NORTH CENTRAL REGIONAL SOILS FORUM SUMMARY

BENDIGO CLUB, APRIL 2011

The soils of northern Victoria are subject to considerable pressures as farmers strive to achieve profitable agricultural enterprises in the face of highly variable climatic conditions, increasing market demands, and escalating production costs.

The North Central Catchment Management Authority is leading the Farming for Sustainable Soils Project (FSS) – an adaptive community-based learning approach to adopting land management practices that improve soil cover and soil health. Local groups and their social networks are supported in an effort to promote the adoption of sustainable soil management practices. They build and implement soil protection plans consistent with local biophysical circumstances.

Each year a 'Soils Forum' brings together groups participating in the FSS project to share knowledge and experiences with their peers and other interested people. Participants are inspired by nationally renowned keynote speakers. The annual forum profiles the efforts of the participating groups and reinforces the need for national, state and local strategies that deliver sustainable soil management and land protection. This report is a record of the 2011 Forum.

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Session 1: Facing future famines – and finding solutions

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Julian Cribb and Associates

Julian Cribb is an author, journalist, editor and science communicator who provides specialist consultancy in the communication of science, agriculture, food, mining, energy and the environment. His career includes appointments as newspaper editor, scientific editor for The Australian newspaper, director of national awareness for CSIRO, member of numerous scientific boards and advisory panels, and president of national professional bodies for agricultural journalism and science communication. His published work includes over 8000 articles, 3000 media releases and eight books. He has received 32 awards for journalism. His latest book 'The Coming Famine' explores the question of whether we can feed humanity through the mid-century peak in numbers and food demand.

Presentation summary:
Over the coming half century the human population of planet Earth will grow to over 10 billion. This, with soaring rates of consumption means we will have to double food output. But we are running out of just about everything we need to make this happen – good land, fresh water, oil, nutrients, technology, fish and stable climates. Feeding ourselves sustainably will confront us with the biggest challenge in human history. Given we have already lost 24 per cent of the world's farmland (to degradation and city sprawl) and are still losing 1 per cent a year, what are the options for solving the coming clash between food demand and our ability to supply it? The challenge holds huge opportunities for efficient and flexible food producers like Australia, with a strong knowledge base, experience in handling climate uncertainty and a clear sense of purpose. (See Attachment 1 for full presentation)

Forum participant's take home messages:

Agricultural production

- We need to double food production using half as much water.
- Increasing urbanisation is impacting on availability of productive agricultural land.

Education

- Many children these days have no idea where food comes from, it is imperative that we educate our children about food, food productivity, and the impact of the food we eat.
- We need to link education of the community to food production. We need to change current behaviours.
- Teach new respect for food and how to eat for health and sustainability.
- Need to 'turn the lights on' for city-based decision makers.
- We each need to encourage everyone we meet that we cannot continue how we are consuming.
- We need to change how we farm and how we eat.
- We need to recognise the good land management that has already occurred.
- Need to empower consumers to send economic signals to farmers to look after their soils.
- Farmers are going to be the most important people in the world.

Alternate production systems

- Alternative crops and sources of energy / inputs are required to address the problem.
- Utilise the native resources and systems of countries / regions to optimise outputs, whilst minimising inputs (from synthetic components).
- Increase research into native crops and harvesting native animals (eg. 'kangaroo).

Research & Development

- More money is required for research into agricultural production.
- Direct a levy on food to research organisations.
- Improve farmer profitability to encourage more people to farm and produce food.
- Radical changes needed in government policy to change food production techniques and research.

Population, demand and supply

- The human population is not facing up to the reality of the impending food shortages.
- There is a growing imbalance between increasing population and decreasing agricultural production.
- There is limited hope, unless the population gets much 'lighter'.
- There is a link between food security and wars.
- Birds on Lake Eyre analogy – Increase in numbers due to proliferation of food and water – then population dies when food and water evaporates. Past civilisations suffered the same fate!
- Action is possible and is urgent.

Forum participant's questions and issues:

Urgency and taking the next step

- Do we have a prediction of when we will reach the food security tipping point?
- Where is the tipping point – globally and in Australia?

