennett, Senior Lecturer, Curtin University

Sarita Bennett completed her undergraduate and PhD studies at the University of Birmingham, UK. She moved to Australia and joined CLIMA in 1995 and then CRC for Dryland Salinity at The University of Western Australia as a researcher in legume genetic resources and pasture ecology. In 2003 she moved back to the UK to The University of Wales Bangor as an agronomist. In 2006 she returned to Perth to join the Future Farm Industries CRC as a researcher in saltland pasture ecology and agronomy, and in 2010 moved to Curtin University as a Senior Lecturer in Farming Systems Agronomy.

Dr David Minkey, Executive Director, Western Australian No-Tillage Farmers Association (WANTFA)



David has a Degree in Agricultural science and a PhD in Weed Seed Ecology both obtained at the University of Western Australia (UWA). David has 25 years experience in the agricultural cropping industry with the majority of his time spent with DAFWA and the Western Australian Herbicide Resistance Initiative (AHRI). David has led many research projects in no tillage farming with a speciality in weed management. David has been the Executive Director of the Western Australian No-Tillage Farmers association since 2009.

Professor Lyn Abbott, University of Western Australia's Institute of Agriculture and School of Earth and Environment

Professor Lyn Abbott is from the University of Western Australia's Institute of Agriculture and School of Earth and Environment. Her research focuses on soil biology in sustainable agriculture. She has had a long-term interest in soil biological fertility and in maximising the efficiency of fertiliser use in agriculture. Her research on the impact of land management practices on soil health includes investigations of soil biodiversity, plant-microbe symbioses associated with nutrient acquisition by plants, bio-physical processes involved in soil aggregation, microbial responses to fertilisers and microbial responses to soil amendments.

Dr Ken Flower, Lecturer, University of Western Australia

Ken moved to Australia from Zimbabwe in 2004, where he worked mostly in agronomy research. He joined for the Western Australian No-Tillage Farmers Association (WANTFA) as a Research Officer in 2004 until 2008.

Ken has been employed by the University of Western Australia as a lecturer since 2008, his main role is lecturing in cropping systems, supervising student research and he also carries out his own research in agronomy and no-till systems. Ken is also a member of the WANTFA Board.

Dr Andrew Wherrett, Research Manager, Living Farm

Dr. Andrew Wherrett is a Research Manager at Living Farm, a York based business providing both agronomic advice to local growers as well as conducting contract trial work throughout the Western Australian agricultural regions. He recently moved from the University of Western Australia where he was involved with the Western Australian node of the national Soil Carbon Research Programme (SCaRP). Andrew's current project in conjunction with Wheatbelt NRM and UWA targets existing sites sampled 3-5 years ago, and aims to relate soil carbon storage changes to farm management history.

Dr Jenny Carter, Research Scientist, CSIRO

Dr Jenny Carter, research scientist with the CSIRO division of Ecosystem Sciences in Floreat WA, working on aspects of sustainable agricultural and forest production. Her work is focussed on the interactions between forests and the environment, in particular the impacts of drought and salinity. She has contributed to developing models that are used to predict the growth of low rainfall tree species being integrated into Western Australian farming landscapes.

Our Wheatbelt Champions

Trevor and Renae Syme

Trevor and Renae Syme purchased their property in 1994. At the time they were told that it was the worst property in the state and would go broke farming it. Since then, the Symes have fenced remnant bush to exclude stock; planted tagasaste on deep white sand for stock; used no till since 1995 and retained all their stubble with the exception of burning canola windrows for weed control.

In 2001 Trevor and Renae first attempted claying to deal with non wetting soils and since then have resolved the non wetting issues to some degree by clay spreading, rotary spading and delving. Since that time, approximately 1100 hectares have been completed and the farm is looking better than it ever has.

Nick and Lucy Kelly

Nicholas and his father, Malcolm, have for some years been developing a total cropping, weather resilient farming system, which is improving soil health, sequestering carbon, reducing erosion, increasing moisture retention, reducing chemical use and increasing yields.