Having listened to these types of ideas before, some of us as long as 20 years ago, how do we take the next step?

Education

- Why is there such a lack of education about the urgency of food production?
- Agricultural science no longer has a high profile.
- There is a major role in selling these ideas to consumers – who will do this?

Policy issues and 'political will'

- How do we achieve the societal change that will get governments to act?
- How do we get the political will for eco-farming; urban farming; regulation of bad farm practices?
- Why aren't governments globally taking action on the food production problems?
- Do you have a theory as to why there is such government inaction?
- What will be the effect of a carbon price?
- What would a population limiting policy look like?
- What changes to the political process would drive us to sustainable systems?
- Will decreased availability of food and resources reduce the population – i.e. demand?
- Where does Genetically Modified material fit into the future?
- How can governments control misinformation from business interests that seek short-term gains from our long-term disadvantage? A small number of companies are influencing national thinking and political decision-making!
- What are the recycling options?
- How can farmers be adequately financially rewarded for producing food, when government priority is for cheap food?
- Is there a relationship between agricultural land being consumed by the urban sprawl and the reduction in farm productivity?
- How can we achieve rezoning of good agricultural land to prevent urban sprawl and of industrial development on productive farmland?

Water

- Why aren't we collecting and storing more water?
- Why are we allowing potable water to be used to water gardens and flush toilets?

Agricultural productivity

- Transition requires some breathing time in terms of both economics and production
- There is a need to re-establish a community effort to grow and preserve food and to break down the isolation between people. i.e. a return to the village-type approach that older generations and cultures used.
- Is it viable to change our current food practices to these new 'indigenous' foods – if so, why hasn't it happened in the past?
- Has acidification of the world's oceans been taken into account regarding depleted fish stocks?
- Why aren't today's known technologies being implemented?
- What are some of the options to overcome peak phosphorus? Other plant species?
- Is technology the answer to securing food, or is it just postponing the inevitable?
- Can northern Australia, with its rainfall, become a major food producing area?
- From where will the current and future farmers get the capital to make use of future technology?

Sustainability

- Maintaining the quality of land and its ability to provide ecosystem services might limit our potential to produce food.
- The desire to protect the resource may mean harder responses to public attitudes requiring cheap and plentiful food.
- How might we ensure the environmental cost of different foods is reflected in the supermarket prices?
- The food system is driven by economies of scale, how do people take ownership / stewardship at this level?
- With respect to food production systems, where should we start?
- Is it possible to produce more food on low input agriculture?

Session 2 Signposting Sustainable Soil Management

Declan McDonald
Statewide specialist, Productive Soils Victorian Department of Primary Industries

Declan McDonald commenced with the Victorian Department of Primary Industries (DPI) as Specialist - Productive Soils in February 2011. With a background in dairy and mixed farming, Declan has almost 30 years experience in land management which includes 12 years in the horticulture and fertiliser industries, 10 years with local government, three years with Catchment Management Authorities in NSW and four years with DPI Tasmania.

His work has covered many aspects of soil management including promotion of healthy agricultural soils, amenity soil management and growing media for ornamental plants. He has also worked in natural resource policy and planning. Declan has a passion for sustainable agriculture with a focus on sustainable soil management. He encourages the concept of ecosystem health to understand the meaning of sustainability in agricultural landscapes. Investigations of soil carbon, soil biodiversity and soil erosion have been central to his work.

Declan holds a degree in Horticulture from UTS in Sydney and a Masters in Sustainable Agriculture from the University of Sydney.

Presentation summary: Soils are effectively a non-renewable resource. Modern demands for abundant cheap food have resulted in great pressures being placed on our soils. How will we deal with the anticipated increase in output demand in a resource-constrained future? The answer will lie in how well we can build and protect the capacity of our soils to produce. Soil health is a product of soil physical, biological and chemical condition. Fresh strategies are needed to integrate these elements to promote improvement in soil condition from season to season or crop to crop. So how will agricultural practice need to change over the coming years to achieve sustainable soil management outcomes? (See Attachment 2 for full presentation)

Forum participant's take home messages

Farm management

- Large chemical companies are raising the risk by reducing the choices for current farmers and their farming practices.
- Natural systems have yield limits – healthy systems are based on natural production levels.
- Need to fertilise for both soil health and for plant production to achieve long-term productivity.
- Farm-level innovation plays a very important role in soil management.
- It is important to farm for the long-term. Look 50–100 years ahead.
- There is a role for burning, because current machinery is not able to handle a high stubble load.
- EMS, pH, gut feeling, history, soil testing, and the cost of soil tests saves farmers money in the long run due to more appropriate management.
- Focusing on yield may not necessarily get the best return (including economic).
- Farmers don't need to focus on 'additives' when they could concentrate on improving soil condition for soil to 'produce' its own.
- Fertiliser use can be sometimes used to 'force food out of the ground'.
- The approach known as 'Farmers of 40 centuries' is good, but needs time.

Soil health

- Being 'production driven' is to the detriment of the soils.
- Calcium is one of the building blocks of healthy soils.
- The optimal calcium level in soils is important.
- Paradox – put in less of something from which you can measure the yield on (eg Nitrogen) and more of something you cannot measure the short-term yield of (eg Calcium).

Forum participant's questions and issues

Policy

- How do we challenge and change people's mindsets?
- How can we implement strategies and do the right thing, when the economics are such that farmers do not get paid enough for their product?
- Is it feasible to have a government-based incentive to assist farmers move from their current practices to more sustainable farming practices?
- What do agencies / extension staff need to do in order to convince farmers about the paradox of dis-investing in something that 'works' and investing in something that is less evident? i.e. The need for slow advances - as we build the capacity of soils they will require less of the mainline nutrients.
- How do we support farmers to make the necessary changes?

Farm management

- If you were a farmer working on a dryland farm in northern Victoria, what would be the one principle/step that you would take to stabilise your soils?
- What's the carrot to get farmers to move from short-term to long-term thinking?
- As farmers do we focus too much on yields?
- The transition requires time out or a moratorium. How do we afford the luxury to take the time to change our methods / approach?

Soil

- What is the role of oxygen? And how do we get that into the soil?
- What principles guide the application of calcium in the broadacre context? I have 5,000 acres of alkaline soils!
- How do you improve calcium when costs are so high?
- What is the most cost-effective and sustainable way of increasing the calcium content of soils?
- What materials can be used in the composting process – are there materials that we could use that we are not presently using, ie human waste stream?
- Can carbon levels in soil be increased (and maintained)? Is soil biology essential to achieve this? What are the critical actions required to build soil carbon if it can be done?

Session 3 Farming for Sustainable Soils – Local Experiences

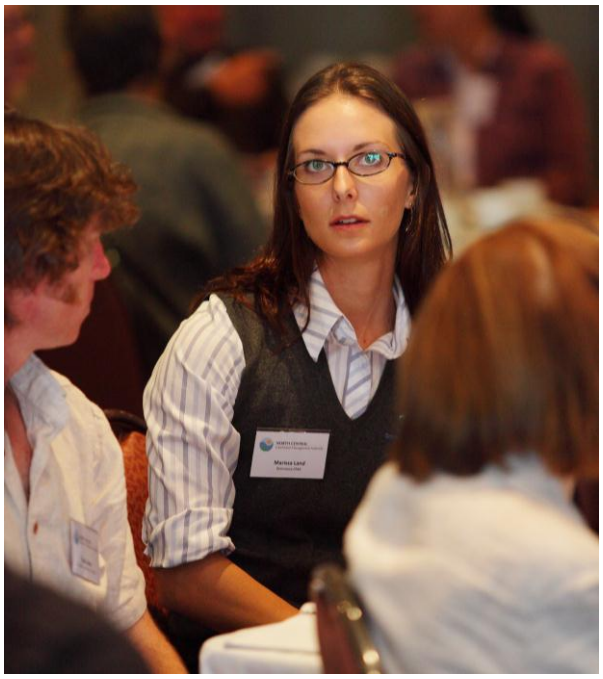
Group 1: Normanville

Take home messages from the group's presentation

- Integrated Pest Management (IPM) is highly valuable.
- Group field days (knowledge transfer / learning) are highly valuable.
- Group members all have similar enterprises, issues and interests.
- Common factor – benefits of getting the group together.
- Yield Prophet is helping to identify when to fertilise - a likely financial advantage.
- Need to fund risk taking. The importance of grants to support farmers in working with risk.
- Leveraging of government investment dollars is huge. 1:5 ratio of return on investment (anecdotally).
- The group learning environment is very important.
- Locally developed programs allow farming practices being trialled to be applied on local soil types and local conditions.
- Changing tillage practices can reduce erosion and improve soil health.
- It is valuable to keep seeking knowledge from experts.