The system incorporates: retaining stubbles; growing summer crops (primarily millet) to keep a live root system in the ground; use of a disc-seeder to restrict soil disturbance, and crop rotations both to control weeds and fix nitrogen.

Allelopathic qualities in millet appear to suppress weeds. Elimination of trifluralin has been result. Fuel consumption has been reduced.

Mario and Lucia Varone

Mario and Lucia Varone are focussing on being excellent primary producers of wool and wheat while adding value and enjoyment to their farming life by engaging in many sustainable agriculture and self sufficiency practices. They regularly have members of the local community and people from further afield visiting their farm to get inspired and informed - whether it's a tree crops field day, a local woman wishing to plant her own vegetable garden, or people at the local tennis club asking about the ins and out of keeping guinea fowls, Mario and Lucia are happy to share information and learnings.

The Varone's feel that the ability to be involved in a diverse range of farming and self sufficiency practices has many benefits, including adding enjoyment and quality to the farming life, keeping costs down by fulfilling a large part of your own food needs with quality, home produced food, having natural pest and weed control, and focussing on doing things that improve the quality of the soil and environment they are farming in.

Maitland and Margaret Davey

Maitland and Margaret are community leaders in NRM, Maitland is the Chair of the Gabby Quoi Quoi Catchment Group and encourages neighbouring landholders to participate in sustainable practices. The Davies have plantings of brushwood and have propagated their own saltbush over many years.

Maitland and Margaret have established a fodder trial of several species of saltbush, grasses and legumes to determine the most suitable plants to provide feed for stock on this semi-saline site.

Gavin, Amanda and Colin Hagboom

Farming in south Dowerin, on light sandplain, Gavin, Amanda and Colin Hagboom have adopted soil improvement techniques outside the square. Incorporating soil biology(mycorrhizal inoculums), humates, buffered fertiliser and foliars they have been able to promote a stronger more disease resistant plant with reduced inputs. The Hagbooms are one of the pioneers of the modern serradella industry and have been able to use the early season (Charano and Yelbini), hard-seeded yellow serradella, to build organic matter, water holding capacity, recycle nutrients and produce cheap nitrogen in rotation with cereals. Since 1998 they have planted over 200 ha of commercial pine and 60 ha of sandalwood with Forest Products Commission. Incorporating the trees into the farming system has had measureable results with wind erosion and lamb survival. The Hagbooms have been privileged to be able to spread their knowledge to farmers and international guests through farm field days and information days demonstrating how farming on light soils can be more productive and sustainable with a hybrid approach incorporating biological, physical and chemical balances

Andrew and Paula Pike

Since taking over the management of the family property, Andrew and Paula Pike have used clay and lime spreading, planted native shrubs, perennial pastures, sandalwood and pine trees. On 30 ha of unproductive land, Andrew has planted 5000 Rhagodia and 5000 Saltbush shrubs with a 'Caring For Our Country' Federal Government grant. Over the past four years the Pikes have planted Saltbush on other parts of their farm and now have over 100 ha of native shrubs which they use for sheep feed. Five years ago Andrew planted sandalwood (*Santalum spicatum*) in partnership with the Forest Products Commission with *Acacia acuminata* (Jam) being used as hosts. Pine trees have also been planted on unproductive land to reduce wind erosion and are anticipated to turn a profit in 30 year's time

Ray Fulwood and Wendy Porter

Ray and Wendy are true innovators and not afraid to step outside the boundaries of conventional farming wisdom. They are long-term proponents of no-tillage methods of farming and have implemented many innovative practices into their farming system. A partnership in the real sense of the word, Wendy and Ray continue to strive to farm in a sustainable way in the face of an increasingly unpredictable climate and challenging economic environment.

Notes

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Talkin' Soil Health

This event is supported by Wheatbelt NRM through the Australian Government's Caring for our Country