Issues forum participants want to explore further with the group

- Will you look at the flood impacts on soils?
- How do we (farmers) get support to take more diverse risks?
- Could we have more information on the biological trials? What was trialled? What was the result?



Group 2: Loddon Plains

Take home messages from the group's presentation

- It is a learning process – it does not happen in a short amount of time.
- Grants and government support help the farmers to try initiatives that they cannot afford to do on their own.
- Reducing risk. The grants helped people trial new things that they would never have done if the funding was not available.
- Sharing the cost and knowledge.
- Main issues are wind erosion and soil health.
- Common factor – benefits of getting group together.
- Ground cover is important. Group is working through what and how to achieve ground cover.
- Interruptive and devastating effect of 60 hours of flooding.
- Learning from good communication specialists is highly valuable.
- Solutions to soil erosion associated with lucerne pastures are being trialled.
- Inter-generational learning and experience very important.
- Growing interest in precision sowing.
- Need for involving younger farmers.

Issues forum participants want to explore further with the group

- How long does it take to restore soil health after trialling planting?
- How do you expect to get rye grass or brassica into the eroding pure stand of lucerne?
- What is the soil consequence of the flood?
- What have been the benefits of the introduction of precision agriculture?
- How have you gone about encouraging other farmers to be involved with the project?

Group 3: Lower Avon / Richardson

Take home messages from the group's presentation

- Having livestock buffers cropping activities (both economically and culturally).
- Potential use of soil moisture probes (as specialised adjunct to yield prophet system).
- 'With adversity comes opportunity'.
- Problems with wind erosion, lack of ground cover.
- Importance of networking.
- Changing cropping practices.
- Lot of saltbush used with livestock.

Issues forum participants want to explore further with the group

- What options are you exploring to overcome soil compaction?

Group 4: Natte Yallock

Take home messages from the group's presentation

- Need long-term projects and trials.
- It is not good getting soil tests if you cannot interpret the results.
- Farmers learn best from other farmers. (3)
- Importance of learning by doing! Mistakes always lead to learning.
- Trials need to go over a few years due to seasonal variations.
- Importance of professional development – from among peers.
- A specific and funded project (FSS) acted as the focus to bring in younger member interest. (2)
- Trying out same row sowing.
- Growing interest in pasture cropping.
- Have to have plants and ground cover.
- Need two inch poly pipe for cell grazing!!! (issue of doing things right the first time)
- Importance of soil health.
- Communication between farmers and between farmers and experts is really important.

Issues forum participants want to explore further with the group

- Is it inertia that is driving the change, or is it more a case of fatigue from being in trying conditions for many years, and working hard just to keep the farm going?
- Soil compaction is a big issue. What are the benefits of moisture probes?
- Dealing with stubbles a big issue this year – what options are you trying?
- High quality practical information available to group willing to try new methods of farming based on learnings from the project.

Group 5: Salisbury West

Take home messages from the group's presentation

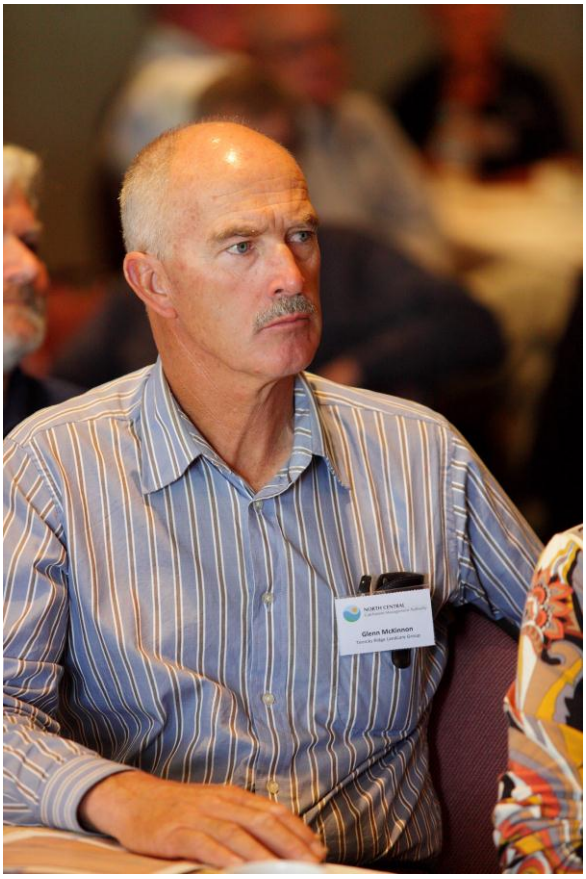
- Importance of pasture renovation.
- Having a look at composting on site (brought in materials).
- Benefits of composting chook manure prior to spreading.

Group 6: Mid-Loddon

- Common factor – benefits of getting group together – shared interests.
- Young farmer employing variety of methods to improve soil health.
- Biological evaluation.
- Compost use.
- Looking at landscape – not just paddock soil.
- Benefits of IPM.
- Using flood damaged hay for compost.

Issues forum participants want to explore further with the group

- How do you physically go about composting ruined bales?



Session 4 - Panel discussion

Some of the questions or issues that were explored with the panel included:

1. How do we double food production?

2. Can we double food production in this region?

3. What is needed for "sign-posting sustainable soil management? How do we do this? What do the groups need?

4. How do we get Governments to change? To support Research & Development? To ensure fair food prices?

5. How do we ensure farmers get a fair price for their produce – so we can re-invest in soil health?

6. What is the relationship between maximising production of ecosystem services and maximising agricultural production?

7. Who will do the communication and education that will lead to the behaviour changes we have been talking about?

8. How do we protect prime agricultural land?

9. Where do we start?

Session 5 Forum Summary

"What advice would you give to the organisers for the 2012 Forum?"

Participant feedback

- Community group presentations are good. But instead of the groups simply listing their activities, it is more valuable to hear what they have learnt and what they would do differently.
- Replace the two group representatives and their PowerPoint presentation with a pre-recorded on-farm interview. Provide all participants with a copy of the interviews on a DVD or via a link to a website. Visit the farm, present the information visually, and get the farmer to answer prepared questions. Edit the interview so that it is engaging. Then you also have the footage for other uses. The interviewees should be available on the day of the forum for a Q&A session.
- Holding the forum in March or July would increase attendance. April is a busy time for farmers.
- The 2012 forum should include a report on what progress has been made in the last 12 months with soil health in the focus areas.
- Explore how groups are handling the challenges of both dry years and wet years.
- Explore how to get the good speaker's messages out into the community. Perhaps move the Forum around the region, holding four or five forums in small communities. This would generate more exposure for the project.
- Hold the forum at a venue closer to the station!
- Keep the group sharing format. (3)
- Current format is excellent and learnt a lot. (2)
- Communication is the key. Improve the promotion of the event. Very low key in 2011.
- Present the 'group summary' in a highlights format.
- Explore the opportunities to try new things without too much risk.
- Have a longer morning session and a shorter session after lunch.
- Build on the interest in native grasses in production systems. Active sowing of native grasses into pasture cropped systems could be discussed. Sometimes it is not warranted, especially if the goal is a low-input system. Start as you mean to finish.
- Format good, speakers excellent. Keep presentations strictly to 10-minute limit. Start on time please. Starting late means time is taken away from speakers.
- Include a speaker who is doing something well and working towards the bigger picture.
- All the presenters seem to be similar with their broad range of invests. Look for greater diversity in 2012.
- Mare sure the urn is hot!

The 2011 Forum was delivered under the North Central CMA's Farming for Sustainable Soils project, and is an initiative supported by the Commonwealth Government's Caring for our Country program.

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